European Commission

The 2015 Ageing Report

Underlying Assumptions and Projection Methodologies

EUROPEAN ECONOMY 8|2014

Economic and Financial Affairs

The **European Economy series** contains important reports and communications from the Commission to the Council and the Parliament on the economy and economic developments.

Unless otherwise indicated the texts are published under the responsibility of the

LEGAL NOTICE

This paper exists in English only and can be downloaded from
http://ec.europa.eu/economy_finance/publications/.

More information on the European Union is available on http://europa.eu.

European Commission

Directorate-General for Economic and Financial Affairs

The 2015 Ageing Report

Underlying Assumptions and Projection
Methodologies

ACKNOWLEDGEMENTS

MEMBERS OF THE AGEING WORKING GROUP

CHAIRMAN

Mr. Peter **PART**   Ministry of Finance, Austria

BELGIQUE-BELGÏE

Mr. Michel **ENGLERT**   Bureau fédéral du Plan - Federaal Planbureau

Mr. Peter **WILLEME**   Bureau fédéral du Plan - Federaal Planbureau

BULGARIA

Ms. Penka **TANEVA**   National Social Security Institute

Mr. Yosif **YOSIFOV**   Ministry of Finance

CZECH REPUBLIC

Mr. Jindrich **MARVAL**   Ministry of Finance

Mr. Zbynek **STORK**   Ministry of Finance

DANMARK

Mr. Jonas **BJARKE JENSEN**   Ministry of Finance

Mr. Jørgen **SLOTH BJERRE HANSEN**   Ministry of Finance

BUNDESREPUBLIK DEUTSCHLAND

Dr. Werner **EBERT**   Federal Ministry of Finance

Dr. Thomas **SALZMANN**   Federal Ministry of of Labour and Social Affairs

ESTONIA

Ms. Tonu **LILLELAID**   Ministry of Finance

Mr. Tanel **STEINBERG**   Ministry of Finance

ELLAS

Ms. Marianna **PAPAMICHAIL**   National Actuarial Authority

Mr. Athanasios **C. THANOPOULOS**   Ministry of Finance

ESPAÑA

Mr. Alvaro **PASTOR**   Ministerio de Economía y Competitividad

Mr. Juan **VARELA**   Ministerio de Hacienda

FRANCE

Ms. Julia **CUVILLIEZ**   Ministère de l'économie, des finances et de l'industrie

Mr. Geoffrey **LEFEBVRE**   Ministère de l'économie, des finances et de l'industrie

CROATIA

Ms. Ljiljana **MARUSIC**   Croatian Pension Insurance Institute

Ms. Josipa **MESTROVIC SPOLJAR** Ministry of Health Care

IRELAND

Mr. Ian **POWER**   Department of Finance

Ms. Laura **WEYMES**   Department of Finance

ITALIA

Mr. Rocco **APRILE**   Ministero dell'Economia e delle Finanze

Mr. Marco **CACCIOTTI**   Ministero dell'Economia e delle Finanze

CYPRUS

Ms. Maria **MATSI**   Ministry of Finance

Mr. Costas **STAVRAKIS**   Ministry of Labour, Welfare and Social Insurance

LATVIA

Ms. Kristīne **JAKOVLEVA**   Ministry of Finance

Ms. Sandra **STABIŅA**   Ministry of Welfare

LITHUANIA

Ms. Vidija **PASTUKIENE**   Ministry of Social Security and Labour

Ms. Rasa **SLIOGERIENE**   Ministry of Finance

LUXEMBOURG

Mr. François **PELTIER**   STATEC

Mr. Raymond **WAGENER**   Inspection Générale de la Securité Sociale

HUNGARY

Ms. Edit **LENDVAI**   Ministry for National Economy

Mr. Marton **SZILI**   Ministry for National Economy

MALTA

Mr. Melchior **VELLA**   Ministry of Finance

Ms. Pauline **SALIBA**   Ministry of Finance

NEDERLAND

Ms. Suzanne **KOK**   Ministry of Finance

Mr. Harry **TER RELE**   Centraal Planbureau

ÖSTERREICH

Mr. Peter **GRAFENEDER**   Bundesministerium für Finanzen

Ms Caroline **HABERFELLNER**   Bundesministerium für Finanzen

POLAND

Ms. Joanna **STACHURA**   Ministry of Finance

Mr. Pawel **STRZELECKI**   National Bank of Poland

PORTUGAL

Ms. Conceicao **NUNES**   Ministry of Finance

Ms. Ariana **PAULO**   Ministry of Finance

ROMANIA

Mr. Daniel **VALCU**   Ministry of Public Finance

Mr. Lucian **NOVAK**   National Commission for Economic Forecasting

SLOVENIA

Mr. Franc **KLUZER**   Ministry of Finance

Ms. Eva **ZVER**   Institute of Macroeconomic Analysis and Development

SLOVAKIA

Ms. Martina **HOJCKOVA**   Ministry of Finance

Ms. Nadezda **STANOVA**   Ministry of Finance

SUOMI FINLAND

Mr. Ilari **AHOLA**   Ministry of Finance

Mr. Mauri **KOTAMAKI**   Ministry of Finance

SVERIGE

Mr. Jonas **NORLIN**   Ministry of Finance

Mr. Olle **SUNDBERG**   Ministry of Finance

UNITED KINGDOM

Mr. Shay **BISHNOI**   HM Treasury

Mr. Mirko **LICCHETTA**   HM Treasury

OBSERVERS

Mr. Eythor **BENEDIKTSSON**   Icelandic Mission to the European Union

Mr. Yngvar **DYVI**   Ministry of Finance, Norway

Mr. Per-Mathis **KONGSRUD**   Ministry of Finance, Norway

OECD

Mr. Henrik **BRACONIER**   Economics Department

Mr. Joaquim **OLIVEIRA**   Economics Department

EUROPEAN CENTRAL BANK

Ms. Carolin **NERLICH**

EUROSTAT

Mr. Giampaolo **LANZIERI**

Mr. Peter **PARLASCA**

Mr. Adam **WRONSKI**

WORLD BANK

Mr. Hermann von **GERSDORFF**

INTERNATIONAL MONETARY FUND

Mr. Emmanuel **VAN DER MENSBRUGGHE**   Paris

Mr. Scott **ROGER**   Paris

EPC SECRETARIAT

Mr. Balazs **HORVATH**

Mr. Michael **KEENAN**

Mr. Fuat **VARDAR**

EUROPEAN COMMISSION

Mr. Giuseppe **CARONE**

Mr. Per **ECKEFELDT**

CONTENTS

LIST OF TABLES

LIST OF GRAPHS

LIST OF BOXES

EXECUTIVE SUMMARY

The mandate and broad principles

In order to safeguard the sustainability of public finances in the EU, reliable and comparable information on possible challenges to fiscal sustainability is required, including the expected strains caused by the demographic changes ahead.

The ECOFIN Council gave a mandate to the Economic Policy Committee (EPC) to produce a new set of long-term budgetary projections by 2015, on the basis of a new population projection to be provided by Eurostat (EUROPOP2013).

In light of this mandate, the EPC and the Commission services (Directorate-General for Economic and Financial Affairs - DG ECFIN) agreed on a work programme with broad arrangements to organise the budgetary projections and reach agreement on its assumptions and methodologies (see the overview of the projection exercise for details).

This report provides a description of the underlying macroeconomic assumptions and methodologies of the age-related expenditure projections for all Member States. On the basis of these underlying assumptions and methodologies, age-related expenditures covering pensions, health care, long-term care, education and unemployment benefits will be calculated and presented to the ECOFIN Council in spring 2015 in the fifth Ageing Report.

The projections feed into a variety of policy debates at EU level, including the overarching Europe 2020 strategy for smart, sustainable and inclusive growth. In particular, they are used in the context of the European Semester so as to identify policy challenges, in the annual assessment of the sustainability of public finances carried out as part of the Stability and Growth Pact and in the analysis on the impact of ageing populations on the labour market and potential economic growth.

Main results:

The economic impact of population ageing

The long-term projections provide an indication of the timing and scale of changes in economic developments that could result from an ageing population. The projections show where (in which countries), when, and to what extent ageing pressures will accelerate as the baby-boom generation retires and as the EU population continues to extend their life spans in the future. Hence, the projections are helpful in highlighting the immediate and future policy challenges for governments posed by demographic trends. The report provides a very rich set of information at the individual country level, compiled in a comparable manner. The comparability and reliability of the projections is a crucial aspect since they cover such a long time-span (until 2060).

Demographic projections:

Dramatic changes in the age structure in the EU projected

The age structure of the EU population is projected to dramatically change in the coming decades due to the dynamics of fertility, life expectancy and migration rates. The overall size of the population is projected to not only be larger by 2060, but also much older than it is now. The EU population is expected to increase by almost 4% (from 507 million in 2013 up to 2050), when it will peak (at 526 million) and will thereafter decline slowly (to 523 million in 2060).

In 2013, the Member States with the largest population were: Germany (81 million), France (66 mn), the United Kingdom (64 mn), Italy (60 mn) and Spain (47 mn). According to Eurostat's EUROPOP projections, the UK would become the most populous EU country in 2060 (80 million), followed by France (76 mn), Germany (71 mn), Italy (66 mn) and Spain (46 mn).

While in 2013 the most numerous cohorts for both males and females are around 45 years old, in 2060 the number of elderly people is projected to account for an increasing share of the population. This is due to the combination of the numerous cohorts born in the 1950's and 1960's and the continuing projected gains in life expectancy. At the same time, the base of the age pyramid becomes smaller due to below replacement fertility rates.

The proportion of young people (aged 0-14) is projected to remain fairly constant by 2060 in the EU28 and the euro area (around 15%), while those aged 15-64 will become a substantially smaller share, declining from 66% to 57%. Those aged 65 and over will become a much larger share (rising from 18% to 28% of the population), and those aged 80 and over (rising from 5% to 12%) will almost become as numerous as the young population in 2060.

The demographic old-age dependency ratio set to nearly double over the long-term

As a result of these different trends among age-groups, the demographic old-age dependency ratio (people aged 65 or above relative to those aged 15-64) is projected to increase from 27.8% to 50.1% in the EU as a whole over the projection period. This implies that the EU would move from having about four working-age people for every person aged over 65 years to two working-age people.

Changes in the size and age profile of the population depend upon assumptions regarding fertility rates, life expectancy and migration.

The EUROPOP2013 projection assumes a process of (partial) convergence in the fertility rates across Member States to that of the forerunners over the very long-term. The total fertility rate (TFR) is projected to rise from 1.59 in 2013 to 1.68 by 2030 and further to 1.76 by 2060 for the EU as a whole. In the euro area, a similar increase is projected (from 1.56 in 2013 to 1.72 in 2060).

The projections show large and sustained increases in life expectancy at birth, albeit with a considerable degree of diversity across Member States.

In the EU, life expectancy at birth for males is expected to increase by 7.2 years over the projection period, from 77.6 in 2013 to 84.7 in 2060. For females, life expectancy at birth is projected to increase by 6.0 years for females, from 83.1 in 2013 to 89.1 in 2060, implying a convergence of life expectancy between males and females.

For the EU as a whole, annual net inflows of migrants are projected to increase from about 36,000 people in 2013 to 1,363,000 by 2040 and thereafter declining to 1,037,000 people by 2060 (0.20% of the EU population).

The cumulated net migration to the EU over the entire projection period is 55 million, of which the bulk is concentrated in the euro area (40 million). Net migration flows are projected to be concentrated to a few destination

countries up to 2060: Italy (15.5 million cumulated), the UK (9.2 million), Germany (7.0 million) and Spain (6.5 million).

Labour force projections:

Projected increases in overall participation rates, and in particular for older workers on account of implemented pension reforms…

The projections point to an increase in participation rates, particularly visible at 50+ ages, reflecting the combined effect of the rising participation of younger generations of women in the labour market, together with the estimated effect of pension reforms in a large number of countries.

The total participation rate (for the age group 20 to 64) in the EU28 is projected to increase by 3.5 percentage points (from 76.5% in 2013 to 80.1% in 2060). For the euro area a slightly lower increase of 3.1 pp is projected (from 76.8% in 2013 to 79.8% in 2060).

By large, the biggest increase in participation rates is projected for older workers (around 20 pp for women and 10 pp for men) in the EU28. Consequently, the gender gap in terms of participation rates is projected to narrow substantially in the period up to 2060.

… but labour supply will decline because of the projected population trends

Total labour supply in the EU28 (and in the euro area) is projected to almost stabilise between 2013 and 2023 (age group 20 to 64), while it is expected to decline by 8.2% between 2023 and 2060, equivalent to roughly 19 million people. In the euro area, the projected fall in labour supply between 2023 and 2060 is 9.2% (about 14 million people).

The projected negative labour force growth over the period 2013-2060 in the EU is mainly due to negative demographic developments, given that participation rates over the period – especially for older workers and women - are projected to continue to increase and hence mitigate the decline.

Indeed, the population of working age is projected to decline substantially in the coming decades, as large cohorts of people retire and are replaced by smaller ones of younger workers.

Assumptions on unemployment

Starting from current historically high levels, a reduction in the EU unemployment rate of around 4 ¼ percentage points is projected over the long-term (to 6 ½% in 2060). A slightly larger fall of 5 ¼ pp. is projected for the euro area of (to 6 ¾% in 2060).

Further rises in employment rates projected

Given the population projection, the unemployment rate assumptions and the labour force projection, the total employment rate (for individuals aged 20 to 64) in the EU28 is projected to increase from 68.4% in 2013 to 72.2% in 2023 and 75% in 2060. In the euro area, a similar development is projected, with the employment rate attaining 74.7% in 2060.

The employment rate of women is projected to rise from 62.6% in 2013 to 67.3% in 2023 and 71.2% in 2060. The employment rate for older workers is expected to increase by even more, from 50.3% in 2013 to 60.9% in 2023 and 67.1% in 2060, reflecting the expected impact of recent pension reforms in many Member States aiming at increasing the retirement age.

The outcome of these opposite trends is a cumulated overall decline of about 8.7 million workers over the entire 2013-2060 period in the EU28. The

negative prospects for population developments, including the rapid ageing of the population, will only be partly offset by the increase in participation rates (women and older workers)and migration inflows, leading to an overall reduction in employment levels after the middle of the next decade.

The total economic dependency ratio is calculated as the ratio between the total inactive population and employment. It gives a measure of the average number of individuals that each employed 'supports', being relevant when considering prospects for potential GDP per capita growth. It is expected to stabilise in the period up to the middle of the next decade slightly above 120% in the EU28, and then to rise above 140% by 2060 (employed 20-64). A similar evolution is projected in the euro area.

Based on this set of assumptions, total hours worked (labour input in the calculation of GDP) are projected to increase by 2.8% in the period 2013 to 2020 in the EU28. However from 2020 onwards, this upward trend is expected to be reversed and total hours worked are expected to decline by 3.8% between 2020 and 2060. Over the entire projection period (i.e. 2013 to 2060), total hours worked are projected to fall by 1.2% in the EU28. For the euro area, the projected decline is less marked (-0.6% between 2013 and 2060).

Macro-economic assumptions

Potential GDP growth projected to remain quite stable over the long-term, albeit much lower than in previous decades

With respect to total factor productivity growth, the EPC decided that the baseline scenario should remain as in the 2012 AR (convergence to a Total Factor Productivity (TFP) growth rate of 1%). In addition, due visibility and prominence should also be given to the risk of lower TFP growth in the future. Thus, a risk scenario is included, with a lower TFP growth rate (0.8%). In both cases, allowance for higher TFP growth for countries with below average GDP per capita is factored in for a period of time, as in the previous projection exercise, to cater for a catching-up potential.

In the EU as a whole, the annual average potential GDP growth rate in the baseline scenario is projected to remain quite stable over the long-term, albeit much lower than in previous decades. After an average potential growth of 1.1% up to 2020, a slight increase to 1.4-1.5% is projected for the remainder of the projection horizon. Over the whole period 2013-2060, average output growth rates in the EU28 is projected to be 1.4%. Developments in the euro area are very close to that of the EU as a whole, as the former represents more than 2/3 of the EU total output growth. Notwithstanding this, the potential growth rate in the euro area (averaging 1.3%) is projected to be slightly lower than for the EU throughout the projection period.

The risk scenario essentially reveals that GDP growth could be much lower in the event that future TFP growth rates developed less dynamically than in the baseline scenario, i.e. more in line with the growth rate (0.8%) observed over the last 20 years. In overall potential GDP terms, it would grow by 1.2% on average up to 2060, as opposed to 1.4% in the baseline scenario. In the euro area, it would be even lower, growing by 1.1% on average.

The sources of economic growth are also projected to change

The sources of GDP growth will alter dramatically over the projection horizon. Labour will make a positive contribution to growth in both the EU and the euro area up to the 2020s, but turn negative thereafter.

For the EU and for the euro area, a slight increase in the size of the total

population over the entire projection period and an assumed increase on employment rates make a positive contribution to average potential GDP growth.

However, this is more than offset by a decline in the share of the working-age population, which is a negative influence on growth (by an annual average of -0.2 percentage points). As a result, labour input contributes negatively to output growth on average over the projection period (by 0.1p.p., in the EU and in the euro area). Hence, labour productivity growth is projected to be the sole source for potential output growth in both the EU and the euro area over the entire projection period.

Comparison with the 2012 long-term budgetary projection exercise

In terms of potential GDP growth, following the largest economic crisis in many decades, potential GDP growth was revised downwards in 2009 and in subsequent years, compared with the baseline projection in the 2012 Ageing Report.

The current projections indicate that potential growth in the EU as a whole should only gradually approach the growth rates projected in the 2012 Ageing Report. Due to more favourable labour developments from 2030 onwards in the baseline scenario, influenced by the working-age population being projected to be larger, growth rates are projected to be somewhat higher from that point on. By contrast, in the risk scenario where a lower growth rate of TFP (of 0.8% vs. 1% in the baseline) is assumed, a lower growth performance would materialize throughout the projection horizon.

About the report: coverage and overview of the 2015 long-term projection exercise

The macroeconomic projections have been made by applying common assumptions and methodologies uniformly to all Member States, as agreed by the EPC.

The starting point is the EUROPOP2013 population projection for the period 2013 to 2060. The EPC agreed upon a common set of assumptions and methodologies in order to make projections on a set of exogenous macroeconomic variables on the basis of proposals prepared by DG ECFIN, covering the labour force (participation, employment and unemployment rates), labour productivity and the real interest rate. These combined set of projections enabled the calculation of GDP for all Member States up to 2060.

On the basis of these assumptions, separate budgetary projections are carried out for five government expenditure items. The projections for pensions will be run by the Member States using their own national model(s). In this way, the projections benefit from capturing the country-specific circumstances prevailing in the different Member States as a result of different pension legislation, while at the same time consistency is ensured by basing the projections on commonly agreed underlying assumptions. The projections for health care, long-term care, education and unemployment will be run by the European Commission (DG ECFIN), on the basis of a common projection model for each expenditure item. The results of this set of projections will be aggregated to provide an overall projection of age-related public expenditures.

The long-term projections are not forecasts. Projecting economic developments over the next almost 50 years is one of the most daunting analytical tasks facing policy makers. The uncertainty surrounding the projections is high and the longer the projection period, the higher the degree of uncertainty. The projection results are strongly influenced by the underlying assumptions. For this reason, a set of sensitivity tests were carried out, to illustrate the extent to which the public expenditure projections are sensitive to key assumptions.

This report is structured in two parts. The first one describes the underlying assumptions: the population projection, the labour force projection and the other macroeconomic assumptions as well as the sensitivity tests. The second part presents the methodologies for projecting future expenditure on pensions, health care, long-term care, education and unemployment benefits. A statistical annex gives an overview of the main assumptions and projections by country.

Part I

Underlying assumptions and projection methodologies

1. POPULATION

1.1. BACKGROUND AND GENERAL APPROACH

The basis for the 2015 age-related expenditure projection for the 28 EU Member States is Eurostat's population projection EUROPOP2013, released in March 2014. A description of the methodologies used to project fertility rates, life expectancy and net migration in EUROPOP2013 can be found in Eurostat (2014). ([1])

National statistical institutes were consulted during the preparation of the EUROPOP2013 population projection. Moreover, EUROSTAT presented the projection methodology in several meetings in 2013 and 2014 to the EPC Ageing Working Group (AWG) so that the views of the EPC-AWG could be communicated before the finalisation of the projection. It should however be noted that EUROSTAT acted as a statistical institution in full independence in preparing the population projections and therefore the sole responsibility for the applied methodology and projection results rests with EUROSTAT([2])

As was the case with the previous EUROPOP2010 and EUROPOP2008 demographic projections, the EUROPOP2013 was made using a 'convergence' approach. This means that the key demographic determinants are assumed to converge over the very long-term. Setting the year of convergence very far into the future has the advantage of taking due account of recent trends and developments in the beginning of the period, while at the same time assuming a degree of convergence over the very long-term in terms of demographic drivers.

These demographic determinants are: (i) the fertility rate; (ii) the mortality rate and (iii) the level of net migration. As far as fertility and mortality are concerned, it is assumed that they converge to that of the 'forerunners'.

Fertility rates convergence to levels achieved by Member States that are considered to be 'forerunners' ([3]) in the demographic transition is assumed. Life expectancy is assumed to follow convergent trajectories by increasing faster in countries with lower current levels of life expectancy and slower for those with higher current levels.

In each Member State, migration flows are assumed to converge. Furthermore, immigration flows which depend on the specific age structure of the national population are added to the migratory flows as projected according to the convergence hypothesis.

1.2. PROJECTION OF FERTILITY RATES

1.2.1. Past trends

Total fertility rates (TFR([4])) have increased since 2000 on average in the EU as a whole, although this trend increase has reversed into a decline since 2010 (see table I.1.1). Fertility rates have nevertheless increased between 2000 and 2012 in almost all Member States, with total fertility rates reaching above 1.8 in Ireland, France, Finland, Sweden and the UK. By contrast, fertility rates have decreased in Cyprus, Luxembourg, Malta Poland and Portugal.

In the preceding decades fertility rates declined sharply in the EU Member States after the post-war "baby boom" peak above 2.5 in the second half of the 1960s, to below the natural replacement level of 2.1. Fertility rates fell below replacement levels in the late 1960s in Sweden, Denmark, Finland, Luxembourg, Germany Hungary, Latvia and the Czech Republic. The fall took place somewhat later in Belgium, Netherlands, Austria, the UK, France (1972-73) and Italy (1975).([5]) Declines in fertility rates occurred much later in Greece, Spain, Portugal (1981-82) and Ireland

---

([1]) A description of the EUROPOP2013 projections is forthcoming in 2014. The dataset can be found on http://epp.eurostat.ec.europa.eu/portal/page/portal/populati on/data/database.

([2]) The assumptions do not necessarily fully reflect the views of the AWG neither as a group nor of individual Member States or national statistical offices. The underlying data are official data produced by national statistical institutions.

([3]) The countries of Northern Europe.

([4]) Fertility rates are reflected by the average number of children a woman would have, should she at each bearing age have the fertility rates of the year under review (this number is obtained by summing the fertility rates by age and is called the Total Fertility Rate, or TFR.

([5]) The time series for Germany (DE) exclude the former GDR before 1991 and refer to the Federal Republic starting with 1991 reference year.

Table I.1.1:   **Past trends in total fertility rates (TFR), 1950-2012**

	1950	1960	1970	1980	1990	2000	2005	2010	2012	1960-2012	2000-2012
BE	2,34	2,54	2,25	1,68	1,62	1,67	1,76	1,86	1,79	-0,8	0,1
BG	:	2,31	2,17	2,05	1,82	1,26	1,32	1,57	1,50	-0,8	0,2
CZ	:	2,09	1,92	2,08	1,90	1,15	1,29	1,51	1,45	-0,6	0,3
DK	2,57	2,57	1,95	1,55	1,67	1,77	1,80	1,87	1,73	-0,8	0,0
DE	:	2,37	2,03	1,56	1,45	1,38	1,34	1,39	1,38	-1,0	0,0
EE	:	1,98	2,17	2,02	2,05	1,36	1,52	1,72	1,56	-0,4	0,2
IE	:	3,78	3,85	3,21	2,11	1,89	1,86	2,05	2,01	-1,8	0,1
EL	:	2,23	2,40	2,23	1,40	1,27	1,32	1,51	1,34	-0,9	0,1
ES	:	2,86	2,90	2,20	1,36	1,23	1,33	1,37	1,32	-1,5	0,1
FR	2,93	2,73	2,47	1,95	1,78	1,89	1,94	2,03	2,01	-0,7	0,1
HR	:	:	:	:	:	:	1,50	1,55	1,51	:	:
IT	2,50	2,37	2,38	1,64	1,33	1,26	1,34	1,46	1,43	-0,9	0,2
CY	:	3,51	2,54	:	2,41	1,64	1,48	1,44	1,39	-2,1	-0,3
LV	:	:	2,00	1,88	2,01	1,25	1,39	1,36	1,44	:	0,2
LT	:	2,60	2,40	1,99	2,03	1,39	1,29	1,50	1,60	-1,0	0,2
LU	:	2,29	1,97	1,50	1,60	1,76	1,63	1,63	1,57	-0,7	-0,2
HU	:	2,02	1,98	1,91	1,87	1,32	1,31	1,25	1,34	-0,7	0,0
MT	:	3,62	2,02	1,99	2,04	1,70	1,38	1,36	1,43	-2,2	-0,3
NL	3,10	3,12	2,57	1,60	1,62	1,72	1,71	1,79	1,72	-1,4	0,0
AT	:	2,69	2,29	1,65	1,46	1,36	1,41	1,44	1,44	-1,3	0,1
PL	3,71	2,98	2,20	2,28	1,99	1,37	1,24	1,38	1,30	-1,7	-0,1
PT	:	3,16	3,01	2,25	1,56	1,55	1,41	1,39	1,28	-1,9	-0,3
RO	:	:	:	2,43	1,83	1,31	1,39	1,54	1,53	:	0,2
SI	:	2,18	2,10	2,11	1,46	1,26	1,26	1,57	1,58	-0,6	0,3
SK	:	3,04	2,41	2,32	2,09	1,30	1,27	1,43	1,34	-1,7	0,0
FI	3,15	2,72	1,83	1,63	1,78	1,73	1,80	1,87	1,80	-0,9	0,1
SE	2,28	2,20	1,92	1,68	2,13	1,54	1,77	1,98	1,91	-0,3	0,4
UK	:	2,72	2,43	1,90	1,83	1,64	1,76	1,92	1,92	-0,8	0,3
NO	2,51	2,90	2,50	1,72	1,93	1,85	1,84	1,95	1,85	-1,1	0,0
EU	:	2,67	2,31	1,97	1,79	1,48	1,49	1,60	1,56	-1,1	0,1
EA	:	2,78	2,40	1,97	1,73	1,51	1,51	1,59	1,55	-1,2	0,0

(1) EU and EA averages are simple averages
Source: Commission services based on Eurostat data, 2012 Ageing Report

(2000) Malta (1980), Poland (1983) and Slovakia (in 1989). Several Member States had very low fertility rates (below 1.4) in 2000, namely Bulgaria, the Czech Republic, Germany, Estonia, Greece, Spain, Italy, Latvia, Lithuania, Hungary, Austria, Poland, Romania, Slovenia, and Slovakia.

1.2.2. The EUROPOP2013 projection

The EUROPOP2013 projection assumes a process of convergence in the fertility rates across Member States to that of the forerunners over the very long-term. The total fertility rate (TFR) is projected to rise from 1.59 in 2013 to 1.68 by 2030 and further to 1.76 by 2060 for the EU as a whole. In the euro area, a similar increase is projected, from 1.56 in 2013 to 1.72 in 2060.

The fertility rate is projected to increase over the projection period in nearly all Member States, with the exception of Ireland, France and Sweden (the frontrunner, with values above 1.9), whereas in the UK it is projected to remain stable. Consequently, fertility rates in all countries are expected to remain below the natural replacement rate of 2.1 in the period to 2060.

1.3.   PROJECTION OF LIFE EXPECTANCY

1.3.1. Past trends

Life expectancy has been increasing in most developed countries worldwide over very long time periods. Since 1960, there have been significant increases in life expectancy at birth in all Member States, see Table I.1.3. Between 1960 and 2012, life expectancy at birth has increased significantly, especially for women. In euro-area Member States, the increase is even more pronounced where the life expectancy at birth can increase with up to three months each year.

Table I.1.2:   **Projection of fertility rates in EUROPOP2013**

	Fertility rate						
	2013	2020	2030	2040	2050	2060	change 2013-2060
BE	1,81	1,82	1,84	1,85	1,86	1,87	0,06
BG	1,51	1,59	1,67	1,72	1,75	1,77	0,26
CZ	1,52	1,63	1,72	1,77	1,79	1,80	0,28
DK	1,74	1,78	1,81	1,83	1,85	1,86	0,12
DE	1,40	1,45	1,51	1,56	1,60	1,63	0,23
EE	1,57	1,67	1,75	1,79	1,81	1,82	0,25
IE	2,01	2,01	2,00	1,99	1,99	1,98	-0,03
EL	1,34	1,39	1,45	1,49	1,54	1,58	0,24
ES	1,32	1,36	1,42	1,46	1,51	1,55	0,23
FR	2,02	2,01	2,00	1,99	1,98	1,98	-0,04
HR	1,53	1,56	1,59	1,62	1,65	1,67	0,14
IT	1,43	1,47	1,51	1,55	1,58	1,61	0,18
CY	1,40	1,44	1,50	1,54	1,58	1,62	0,22
LV	1,50	1,60	1,68	1,73	1,76	1,78	0,28
LT	1,61	1,66	1,71	1,75	1,77	1,79	0,18
LU	1,59	1,64	1,69	1,73	1,76	1,78	0,19
HU	1,38	1,50	1,61	1,68	1,72	1,74	0,36
MT	1,44	1,56	1,67	1,73	1,76	1,78	0,34
NL	1,72	1,73	1,75	1,77	1,78	1,80	0,08
AT	1,45	1,48	1,53	1,56	1,59	1,62	0,17
PL	1,32	1,39	1,47	1,53	1,58	1,62	0,30
PT	1,27	1,32	1,37	1,43	1,47	1,52	0,25
RO	1,65	1,73	1,79	1,81	1,82	1,83	0,18
SI	1,59	1,63	1,67	1,70	1,73	1,75	0,16
SK	1,28	1,32	1,38	1,44	1,48	1,53	0,25
FI	1,80	1,81	1,83	1,84	1,85	1,86	0,06
SE	1,93	1,93	1,93	1,93	1,92	1,92	-0,01
UK	1,93	1,93	1,93	1,93	1,93	1,93	0,00
NO	1,85	1,85	1,86	1,87	1,87	1,88	0,03
EU	1,59	1,63	1,68	1,71	1,73	1,76	0,16
EA	1,56	1,59	1,63	1,67	1,69	1,72	0,16

(1) EU and EA averages are weighted averages.
Source: Commission services based on Eurostat EUROPOP2013 data.

The difference between female and male life expectancies has diminished since 1990 in the EU due to faster improvements in life expectancy for males relative to females.

This process started already in 1980 in euro-area Member States, and the gap between males and females is also smaller than in the EU as a whole. Since 2000, the increase in life expectancy has been 2.6 years for females and 3.3 years for males.

The gains in life expectancies at birth have differed across countries between 1960 and 2012. Women have gained 11 years or more in Germany, Ireland

Spain, France, Italy, Luxembourg, Malta, Portugal, Slovenia and Finland. Smaller increases of 8 years or less were observed in Bulgaria, the Czech Republic, Denmark, Latvia, the Netherlands and Slovakia.

Gains in life expectancies over the same period for men have been 11 years or more in Belgium Germany, Spain, France, Italy, Luxembourg, Malta, Austria, Portugal, Slovenia, Finland and the UK, while increases of 8 years or less have occurred in Bulgaria, the Czech Republic, Denmark, Estonia, Croatia, Latvia, Lithuania, Hungary, the Netherlands, Poland and Slovakia.

There is no consensus among demographers on trends over the very long term, e.g. whether there is a natural biological limit to longevity, the impact of future medical breakthroughs, long-term impact of public health programmes and societal behaviour such as reduction of smoking rates or increased prevalence of obesity. Past population projections from official sources have, however, generally underestimated the gains in life expectancy at birth as it was difficult to imagine that the reduction of mortality would continue at the same pace in the long run. Some commentators have argued that as a consequence, governments may have underestimated the potential budgetary impact of ageing populations.

Official projections generally assume that gains in life expectancy at birth will slow down compared with historical trends. This is because mortality rates at younger ages are already very low and future gains in life expectancy would require improvements in mortality rates at older ages (which statistically have a smaller impact on life expectancy at birth). On the other hand, the wide range of life expectancies across EU Member States, and also compared with other countries, points to considerable scope for future gains. In 2012, life expectancy at birth for females ranged from 77.9 in Bulgaria to 85.5 years in Spain, and for males ranging from 68.4 in Lithuania to 79.9 in Sweden.

1.3.2. The EUROPOP2013 projection

The EUROPOP2013 projected changes in life expectancies for males and females at birth and at age 65 can be found in Table I.1.4 and Table I.1.5. The projections show large increases in life

expectancy at birth being sustained during the projection period, albeit with a considerable degree of diversity across Member States.

In the EU, life expectancy at birth for males is expected to increase by 7.2 years over the projection period, from 77.6 in 2013 to 84.7 in 2060. For females, life expectancy at birth is projected to increase by 6.0 years for females, from 83.1 in 2013 to 89.1 in 2060, implying a convergence of life expectancy between males and females. The largest increases in life expectancies at birth, for both males and females, are projected to take place in the Member States with the lowest life expectancies in 2013. Life expectancies for males in 2013 are the lowest in Bulgaria, Estonia, Latvia, Lithuania, Hungary and Romania, ranging between 69 and 72 years. Life expectancies increase more than 10 years up to 2060 for these countries, indicating that some catching-up takes place over the projection period. For females, the largest gains in life expectancies at birth of 8 years or more are projected in Bulgaria, Latvia, Lithuania, Hungary, Romania and Slovakia. In all of these countries, female life expectancies in 2013 are below 80 years.

Table I.1.3:   **Past trends in life expectancy at birth, 1950-2012**

Males	1950	1960	1970	1980	1990	2000	2005	2010	2012	1960-2012	2000-2012
BE	62,0	66,8	67,9	69,9	72,7	74,6	76,2	77,5	77,8	11,0	3,2
BG	:	67,5	69,1	68,4	68,0	68,4	69,0	70,3	70,9	3,4	2,5
CZ	:	67,8	66,1	66,9	67,6	71,6	72,9	74,5	75,1	7,3	3,5
DK	:	70,4	70,7	71,2	72,0	74,5	76,0	77,2	78,1	7,7	3,6
DE	64,6	66,5	67,5	69,6	72,0	75,1	76,7	78,0	78,6	12,1	3,5
EE	:	64,7	65,5	64,2	64,7	65,6	67,6	70,9	71,4	6,7	5,8
IE	64,5	68,1	68,8	70,1	72,1	74,0	76,7	78,5	78,7	10,6	4,7
EL	63,4	67,3	71,6	73,0	74,7	75,5	76,7	78,0	78,0	10,7	2,5
ES	59,8	67,4	69,2	72,3	73,4	75,8	77,0	79,2	79,5	12,1	3,7
FR	62,9	66,9	68,4	70,2	72,8	75,3	76,7	78,2	78,7	11,8	3,4
HR	:	67,2	69,0	70,6	73,8	76,9	71,7	73,4	73,9	6,7	-3,0
IT	63,7	67,2	69,0	70,6	73,8	76,9	78,1	79,5	79,8	12,6	2,9
CY	:	:	:	72,3	74,1	75,4	76,5	79,2	78,9	:	3,5
LV	:	65,2	66,0	63,6	64,3	65,0	64,9	67,9	68,9	3,7	3,9
LT	:	64,9	66,8	65,4	66,4	66,7	65,2	67,6	68,4	3,5	1,7
LU	:	66,5	67,1	70,0	72,4	74,6	76,7	77,9	79,1	12,6	4,5
HU	:	65,9	66,3	65,5	65,2	67,5	68,7	70,7	71,6	5,7	4,1
MT	:	66,5	68,4	68,0	73,7	76,2	77,3	79,3	78,6	12,1	2,4
NL	:	71,5	70,7	72,7	73,8	75,6	77,2	78,9	79,3	7,8	3,7
AT	:	66,2	66,5	69,0	72,3	75,2	76,6	77,9	78,4	12,2	3,2
PL	:	64,9	66,6	66,9	66,3	69,6	70,8	72,1	72,7	7,8	3,1
PT	56,4	61,1	63,6	67,9	70,6	73,3	74,9	76,8	77,3	16,2	4,0
RO	:	:	65,9	66,6	66,7	67,7	68,9	70,2	71,0	:	3,3
SI	:	66,1	65,0	67,4	69,8	72,2	73,9	76,4	77,1	11,0	4,9
SK	:	67,9	66,8	66,7	66,7	69,2	70,2	71,8	72,5	4,6	3,3
FI	:	65,5	66,5	69,2	71,0	74,2	75,6	76,9	77,7	12,2	3,5
SE	:	71,2	72,3	72,8	74,8	77,4	78,5	79,6	79,9	8,7	2,5
UK	66,2	67,9	68,7	70,2	72,9	75,5	77,0	78,6	79,1	11,2	3,6
NO	:	71,6	71,2	72,4	73,4	76,0	77,8	79,0	79,5	7,9	3,5
EU	:	66,9	67,8	69,0	70,7	72,8	73,9	75,6	76,1	9,2	3,3
EA	:	66,6	67,6	69,3	71,4	73,5	75,0	76,8	77,2	10,7	3,7
Females	1950	1960	1970	1980	1990	2000	2005	2010	2012	1960-2012	2000-2012
BE	67,3	72,8	74,2	76,7	79,5	81,0	81,9	83,0	83,1	10,3	2,1
BG	:	71,1	73,5	73,9	74,7	75,0	76,2	77,4	77,9	6,8	2,9
CZ	:	73,5	73,1	74,0	75,5	78,5	79,2	80,9	81,2	7,7	2,7
DK	:	74,4	75,9	77,3	77,8	79,2	80,5	81,4	82,1	7,7	2,9
DE	68,5	71,7	73,6	76,2	78,5	81,2	82,0	83,0	83,3	11,6	2,1
EE	:	73,1	74,5	74,3	74,9	76,4	78,2	80,8	81,5	8,4	5,1
IE	67,1	71,9	73,5	75,6	77,7	79,2	81,3	83,1	83,2	11,3	4,0
EL	68,5	72,4	76,0	77,5	79,5	80,9	82,3	83,3	83,4	11,0	2,5
ES	64,3	72,2	74,8	78,4	80,6	82,9	83,6	85,5	85,5	13,3	2,6
FR	68,5	73,6	75,9	78,4	81,2	83,0	83,8	85,3	85,4	11,8	2,4
HR	:	72,3	74,9	77,4	80,3	82,8	78,8	79,9	80,6	8,3	-2,2
IT	67,2	72,3	74,9	77,4	80,3	82,8	83,6	84,7	84,8	12,5	2,0
CY	:	:	:	77,0	78,6	80,1	80,8	83,9	83,4	:	3,3
LV	:	72,4	74,4	74,2	74,6	76,1	76,3	78,0	78,9	6,5	2,8
LT	:	71,4	75,0	75,4	76,3	77,4	77,4	78,9	79,6	8,2	2,2
LU	:	72,2	73,0	75,6	78,7	81,3	82,3	83,5	83,8	11,6	2,5
HU	:	70,2	72,1	72,8	73,8	76,2	77,2	78,6	78,7	8,5	2,5
MT	:	70,5	72,6	72,8	78,1	80,3	81,4	83,6	83,0	12,5	2,7
NL	:	75,5	76,3	79,3	80,2	80,7	81,7	83,0	83,0	7,5	2,3
AT	:	72,7	73,5	76,1	79,0	81,2	82,2	83,5	83,6	10,9	2,4
PL	:	70,6	73,3	75,4	75,3	78,0	79,3	80,7	81,1	10,5	3,1
PT	61,6	66,7	69,7	74,9	77,5	80,4	81,5	83,2	83,6	16,9	3,2
RO	:	:	70,4	71,9	73,1	74,8	75,7	77,5	78,1	:	3,3
SI	:	72,0	72,4	75,2	77,8	79,9	80,9	83,1	83,3	11,3	3,4
SK	:	72,7	73,1	74,4	75,7	77,5	78,1	79,3	79,9	7,2	2,4
FI	:	72,5	75,0	78,0	79,0	81,2	82,5	83,5	83,7	11,2	2,5
SE	:	74,9	77,3	79,0	80,5	82,0	82,9	83,6	83,6	8,7	1,6
UK	71,2	73,7	75,0	76,2	78,5	80,3	81,3	82,6	82,8	9,1	2,5
NO	:	76,0	77,5	79,3	79,9	81,5	82,7	83,3	83,5	7,5	2,0
EU	:	72,3	74,0	75,9	77,8	79,7	80,5	82,0	82,2	9,9	2,6
EA	:	72,2	74,0	76,2	78,4	80,3	81,4	83,0	83,1	10,9	2,8

(1) EU and EA averages are simple averages.
Source: Commission services based on Eurostat data, 2012 Ageing Report.

Table I.1.4:   **Projection of life expectancy at birth in EUROPOP2013**

	Males							Females						
	2013	2020	2030	2040	2050	2060	change	2013	2020	2030	2040	2050	2060	change
BE	77,8	78,9	80,5	82,0	83,3	84,6	6,8	82,9	84,0	85,3	86,6	87,8	88,9	6,0
BG	71,1	72,9	75,3	77,6	79,6	81,6	10,5	78,0	79,4	81,3	83,1	84,8	86,4	8,4
CZ	75,1	76,5	78,3	80,1	81,7	83,3	8,2	81,2	82,3	83,8	85,3	86,6	87,9	6,7
DK	78,2	79,3	80,8	82,2	83,5	84,8	6,6	82,1	83,2	84,7	86,2	87,5	88,7	6,6
DE	78,5	79,6	81,1	82,6	83,9	85,2	6,7	83,2	84,2	85,5	86,8	87,9	89,1	5,9
EE	71,6	73,3	75,7	77,9	80,0	81,9	10,3	81,3	82,5	84,1	85,6	87,0	88,3	7,0
IE	78,7	79,8	81,3	82,6	83,9	85,2	6,5	83,0	84,1	85,5	86,8	88,1	89,2	6,2
EL	78,0	79,2	80,8	82,2	83,6	84,9	6,9	83,3	84,2	85,5	86,7	87,9	89,0	5,7
ES	79,5	80,5	81,9	83,2	84,4	85,5	6,0	85,2	86,0	87,1	88,1	89,1	90,0	4,8
FR	78,6	79,8	81,3	82,7	84,0	85,2	6,6	85,0	85,8	87,0	88,1	89,1	90,0	5,0
HR	74,0	75,4	77,4	79,3	81,0	82,7	8,7	80,7	81,8	83,4	84,8	86,2	87,6	6,9
IT	79,8	80,8	82,1	83,3	84,4	85,5	5,7	84,7	85,5	86,6	87,7	88,7	89,7	5,0
CY	79,1	80,1	81,5	82,8	84,1	85,2	6,1	83,3	84,3	85,5	86,7	87,8	88,9	5,6
LV	69,1	71,1	73,8	76,4	78,7	80,9	11,8	78,9	80,3	82,2	83,9	85,5	87,0	8,1
LT	68,7	70,8	73,6	76,3	78,7	80,9	12,2	79,6	80,9	82,7	84,4	86,0	87,4	7,8
LU	79,1	80,2	81,6	83,0	84,2	85,4	6,3	83,5	84,6	86,0	87,3	88,4	89,5	6,0
HU	71,9	73,6	75,9	78,1	80,1	82,0	10,1	78,8	80,2	82,1	83,8	85,5	87,0	8,2
MT	78,7	79,8	81,3	82,6	83,9	85,1	6,4	82,8	84,0	85,4	86,8	88,0	89,1	6,3
NL	79,3	80,3	81,6	82,9	84,1	85,2	5,9	82,9	83,9	85,3	86,6	87,8	88,9	6,0
AT	78,4	79,5	81,0	82,4	83,7	84,9	6,5	83,5	84,4	85,7	86,9	88,0	89,1	5,6
PL	72,8	74,5	76,7	78,8	80,8	82,6	9,8	80,9	82,2	83,8	85,3	86,8	88,1	7,2
PT	77,4	78,6	80,2	81,7	83,1	84,5	7,1	83,5	84,4	85,7	86,9	88,1	89,2	5,7
RO	71,2	73,0	75,5	77,8	79,9	81,8	10,6	78,2	79,7	81,6	83,5	85,1	86,7	8,5
SI	77,2	78,4	80,0	81,5	83,0	84,3	7,1	83,1	84,1	85,4	86,7	87,8	88,9	5,8
SK	72,7	74,3	76,5	78,6	80,5	82,3	9,6	79,9	81,1	82,8	84,5	86,0	87,4	7,5
FI	77,7	78,9	80,4	81,9	83,3	84,6	6,9	83,5	84,5	85,8	87,0	88,1	89,2	5,7
SE	80,1	81,0	82,2	83,4	84,5	85,6	5,5	83,6	84,5	85,8	87,0	88,1	89,2	5,6
UK	79,1	80,2	81,6	82,9	84,2	85,3	6,2	82,8	83,9	85,3	86,6	87,8	89,0	6,2
NO	79,6	80,5	81,9	83,1	84,3	85,4	5,8	83,5	84,5	85,8	87,0	88,1	89,1	5,6
EU	77,6	78,8	80,5	82,0	83,4	84,7	7,2	83,1	84,1	85,5	86,8	87,9	89,1	6,0
EA	78,7	79,8	81,3	82,7	83,9	85,2	6,5	84,0	84,9	86,2	87,4	88,4	89,5	5,5

(1) EU and EA averages are weighted averages
Source: Commission services based on Eurostat EUROPOP2013 data.

Table I.1.5:   **Projection of life expectancy at 65 in EUROPOP2013**

	Males							Females						
	2013	2020	2030	2040	2050	2060	change	2013	2020	2030	2040	2050	2060	change
BE	17,6	18,4	19,4	20,4	21,3	22,2	4,6	21,1	21,8	22,8	23,8	24,7	25,6	4,5
BG	14,0	15,0	16,4	17,7	19,1	20,3	6,3	17,3	18,2	19,6	20,9	22,2	23,4	6,1
CZ	15,7	16,6	17,8	19,0	20,1	21,2	5,5	19,2	20,0	21,2	22,4	23,5	24,5	5,3
DK	17,5	18,3	19,3	20,3	21,3	22,2	4,7	20,2	21,1	22,2	23,3	24,3	25,3	5,1
DE	18,0	18,7	19,8	20,8	21,8	22,7	4,7	21,0	21,7	22,7	23,7	24,7	25,6	4,6
EE	14,9	15,9	17,2	18,5	19,8	21,0	6,1	20,1	20,9	22,0	23,1	24,1	25,1	5,0
IE	18,1	18,8	19,8	20,8	21,7	22,6	4,5	21,0	21,8	22,9	23,9	24,9	25,8	4,8
EL	18,0	18,8	19,8	20,8	21,8	22,7	4,7	20,8	21,5	22,6	23,6	24,5	25,4	4,6
ES	18,6	19,3	20,2	21,1	22,0	22,9	4,3	22,5	23,1	24,0	24,8	25,6	26,3	3,8
FR	18,9	19,6	20,5	21,4	22,2	23,0	4,1	22,9	23,5	24,3	25,1	25,9	26,6	3,7
HR	15,0	15,9	17,2	18,5	19,7	20,8	5,8	18,7	19,6	20,8	22,0	23,1	24,2	5,5
IT	18,4	19,1	20,0	21,0	21,8	22,7	4,3	22,0	22,6	23,5	24,4	25,2	26,0	4,0
CY	18,3	18,9	19,9	20,8	21,7	22,5	4,2	20,8	21,4	22,4	23,4	24,3	25,2	4,4
LV	13,8	14,8	16,3	17,7	19,1	20,4	6,6	18,4	19,4	20,6	21,9	23,1	24,2	5,8
LT	14,3	15,3	16,8	18,2	19,5	20,8	6,5	19,2	20,0	21,2	22,4	23,5	24,6	5,4
LU	18,6	19,3	20,2	21,2	22,0	22,9	4,3	22,0	22,6	23,6	24,4	25,3	26,1	4,1
HU	14,5	15,5	16,8	18,2	19,5	20,8	6,3	18,1	19,1	20,4	21,7	22,9	24,1	6,0
MT	18,1	18,8	19,7	20,7	21,6	22,4	4,3	21,3	22,0	23,0	24,0	24,9	25,7	4,4
NL	18,0	18,7	19,6	20,6	21,5	22,4	4,4	20,9	21,7	22,7	23,7	24,6	25,5	4,6
AT	17,9	18,7	19,7	20,6	21,6	22,4	4,5	21,2	21,9	22,9	23,8	24,7	25,6	4,4
PL	15,4	16,3	17,7	18,9	20,1	21,3	5,9	19,6	20,5	21,7	22,8	23,9	24,9	5,3
PT	17,6	18,3	19,4	20,4	21,3	22,3	4,7	21,2	21,9	22,9	23,8	24,7	25,6	4,4
RO	14,5	15,5	16,9	18,2	19,5	20,7	6,2	17,7	18,6	20,0	21,3	22,6	23,8	6,1
SI	17,1	17,9	19,0	20,0	21,1	22,0	4,9	20,9	21,6	22,7	23,6	24,6	25,5	4,6
SK	14,7	15,6	17,0	18,3	19,6	20,8	6,1	18,4	19,3	20,6	21,8	23,0	24,2	5,8
FI	17,8	18,5	19,5	20,5	21,4	22,4	4,6	21,4	22,1	23,1	24,0	24,9	25,7	4,3
SE	18,6	19,2	20,1	21,0	21,9	22,7	4,1	21,1	21,8	22,8	23,8	24,7	25,6	4,5
UK	18,4	19,1	20,0	21,0	21,9	22,7	4,3	20,8	21,6	22,7	23,7	24,6	25,6	4,8
NO	18,4	19,0	20,0	20,9	21,8	22,6	4,2	21,1	21,8	22,8	23,8	24,7	25,6	4,5
EU	17,7	18,4	19,5	20,5	21,5	22,4	4,7	21,1	21,8	22,8	23,8	24,7	25,6	4,5
EA	18,2	18,9	19,9	20,9	21,8	22,7	4,5	21,7	22,4	23,3	24,2	25,1	25,9	4,2

(1) EU and EA averages are weighted averages.
Source: Commission services based on Eurostat EUROPOP2013 data.

1.4.   PROJECTION OF NET MIGRATION FLOWS

1.4.1. Past trends and driving forces

European countries have gradually become a destination for migrants, starting in the 1950s in countries with post-war labour recruitment needs and with colonial past (see Graph I.1.1). Net inflows dropped significantly between 1992 and 1997, partly due to tighter controls over migratory flows in the main receiving countries, but they resumed their growth at the end of the 1990s. Overall, the average annual net entries for the EU more than tripled from around 198,000 people per year during the 1980s to around 750,000 people per year during the 1990s. High clandestine migration also marks the decade of the 1990s.

In the beginning of the 2000's the net migration flows to the EU countries increased markedly reaching 1.8 million in 2003 and staying at levels

Graph I.1.1:   **Net migration flows, 1965-2013**
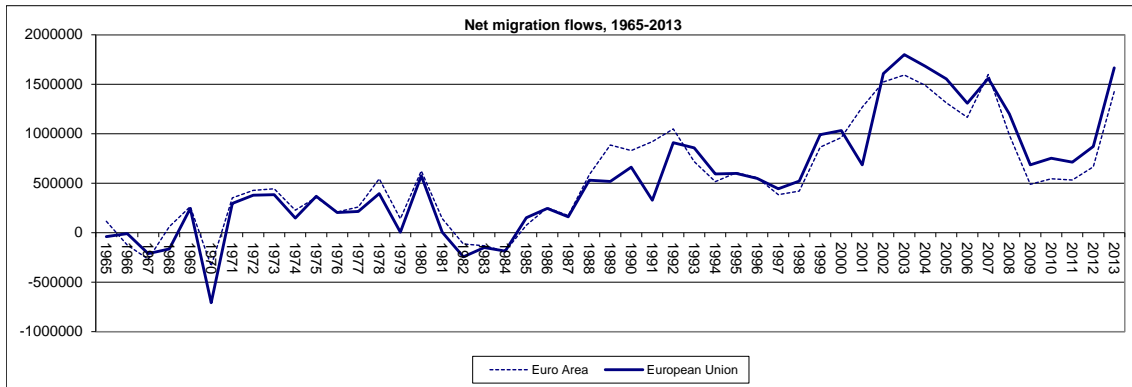
Source: Commission services based on Eurostat data.

above or close to 1.5 million until the onset of the financial and economic crisis, when net migration in the EU dropped sharply to around 700,000 in the years 2009-2011. In the last two years net migration flows have again increased, reaching pre-crisis levels (167 million) in 2013.

Net migration flows ([6]) per country are characterised by high variability, see Table I.1.6. Traditionally, Germany, France and the UK record the largest number of arrivals in the EU, but in the last decade there was first a rise of migration flows to Italy, Spain and Ireland that switched from countries of origin to destination countries. Since 2009 the situation has changed again, with significant outflows from Spain and Ireland.

In terms of persons, the largest declines in annual inflows since 2010 were recorded in BE, ES, and the UK (between 69,000 and 332,000 less). By contrast, higher inflows were noted in DE and IT (between 336,000 and 984,000 more). However, net migration flows do not show the size of inward and outward movements – due to temporary and return migration.

1.4.2. The EUROPOP 2013 projection

The methodology used to project net migration in EUROPOP2013 is described in Eurostat (2014).

Table I.1.7 presents the projected net migration flows in the baseline of EUROPOP2013. For the EU as a whole, annual net inflows are projected to increase from about 36,000 people in 2013 ([7]) to 1,363,000 by 2040 and thereafter declining to 1,037,000 people by 2060 (an annual inflow of 0.2% of the EU population).

The cumulated net migration to the EU over the entire projection period is 55 million (about 10% of the EU population in 2060), of which the bulk is concentrated in the euro area (40 million). Net migration flows are projected to be concentrated to a few destination countries: Italy (15.5 million cumulated up to 2060), the UK (9.2 million), Germany (7.0 million) and Spain (6.5 million). According to the assumptions, the change of Spain and Italy from origin in the past to destination countries would be confirmed in the coming decades. For countries that currently experience a net outflow (BG,CZ, EE, IE, EL, ES, HR, CY, LV, LT, PL, PT and RO), this is projected to taper off or reverse in the coming decades.

([6]) Due to difficulties in having for each Member State good statistics of the migration flows, net migration is measured as the difference between the total population on 31 December and 1 January for a given calendar year, minus the difference between births and deaths (or natural increase). The approach is different from that of subtracting recorded emigration flows from immigration flows. Notably, when operating like that, the "net migration" not only records errors due to the difficulty of registering the migration moves, it also includes all possible errors and adjustments in other demographic variables.

([7]) The figures for 2013 in Tables I.1.6 and I.1.7 are different due to the fact that the former ones are based on provisional data while the latter ones are projections based on past trends.

Table I.1.6: **Past trends in net migration flows**

	1961	1970	1980	1990	2000	2005	2010	2013(p)
BE	-39859	-32718	-2436	19547	12836	49186	135785	26078
BG	-67	-11031	-5	-94611	0	0	-17683	-1108
CZ	4911	-121345	-41216	-58893	-27980	30449	14334	-1297
DK	2745	21113	570	8553	10094	6734	16847	21205
DE	118440	-271686	304410	656166	167863	81578	130166	466254
EE	9535	10505	6052	-5623	-3194	-5184	-3665	-2642
IE	-19662	-2796	-592	-7667	31820	63372	-25760	-25970
EL	-16761	-46393	55777	63920	29401	35946	-65806	-52000
ES	-82664	72947	112659	-20007	389774	633878	75537	-256849
FR	:	:	:	:	166761	187185	37580	39100
HR	-7688	844	-14746	6406	-52367	10924	-4255	-4993
IT	-136302	-107276	4914	22250	49526	202743	200091	1183877
CY	-6519	-903	836	8708	3960	8128	15913	-11968
LV	15467	6734	2445	-13085	-16428	-10952	-35640	-14262
LT	3690	14025	2122	-8848	-20306	-51096	-77944	-16807
LU	2415	1084	1344	3937	3431	6106	7660	10348
HU	909	0	0	18313	16658	17268	11519	6102
MT	-6037	-1944	380	857	873	1605	74	3224
NL	5924	32516	50557	48730	57033	-22824	32471	19618
AT	-2679	10406	9357	58562	17272	49938	27419	56122
PL	-61865	-293620	-24125	-12620	-19669	-12878	-2114	-19904
PT	-38078	-121955	41969	-39107	67108	15381	3814	-36232
RO	-41623	-12190	52937	-86781	-3729	-84257	-48100	-6620
SI	-4489	3713	5420	-245	2747	6436	-521	487
SK	-5636	-35091	-11493	-2322	-22301	-712	-4929	2379
FI	-11815	-36381	-2180	8604	2410	9152	13756	17934
SE	13115	46726	9606	34814	24386	26724	49734	65780
UK	87400	-14821	-33485	24662	143871	298425	266730	197333
NO	694	-758	3741	1796	9707	18332	42163	40068
EU	-33579	-707028	575051	661675	1031850	1553255	753013	1665189
EA	-35106	-336729	623393	830680	960892	1310962	543945	1425498

p: provisional data
Source: Commission services based on Eurostat data.

1.5. OVERALL RESULTS OF THE EUROPOP2013 POPULATION PROJECTION

An overview of the baseline EUROPOP2013 population projections is shown in Table I.1.8 . These projections are the basis for the 2015 EC-EPC age-related expenditure projection exercise.

In the coming decades the age structure of the EU population will change dramatically due to the dynamics in fertility, life expectancy and migration. The overall size of the population is projected to be slightly larger by 2060 but much older than it is now. The EU population is projected to increase (from 507 million in 2013) up to 2050 by almost 5%, when it will peak (at 526 million) and will thereafter decline slowly (to 523 million in 2060).

There are wide differences in population trends until 2060 across Member States. While the EU

Table I.1.7: **Projection of net migration flows in EUROPOP2013**

	Net migration ('000)						as % of total population		cumulated (1000's)	Cumulated net migration as share of population in 2060
	2013	2020	2030	2040	2050	2060	2013	2060	2013-2060	
BE	61,2	80,2	80,9	69,8	46,8	42,1	0,5%	0,3%	3192	20,7%
BG	-2,9	-5,8	-5,8	5,3	3,7	0,6	0,0%	0,0%	-21	-0,4%
CZ	-1,3	28,0	35,8	40,7	25,5	21,2	0,0%	0,2%	1441	13,0%
DK	21,2	18,9	19,9	16,3	10,5	10,0	0,4%	0,2%	755	11,5%
DE	-1127,0	228,7	220,2	142,6	119,3	97,9	-1,4%	0,1%	7041	9,9%
EE	-2,7	-3,7	-2,2	0,6	0,6	0,0	-0,2%	0,0%	-49	-4,5%
IE	-32,4	-30,3	-12,1	4,8	16,7	15,1	-0,7%	0,3%	-208	-4,0%
EL	-15,9	-22,3	-10,0	1,3	7,3	4,7	-0,1%	0,1%	-257	-3,0%
ES	-310,9	-79,0	87,5	225,2	305,6	275,0	-0,7%	0,6%	6511	14,1%
FR	52,8	90,2	91,2	84,0	74,2	66,8	0,1%	0,1%	3960	5,2%
HR	2,3	2,4	3,5	4,6	5,7	4,8	0,1%	0,1%	193	5,2%
IT	1135,5	348,1	382,4	335,9	214,8	196,4	1,9%	0,3%	15511	23,4%
CY	-0,6	-0,6	2,8	6,0	8,8	7,9	-0,1%	0,7%	214	19,0%
LV	-10,1	-14,3	-9,9	0,9	0,7	0,0	-0,5%	0,0%	-237	-16,9%
LT	-16,8	-37,4	-21,1	1,0	0,4	0,0	-0,6%	0,0%	-605	-33,0%
LU	10,5	11,7	11,2	9,1	5,4	4,9	1,9%	0,4%	429	37,5%
HU	8,1	24,3	20,9	24,2	15,3	14,0	0,1%	0,2%	943	10,3%
MT	1,6	1,6	1,5	1,4	1,3	1,1	0,4%	0,2%	69	14,4%
NL	22,1	24,2	23,5	13,0	8,9	9,3	0,1%	0,1%	810	4,7%
AT	55,5	51,3	51,9	41,9	27,2	24,8	0,7%	0,3%	1994	20,6%
PL	-15,6	2,9	-0,9	25,4	29,5	11,6	0,0%	0,0%	606	1,8%
PT	-40,3	0,3	9,2	11,9	8,3	7,9	-0,4%	0,1%	219	2,7%
RO	-9,2	0,4	-24,7	11,6	7,1	2,4	0,0%	0,0%	-35	-0,2%
SI	0,8	4,1	4,6	5,5	5,4	4,5	0,0%	0,2%	224	11,0%
SK	2,0	3,0	2,5	4,7	4,7	2,4	0,0%	0,1%	162	3,5%
FI	17,2	22,0	21,7	17,7	9,6	8,9	0,3%	0,1%	812	13,0%
SE	65,8	55,3	56,0	49,1	34,7	31,2	0,7%	0,2%	2273	17,4%
UK	165,0	172,1	203,3	209,3	190,2	171,2	0,3%	0,2%	9162	11,4%
NO	39,2	53,4	51,8	42,3	24,9	22,4	0,8%	0,3%	1967	24,1%
EU	35,9	976,3	1244,1	1363,8	1188,3	1036,7	0,0%	0,2%	55107	10,5%
EA	-180,6	715,1	957,0	976,3	865,8	769,6	-0,1%	0,2%	40395	11,8%

Source: Eurostat, EUROPOP2013.

population as a whole would be larger in 2060 compared to 2013, decreases of the total population are projected for about half of the EU Member States (BG, DE, EE, EL, ES, HR, LV, LT, HU, PL, PT, RO, SI and SK). For the other Member States (BE, CZ, DK, IE, FR, IT, CY, LU, MT, NL, AT, FI, SE and UK) an increase is projected. The strongest population growth is projected in Luxembourg (+111%), Belgium (+38%), Sweden (+36%), Cyprus (30%) the United Kingdom (+25%). The sharpest decline is expected in Lithuania (-38%), Latvia (-31%), Bulgaria (-25%), Greece (-23%) and Portugal (-22%) (see Table I.1.8).

Table I.1.8:   **Commission services based on Eurostat EUROPOP2013 data.**

	Total population (annual average)						% change		
	2013	2020	2030	2040	2050	2060	2013-2020	2020-2060	2013-2060
BE	11,2	11,9	12,9	14,0	14,8	15,4	6,0	29,9	37,7
BG	7,3	7,0	6,5	6,1	5,8	5,5	-4,3	-21,4	-24,8
CZ	10,5	10,7	10,8	10,9	11,1	11,1	1,3	4,0	5,4
DK	5,6	5,8	6,1	6,3	6,4	6,5	3,1	13,1	16,5
DE	81,3	80,6	79,7	77,7	74,5	70,8	-0,9	-12,1	-12,9
EE	1,3	1,3	1,2	1,2	1,1	1,1	-2,8	-14,9	-17,2
IE	4,6	4,6	4,6	4,7	5,0	5,3	0,3	14,0	14,3
EL	11,0	10,7	10,1	9,6	9,1	8,6	-3,4	-19,8	-22,5
ES	46,6	45,7	44,5	44,7	45,6	46,1	-1,9	0,9	-1,0
FR	65,7	67,8	70,5	72,9	74,4	75,7	3,2	11,6	15,1
HR	4,3	4,2	4,1	4,0	3,8	3,7	-1,5	-11,8	-13,1
IT	60,2	62,1	64,2	66,3	67,0	66,3	3,1	6,8	10,1
CY	0,9	0,9	0,9	1,0	1,0	1,1	2,9	25,8	29,5
LV	2,0	1,9	1,6	1,5	1,5	1,4	-7,2	-25,3	-30,7
LT	3,0	2,6	2,2	2,0	1,9	1,8	-10,5	-30,8	-38,1
LU	0,5	0,6	0,8	0,9	1,1	1,1	17,8	78,7	110,5
HU	9,9	9,8	9,7	9,5	9,3	9,2	-1,0	-6,5	-7,5
MT	0,4	0,4	0,5	0,5	0,5	0,5	4,0	8,4	12,7
NL	16,8	17,2	17,6	17,6	17,4	17,1	2,1	-0,5	1,6
AT	8,5	8,8	9,3	9,6	9,7	9,7	4,0	9,9	14,3
PL	38,5	38,4	37,5	36,2	34,8	33,2	-0,4	-13,4	-13,8
PT	10,5	10,1	9,8	9,4	8,8	8,2	-3,2	-19,0	-21,6
RO	20,0	19,7	19,0	18,4	17,9	17,4	-1,6	-11,5	-12,9
SI	2,1	2,1	2,1	2,1	2,1	2,0	1,4	-2,3	-1,0
SK	5,4	5,4	5,3	5,1	4,9	4,6	0,0	-15,8	-15,8
FI	5,4	5,6	5,9	6,1	6,2	6,2	3,6	10,8	14,8
SE	9,6	10,2	11,0	11,8	12,5	13,1	6,1	28,5	36,3
UK	64,1	66,9	70,6	74,0	77,3	80,1	4,4	19,7	25,0
NO	5,1	5,6	6,4	7,1	7,7	8,2	10,0	45,9	60,5
EU	507,2	512,8	518,8	523,7	525,5	522,8	1,1	1,9	3,1
EA	334,5	337,7	341,4	344,6	344,6	341,2	0,9	1,0	2,0

Source: Commission services based on Eurostat EUROPOP2013 data.

In 2013, the Member States with the largest population were: Germany (81 million), France (66 million), the United Kingdom (64 million), Italy (60 million) and Spain (47 million). In 2060, the UK would become the most populous EU country (80 million), followed by France (76 million), Germany (71 million), Italy (66 million) and Spain (46 million).

Age structure

The population pyramids presented in Graph I.1.8 show that the age structure of the EU population is projected to change dramatically. While in 2013 the most numerous cohorts for both males and females are around 45 years old, in 2060 the number of elderly people is projected to account for an increasing share of the population, due to the combination of the numerous cohorts born in the 1950's and 1960's and the continuing projected gains in life expectancy. At the same time, the base of the age pyramid becomes smaller due to below replacement fertility rates. As a consequence, the shape of the age-pyramids gradually changes from pyramids to more evenly sized pillars. A similar development is projected for the euro area.

Graph I.1.2: **Age structure of the population in 2013 and 2060, EU28 and EA (persons)**

Source: Commission services based on Eurostat EUROPOP2013 data.

(people aged 65 or above relative to those aged 15-64) is projected to increase from 27.8% to 50.1% in the EU as a whole over the projection period (see Table I.1.14). This implies that the EU would move from having four working-age people for every person aged over 65 years to only two working-age persons.

The increase in the total age-dependency ratio (people aged 14 and below and aged 65 and above over the population aged 15-64) is projected to be even larger, rising from 51.4% to 76.6%. The difference is noticeable among individual EU Member States. A relatively small increase in the total age-dependency ratio (less than 20 p.p.) is projected in Belgium, Denmark, Ireland, France, Luxembourg, Finland, Sweden and the UK, while in Poland and Slovakia an increase of 40 percentage points or more is expected by 2060 (see Table I.1.15).

Overviews of different population groups in the EU are presented in Table I.1.9 to Table I.1.13: the young population (0-14), the working-age population (15-64), those aged 65 and over and finally those aged 80 and over.

The proportion of young people (aged 0-14) is projected to remain fairly constant by 2060 in the EU28 and the euro area (around 15%), while those aged 15-64 will become a substantially smaller share, declining from 66% to 57%. Those aged 65 and over will become a much larger share (rising from 18% to 28% of the population), and those aged 80 and over (rising from 5% to 12%) will almost become as numerous as the young population in 2060.

As a result of these different trends among age-groups, the demographic old-age dependency ratio

Table I.1.9: **Projection of young population aged 0-14 (in millions)**

	Population aged 0-14 (annual average)						% change		
	2013	2020	2030	2040	2050	2060	2013-2020	2020-2060	2013-2060
BE	1,9	2,1	2,2	2,4	2,5	2,6	9,0	25,5	36,7
BG	1,0	1,0	0,9	0,8	0,8	0,8	-0,1	-22,5	-22,6
CZ	1,6	1,7	1,6	1,6	1,8	1,7	8,4	0,2	8,6
DK	1,0	1,0	1,0	1,1	1,1	1,1	-1,6	12,6	10,8
DE	10,6	10,3	10,3	9,8	9,4	9,3	-2,2	-9,9	-11,8
EE	0,2	0,2	0,2	0,2	0,2	0,2	2,0	-21,8	-20,2
IE	1,0	1,0	0,8	0,8	1,0	1,0	-1,0	-2,4	-3,4
EL	1,6	1,5	1,2	1,2	1,2	1,1	-7,3	-26,6	-31,9
ES	7,1	6,6	5,2	5,3	6,0	6,2	-6,8	-6,0	-12,4
FR	12,2	12,3	12,5	12,8	13,0	13,0	0,8	6,1	7,0
HR	0,6	0,6	0,6	0,5	0,5	0,5	-1,2	-17,5	-18,5
IT	8,4	8,6	8,5	8,9	9,1	8,9	1,5	4,3	5,8
CY	0,1	0,1	0,1	0,1	0,2	0,2	4,9	16,8	22,5
LV	0,3	0,3	0,2	0,2	0,2	0,2	-1,2	-21,7	-22,6
LT	0,4	0,4	0,3	0,3	0,3	0,3	-6,6	-19,7	-25,1
LU	0,1	0,1	0,1	0,2	0,2	0,2	20,3	73,9	109,2
HU	1,4	1,4	1,4	1,4	1,3	1,3	-0,9	-6,7	-7,5
MT	0,1	0,1	0,1	0,1	0,1	0,1	6,8	12,3	20,0
NL	2,9	2,7	2,8	2,8	2,6	2,6	-4,3	-5,0	-9,1
AT	1,2	1,3	1,4	1,3	1,4	1,4	4,8	6,6	11,7
PL	5,8	5,9	5,1	4,6	4,6	4,3	1,4	-26,6	-25,6
PT	1,5	1,3	1,1	1,1	1,0	0,9	-14,1	-29,4	-39,4
RO	3,1	3,1	2,9	2,8	2,7	2,7	-1,9	-13,4	-15,0
SI	0,3	0,3	0,3	0,3	0,3	0,3	7,4	-6,8	0,1
SK	0,8	0,8	0,7	0,6	0,6	0,5	-2,4	-35,3	-36,9
FI	0,9	0,9	1,0	1,0	1,0	1,0	5,0	7,7	13,1
SE	1,6	1,8	2,0	2,0	2,2	2,3	12,5	24,4	39,9
UK	11,3	12,3	12,6	12,6	13,4	13,8	9,0	11,8	21,9
NO	0,9	1,0	1,2	1,3	1,3	1,4	9,3	36,7	49,5
EU	79,1	79,7	77,1	76,6	78,7	78,4	0,8	-1,7	-0,8
EA	51,2	50,6	48,8	49,0	50,0	49,7	-1,3	-1,7	-2,9

Source: Commission services based on Eurostat EUROPOP2013 data.

Table I.1.10: **Projection of working age population 15-64 (in millions)**

	Population aged 15-64 (annual average)						% change		
	2013	2020	2030	2040	2050	2060	2013-2020	2020-2060	2013-2060
BE	7,3	7,6	7,9	8,4	8,9	9,2	3,3	21,3	25,3
BG	4,9	4,5	4,0	3,6	3,2	3,0	-8,5	-33,5	-39,1
CZ	7,1	6,8	6,8	6,6	6,3	6,2	-4,9	-8,1	-12,6
DK	3,6	3,7	3,7	3,7	3,8	3,9	1,1	5,0	6,2
DE	53,7	51,6	47,0	43,7	41,4	38,7	-3,9	-25,1	-28,0
EE	0,9	0,8	0,7	0,7	0,6	0,6	-7,5	-25,6	-31,2
IE	3,0	2,9	2,9	2,8	2,8	3,2	-3,1	8,0	4,6
EL	7,2	6,8	6,2	5,5	4,8	4,6	-5,2	-32,0	-35,5
ES	31,2	29,9	28,0	25,5	24,4	26,1	-4,0	-12,9	-16,3
FR	41,8	41,7	41,7	41,7	42,7	43,8	-0,2	5,0	4,7
HR	2,8	2,7	2,5	2,4	2,2	2,1	-5,1	-22,6	-26,6
IT	39,0	39,6	39,4	38,2	37,9	37,5	1,5	-5,3	-3,9
CY	0,6	0,6	0,6	0,6	0,6	0,6	-1,8	8,3	6,4
LV	1,3	1,2	1,0	0,9	0,8	0,8	-11,1	-34,7	-42,0
LT	2,0	1,7	1,3	1,1	1,0	1,0	-14,5	-38,9	-47,8
LU	0,4	0,4	0,5	0,6	0,7	0,7	15,9	61,4	87,1
HU	6,8	6,4	6,2	5,8	5,4	5,1	-5,2	-19,7	-23,9
MT	0,3	0,3	0,3	0,3	0,3	0,3	-2,3	-4,9	-7,0
NL	11,1	11,0	10,5	10,1	10,1	9,8	-0,7	-10,9	-11,6
AT	5,7	5,8	5,8	5,7	5,7	5,5	1,9	-4,9	-3,2
PL	27,2	25,5	23,9	22,5	19,8	18,0	-6,2	-29,5	-33,9
PT	6,9	6,5	6,0	5,3	4,8	4,4	-4,9	-32,2	-35,5
RO	13,6	12,9	12,1	11,1	10,2	9,7	-5,2	-24,5	-28,5
SI	1,4	1,3	1,3	1,2	1,1	1,1	-4,9	-14,6	-18,8
SK	3,9	3,7	3,5	3,2	2,8	2,4	-4,5	-34,1	-37,1
FI	3,5	3,4	3,5	3,6	3,6	3,6	-1,7	4,6	2,8
SE	6,1	6,3	6,7	7,1	7,5	7,6	2,5	21,7	24,8
UK	41,7	42,1	43,0	44,1	45,4	46,5	1,0	10,3	11,5
NO	3,3	3,6	4,0	4,4	4,7	4,9	7,9	34,6	45,3
EU	334,9	327,7	316,8	305,9	298,8	296,0	-2,1	-9,7	-11,6
EA	219,2	215,3	206,8	197,9	193,9	192,9	-1,8	-10,4	-12,0

Source: Commission services based on Eurostat EUROPOP2013 data.

Table I.1.11:   **Projection of persons aged 65 and over (in millions)**

	Population aged 65+ population (annual average)						% change		
	2013	2020	2030	2040	2050	2060	2013-2020	2020-2060	2013-2060
BE	2,0	2,2	2,8	3,1	3,4	3,7	13,2	63,2	84,8
BG	1,4	1,5	1,6	1,7	1,7	1,7	7,2	14,8	23,1
CZ	1,8	2,2	2,4	2,7	3,0	3,1	19,8	45,3	74,1
DK	1,0	1,2	1,4	1,5	1,5	1,6	14,5	38,8	58,9
DE	17,1	18,7	22,4	24,3	23,7	22,9	9,4	22,5	34,1
EE	0,2	0,3	0,3	0,3	0,3	0,3	10,2	23,5	36,1
IE	0,6	0,7	0,9	1,1	1,2	1,1	21,0	63,0	97,2
EL	2,2	2,4	2,6	2,9	3,1	2,8	5,2	19,7	25,9
ES	8,3	9,2	11,3	13,8	15,2	13,9	10,1	50,8	66,0
FR	11,7	13,8	16,4	18,4	18,7	18,8	17,7	36,6	60,8
HR	0,8	0,9	1,0	1,0	1,1	1,1	11,7	25,9	40,6
IT	12,8	13,9	16,3	19,2	20,0	19,9	8,8	43,0	55,6
CY	0,1	0,1	0,2	0,2	0,3	0,3	24,9	107,0	158,6
LV	0,4	0,4	0,4	0,4	0,4	0,4	1,8	1,1	3,0
LT	0,5	0,5	0,6	0,6	0,5	0,5	0,9	-13,6	-12,8
LU	0,1	0,1	0,1	0,2	0,2	0,2	23,9	164,1	227,1
HU	1,7	2,0	2,1	2,4	2,6	2,7	15,6	36,0	57,2
MT	0,1	0,1	0,1	0,1	0,1	0,1	25,9	45,8	83,5
NL	2,9	3,4	4,3	4,8	4,7	4,7	19,5	36,4	62,9
AT	1,5	1,7	2,2	2,5	2,7	2,8	11,4	62,8	81,4
PL	5,6	7,0	8,5	9,1	10,4	11,0	26,2	55,5	96,4
PT	2,1	2,3	2,6	3,0	3,1	2,8	10,6	25,0	38,1
RO	3,3	3,7	4,0	4,6	5,0	5,0	13,4	35,5	53,6
SI	0,4	0,4	0,5	0,6	0,6	0,6	20,8	39,2	68,2
SK	0,7	0,9	1,1	1,3	1,5	1,6	26,9	75,4	122,5
FI	1,0	1,2	1,4	1,5	1,5	1,6	20,1	30,4	56,7
SE	1,9	2,1	2,4	2,6	2,8	3,2	12,3	52,4	71,1
UK	11,1	12,5	15,1	17,3	18,5	19,9	12,4	59,1	78,9
NO	0,8	1,0	1,2	1,5	1,7	1,9	19,3	98,5	136,9
EU	93,2	105,3	124,8	141,2	147,9	148,3	13,0	40,8	59,1
EA	64,1	71,8	85,8	97,7	100,7	98,5	12,0	37,2	53,7

Source: Commission services based on Eurostat EUROPOP2013 data.

Table I.1.12:   **Projection of persons aged 80 and over (in millions)**

	Population aged 80+ (annual average)						% change		
	2013	2020	2030	2040	2050	2060	2013-2020	2020-2060	2013-2060
BE	0,6	0,6	0,8	1,1	1,3	1,4	9,0	112,0	131,0
BG	0,3	0,3	0,4	0,5	0,6	0,7	6,5	97,0	109,8
CZ	0,4	0,4	0,7	0,9	0,9	1,3	8,7	186,8	211,8
DK	0,2	0,3	0,4	0,5	0,6	0,6	17,9	129,2	170,3
DE	4,5	6,0	6,5	8,2	10,6	9,5	33,2	59,0	111,8
EE	0,1	0,1	0,1	0,1	0,1	0,1	22,3	65,6	102,6
IE	0,1	0,2	0,2	0,3	0,4	0,5	20,5	230,6	298,3
EL	0,6	0,8	0,8	1,0	1,2	1,3	17,2	74,1	104,1
ES	2,6	2,8	3,4	4,4	5,8	6,9	8,9	143,3	165,1
FR	3,7	4,1	5,3	6,8	7,7	8,0	9,5	95,9	114,5
HR	0,2	0,2	0,3	0,3	0,4	0,4	20,9	83,0	121,2
IT	3,8	4,4	5,2	6,2	8,0	8,7	16,3	97,0	129,2
CY	0,0	0,0	0,1	0,1	0,1	0,1	30,6	215,4	311,8
LV	0,1	0,1	0,1	0,1	0,2	0,2	16,9	38,2	61,6
LT	0,1	0,2	0,2	0,2	0,2	0,2	14,2	26,1	44,1
LU	0,0	0,0	0,0	0,1	0,1	0,1	21,9	242,0	317,1
HU	0,4	0,4	0,6	0,8	0,8	1,1	9,6	138,3	161,1
MT	0,0	0,0	0,0	0,0	0,0	0,0	34,0	132,3	211,2
NL	0,7	0,8	1,2	1,6	2,0	1,9	17,5	127,2	166,9
AT	0,4	0,5	0,6	0,8	1,1	1,1	15,3	120,7	154,3
PL	1,5	1,7	2,2	3,3	3,3	4,1	14,8	142,5	178,3
PT	0,6	0,7	0,8	1,0	1,2	1,3	17,4	97,8	132,1
RO	0,8	0,9	1,0	1,4	1,6	2,0	18,3	119,5	159,7
SI	0,1	0,1	0,1	0,2	0,2	0,3	21,4	121,0	168,3
SK	0,2	0,2	0,3	0,4	0,5	0,6	11,3	229,2	266,3
FI	0,3	0,3	0,5	0,6	0,6	0,6	15,7	94,3	124,8
SE	0,5	0,5	0,8	0,9	1,1	1,2	7,6	117,3	133,9
UK	3,0	3,4	4,7	5,7	7,2	7,6	13,1	123,3	152,6
NO	0,2	0,2	0,4	0,5	0,6	0,7	4,0	199,5	211,5
EU	25,9	30,2	37,3	47,4	57,7	61,7	16,6	104,5	138,4
EA	18,4	21,7	26,1	32,9	41,0	42,6	17,9	95,9	131,0

Source: Commission services based on Eurostat EUROPOP2013 data.

Table I.1.13:   **Decomposition of the population by age-groups**

	2013				2060			
	(0-14)	(15-64)	(65+)	(80+)	(0-14)	(15-64)	(65+)	(80+)
BE	17%	65%	18%	5%	17%	59%	24%	9%
BG	14%	67%	19%	4%	14%	54%	32%	12%
CZ	15%	68%	17%	4%	15%	56%	28%	12%
DK	17%	65%	18%	4%	16%	59%	25%	10%
DE	13%	66%	21%	6%	13%	55%	32%	13%
EE	16%	66%	18%	5%	15%	55%	30%	12%
IE	22%	66%	12%	3%	19%	60%	21%	10%
EL	15%	65%	20%	6%	13%	54%	33%	15%
ES	15%	67%	18%	6%	13%	57%	30%	15%
FR	19%	64%	18%	6%	17%	58%	25%	11%
HR	15%	67%	18%	4%	14%	57%	30%	11%
IT	14%	65%	21%	6%	13%	57%	30%	13%
CY	16%	70%	13%	3%	15%	58%	27%	9%
LV	15%	67%	19%	5%	16%	56%	28%	11%
LT	15%	67%	18%	5%	18%	56%	26%	11%
LU	17%	69%	14%	4%	17%	61%	22%	8%
HU	14%	68%	17%	4%	14%	56%	29%	12%
MT	14%	68%	18%	4%	15%	56%	29%	10%
NL	17%	66%	17%	4%	15%	57%	27%	11%
AT	14%	67%	18%	5%	14%	57%	29%	11%
PL	15%	70%	14%	4%	13%	54%	33%	12%
PT	15%	66%	20%	5%	11%	54%	35%	16%
RO	16%	68%	16%	4%	15%	56%	29%	12%
SI	15%	68%	17%	5%	15%	56%	29%	12%
SK	15%	71%	13%	3%	11%	53%	35%	13%
FI	16%	65%	19%	5%	16%	58%	26%	10%
SE	17%	64%	19%	5%	17%	58%	24%	9%
UK	18%	65%	17%	5%	17%	58%	25%	9%
NO	18%	66%	16%	4%	17%	60%	23%	8%
EU	16%	66%	18%	5%	15%	57%	28%	12%
EA	15%	66%	19%	6%	15%	57%	29%	12%

Source: Commission services based on Eurostat EUROPOP2013 data.

Table I.1.14:   **Demographic old-age dependency ratio (65+/(15-64))**

	Demographic dependency ratio (65+)						p.p. change
	2013	2020	2030	2040	2050	2060	2013-2060
BE	27,1	29,7	34,7	37,2	37,9	39,9	12,9
BG	28,9	33,9	39,1	45,8	54,3	58,4	29,6
CZ	25,1	31,7	35,3	40,8	48,4	50,1	24,9
DK	27,9	31,6	36,9	40,7	39,4	41,8	13,9
DE	31,8	36,2	47,6	55,6	57,4	59,2	27,4
EE	27,5	32,8	39,8	45,5	51,7	54,5	26,9
IE	18,9	23,6	30,7	39,0	44,7	35,6	16,7
EL	31,2	34,6	41,6	53,8	63,7	60,8	29,7
ES	26,8	30,7	40,2	54,3	62,3	53,2	26,4
FR	27,9	33,0	39,4	44,1	43,7	42,9	14,9
HR	27,3	32,1	39,5	43,9	49,3	52,3	25,0
IT	32,8	35,1	41,3	50,2	52,9	53,0	20,3
CY	19,1	24,3	32,1	36,6	42,6	46,5	27,4
LV	28,3	32,5	42,2	47,8	50,7	50,3	22,0
LT	27,4	32,3	48,0	55,7	51,6	45,7	18,3
LU	20,3	21,7	25,8	29,3	31,7	35,6	15,2
HU	25,4	31,0	34,4	40,5	47,5	52,6	27,1
MT	25,8	33,2	40,5	40,9	45,0	50,9	25,1
NL	25,9	31,2	40,6	47,1	46,4	47,8	21,9
AT	27,0	29,5	37,9	44,4	46,8	50,5	23,5
PL	20,5	27,7	35,6	40,4	52,6	61,0	40,5
PT	29,8	34,7	43,6	55,7	64,3	63,9	34,0
RO	24,1	28,8	32,7	41,8	48,7	51,8	27,7
SI	25,4	32,2	41,0	47,7	54,1	52,5	27,2
SK	18,7	24,8	32,9	40,6	54,9	66,1	47,4
FI	29,6	36,1	41,5	41,1	42,0	45,1	15,5
SE	30,2	33,1	35,7	37,4	37,6	41,5	11,2
UK	26,6	29,6	35,2	39,1	40,7	42,8	16,1
NO	23,9	26,5	30,2	33,7	35,1	39,0	15,1
EU	27,8	32,1	39,4	46,1	49,5	50,1	22,3
EA	29,3	33,3	41,5	49,4	52,0	51,1	21,8

Source: Commission services based on Eurostat EUROPOP2013 data.

Table I.1.15: **Demographic total dependency ratio (0-14 plus 65+/(15-64))**

	Total dependency ratio						p.p. change
	2013	2020	2030	2040	2050	2060	2013-2060
BE	53,1	57,2	63,0	65,6	66,6	68,4	15,2
BG	49,3	56,1	60,5	68,1	79,6	84,4	35,1
CZ	47,1	56,7	58,6	64,9	76,2	77,3	30,3
DK	54,7	57,7	64,7	69,6	66,8	69,8	15,0
DE	51,4	56,2	69,5	77,9	80,3	83,2	31,8
EE	51,4	59,2	63,9	69,7	79,7	82,2	30,8
IE	52,2	57,6	58,5	68,6	79,5	66,4	14,2
EL	53,6	56,5	61,4	75,3	87,9	84,5	30,9
ES	49,5	52,8	58,8	75,2	87,1	77,0	27,4
FR	57,1	62,4	69,3	74,8	74,1	72,6	15,6
HR	49,5	55,3	62,8	66,8	73,4	77,0	27,4
IT	54,4	56,8	62,8	73,6	77,1	76,9	22,5
CY	42,4	49,1	56,2	58,6	67,5	73,3	30,9
LV	50,2	56,8	65,7	71,7	79,4	79,5	29,3
LT	49,3	56,2	73,3	80,6	82,0	77,1	27,8
LU	44,9	47,3	53,4	57,4	59,4	63,1	18,1
HU	46,6	53,1	57,0	63,8	72,1	78,3	31,7
MT	47,1	56,5	66,0	64,9	70,4	78,4	31,3
NL	51,8	56,2	67,0	74,4	72,6	74,4	22,6
AT	48,3	51,4	61,4	67,8	70,5	75,1	26,8
PL	41,9	50,7	57,0	60,7	75,8	85,0	43,1
PT	52,1	54,8	62,6	76,4	85,7	84,8	32,7
RO	47,1	52,6	56,7	66,7	75,4	79,1	32,0
SI	46,7	56,3	63,9	71,0	80,9	78,8	32,1
SK	40,1	46,8	52,5	59,3	75,7	87,6	47,5
FI	55,0	63,3	69,6	68,7	69,8	73,1	18,0
SE	56,8	62,3	65,6	66,2	67,0	71,3	14,5
UK	53,7	58,8	64,5	67,7	70,2	72,4	18,6
NO	51,7	54,6	59,4	62,9	63,6	67,6	15,9
EU	51,4	56,5	63,8	71,2	75,8	76,6	25,2
EA	52,6	56,8	65,1	74,1	77,8	76,9	24,2

Source: Commission services based on Eurostat EUROPOP2013 data.

Table I.1.16: **Geographic distribution of world population based on the 2012 UN revision**

	1950	1960	1970	1980	1990	2000	2010	2020	2030	2040	2050	2060	Change 1950 00	Change 2000 60
Africa	8,8	9,3	9,8	10,8	12,0	13,4	15,0	17,0	19,4	22,1	25,1	28,1	4,6	14,7
Asia	55,6	56,2	57,8	59,2	60,1	60,5	60,3	59,4	58,0	56,2	54,1	51,7	4,9	-8,8
China	21,9	21,7	22,5	22,4	21,7	20,7	19,6	18,6	17,2	15,9	14,5	13,2	-1,1	-7,5
India	14,7	14,7	14,9	15,5	16,2	17,1	17,6	17,5	17,5	17,3	17,0	16,5	2,4	-0,6
Japan	3,3	3,1	2,8	2,6	2,3	2,1	1,8	1,6	1,4	1,3	1,1	1,0	-1,2	-1,0
Russian Federation	4,1	4,0	3,5	3,1	2,8	2,4	2,0	1,8	1,6	1,4	1,3	1,2	-1,6	-1,3
Europe	21,6	20,0	17,8	15,6	13,6	11,9	10,6	9,6	8,7	8,0	7,4	6,9	-9,7	-5,0
EU	14,7	13,3	11,8	10,3	8,9	7,9	7,2	6,7	6,2	5,7	5,4	5,0	-6,9	-2,8
EA	9,5	8,5	7,6	6,6	5,7	5,1	4,7	4,4	4,1	3,8	3,5	3,3	-4,4	-1,8
Latin America	6,6	7,3	7,8	8,2	8,4	8,5	8,6	8,0	8,0	7,8	7,7	7,5	1,9	-1,1
Northern America	6,8	6,7	6,3	5,7	5,4	5,2	5,1	4,9	4,8	4,7	4,7	4,7	-1,6	-0,5
United States	6,2	6,1	5,7	5,2	4,8	4,7	4,6	4,4	4,3	4,2	4,2	4,2	-1,6	-0,5
Oceania	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,6	0,6	0,6	0,6	0,0	0,1

Source: UN World Population Prospects: The 2012 Revision.

1.6. POPULATION AGEING IN THE EU IN A GLOBAL CONTEXT

The UN population statistics and projections provide a source for demographic trends in a global perspective ([8]). The world population share of the current EU Member States halved from 14.7% in 1950 to 7.2% in 2010, and it is expected to drop close to 5.0% in 2060, despite the projected net migration flows, see Table I.1.16.

The world population shares of Japan, China and the US were also declining over the last six decades. These declining trends over the period 1950 to 2010 are in contrast with increasing world population shares in Africa, Asia and Latin America.

Africa's world population share is projected to increase at the fastest rate of all continents to over 28% in 2060. In Asia, a slight decline is expected though it is projected to still account to over 50% of the world population in 2060. The decline is particularly evident for China, where the world population share is projected to fall from 19.6% to

---

([8]) The United Nations Population Division produces global population projections revised every two years. The latest projections are the 2012 Revision.

Table I.1.17:   **Old-age dependency ratio based on 2012 UN revision(65+/(15-64)**

65+/(15-64)	1950	1960	1970	1980	1990	2000	2010	2020	2030	2040	2050	2060	Change 1950 00	Change 2000 60
World	8,5	9,1	9,5	9,9	9,9	10,9	11,6	14,2	17,8	21,6	24,7	28,3	2,4	17,4
Africa	5,9	5,9	6,2	6,1	6,0	6,1	6,1	6,4	7,0	7,8	9,5	11,3	0,1	5,2
Asia	6,8	7,2	7,1	7,4	7,7	9,1	9,9	12,9	17,1	22,6	27,0	33,0	2,3	23,9
China	7,2	8,6	7,7	7,9	8,1	10,0	11,4	16,7	23,8	34,8	39,0	49,0	2,8	39,0
India	5,3	5,3	5,8	6,3	6,8	7,6	7,7	9,4	12,0	14,8	18,7	23,6	2,3	16,0
Japan	8,3	9,0	10,3	13,4	17,2	25,3	35,1	48,7	53,7	64,7	71,8	73,3	17,0	48,0
Russian Federation	9,5	9,9	11,7	15,0	14,8	17,7	17,9	21,9	27,6	27,8	32,8	36,5	8,1	18,8
Europe	12,5	13,7	16,3	18,9	19,0	21,8	23,8	29,0	35,9	41,5	46,6	48,9	9,2	27,2
EU27	13,4	15,2	18,2	20,6	20,8	23,4	26,1	31,8	39,3	46,8	51,5	52,8	10,0	29,4
EA	14,2	16,1	19,4	21,4	21,6	24,9	28,4	33,3	41,9	51,1	55,3	55,2	10,8	30,3
Latin America	6,2	6,8	7,6	7,9	8,2	9,2	10,6	13,1	17,8	23,5	30,4	37,4	3,0	28,2
Northern America	12,7	15,1	15,6	16,6	18,3	18,6	19,5	25,9	33,5	35,6	36,2	38,3	5,9	19,7
United States	12,8	15,3	15,9	16,9	18,5	18,6	19,0	25,7	33,0	35,0	35,5	37,6	5,9	19,0
Oceania	11,7	12,2	11,8	12,8	14,1	15,3	16,6	20,4	24,5	27,2	29,0	31,2	3,6	16,0

Source: UN World Population Prospects: The 2012 Revision.

13.2% between 2010 and 2060. The population of the European continent will become relative smaller by 2060 with its share shrinking by 3.7 p.p. (from 10.6% to 6.9%). The world population shares of Northern America and the US (5.1% and 4.6%, respectively in 2010) will decline only marginally. The other regions of the world will roughly keep their share in the sharply growing world population (an increase of over 3 billion persons or 44%, from 5.9 billion in 2010 to close to 10 billion in 2060).

Looking at the age structure in the UN projections, it can be seen that Europe is currently the oldest continent with the highest old age dependency ratio, and will remain so in 2060. Other parts of the world are however also experiencing a dramatic ageing of their populations, with old-age dependency ratios climbing to levels clearly above the ones in Europe now on all continents except Africa. The demographic change is pronounced in particular in China, where the old age dependency ration is at similar levels to the European one at around 50% in 2060. While the old-age dependency ratios end up at between 30% and 40% for Asia as a whole as well as Oceania, Northern America and Latin America. Africa remains the only continent with a relatively low old-age dependency ratio at the end of the projection period (at 15%).

The UN projections show that Europe is currently and will remain in 2060 the oldest continent in the world also when looking at the 'very-old-age dependency ratio' (the ratio of over 80 years old to the working age population), see Table I.1.18. This dependency ratio is projected to rise to between 20% and 25% in the EU and EA, while in other continents it is expected to remain below 14%, with Africa again at the lowest level (at 1.8%). The increase in the proportion of over 80 years old is particularly pronounced in Japan, where the dependency ratio is projected to increase to over 37% by 2060.

Table I.1.18:   **"Very" old-age dependency ratio based on 2012 UN revision(80+/(15-64)**

	1950	1960	1970	1980	1990	2000	2010	2020	2030	2040	2050	2060	Change 1950-00	Change 2000-60
World	0,9	1,1	1,3	1,4	1,6	1,8	2,3	2,8	3,5	4,9	6,5	7,7	0,9	5,9
Africa	0,5	0,5	0,6	0,6	0,6	0,7	0,7	0,8	0,9	1,1	1,4	1,8	0,2	1,1
Asia	0,6	0,7	0,8	0,8	0,9	1,3	1,7	2,3	2,9	4,5	6,6	8,4	0,7	7,1
China	0,5	0,6	0,9	0,7	0,9	1,3	2,0	2,6	3,7	6,5	10,6	12,7	0,9	11,4
India	0,6	0,6	0,6	0,6	0,7	1,0	1,0	1,4	1,7	2,5	3,4	4,7	0,4	3,7
Japan	0,8	1,1	1,3	2,0	3,4	5,6	9,9	15,8	22,7	26,6	30,6	37,3	4,8	31,7
Russian Federation	1,5	1,6	1,8	2,0	2,7	2,7	4,1	5,0	4,7	7,2	7,5	8,8	1,2	6,1
Europe	1,7	2,1	2,5	3,1	4,1	4,3	6,2	7,9	9,6	13,0	16,4	18,5	2,6	14,2
EU27	1,7	2,2	2,8	3,6	4,7	5,0	7,1	9,1	11,6	15,4	19,8	21,8	3,3	16,7
EA	1,8	2,4	3,1	3,9	5,1	5,5	7,9	10,1	12,7	17,0	22,4	24,2	3,7	18,7
Latin America	0,8	0,8	0,9	1,1	1,3	1,7	2,3	2,8	3,9	6,0	8,9	12,3	0,9	10,6
Northern America	1,8	2,3	2,9	3,5	3,9	4,8	5,7	6,1	8,8	12,2	13,4	13,6	3,0	8,8
United States	1,8	2,4	3,0	3,6	3,9	4,9	5,5	6,0	8,7	12,0	13,1	13,2	3,1	8,4
Oceania	1,6	1,8	2,0	2,2	2,7	3,4	4,4	4,9	6,7	8,7	10,1	11,0	1,9	7,6

Source: UN World Population Prospects: The 2012 Revision.

Comparison with the EUROPOP2010 demographic projection used in the 2012 Ageing Report

A comparison of the main features of the EUROPOP2013 projection with the EUROPOP2010 projection used in the 2012 Ageing Report is provided in this section ([9]).

In 2013 the population in the EU as a whole was 3,223,000 people smaller compared with the EUROPOP2010 projection (see Table I.1.19). By 2030, the population is projected to be about 7.9 million smaller and by 2060 about 2.6 million larger (+0.5%). The higher population in 2060 is mostly concentrated to the young (0-14) and working-age population (15-64), while the number of older persons (65+) is projected to be smaller (see Graph I.1.3).

The increase in the old-age dependency ratio (persons aged 65 and over in relation to persons aged 15-64) over the projection period (2013-2060) in the EUROPOP2013 projection is lower than in the EUROPOP2010 projection (22.3 p.p. and 26.5 p.p. respectively), see Table I.1.23. Due to changes in assumptions, the projected increase in the old-age dependency ratio is significantly lower in LV, LT, and RO and significantly higher in PT.

Graph I.1.3:   **Population projections compared**
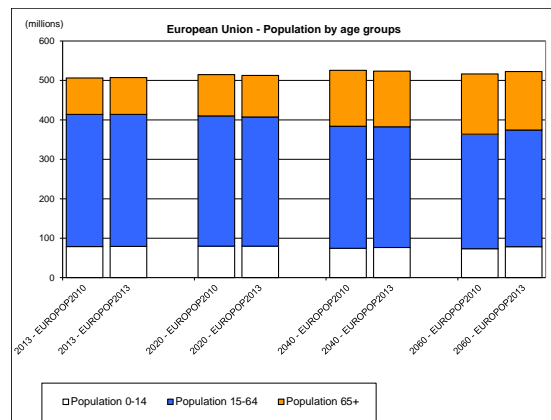
Source: Commission services based on Eurostat EUROPOP2013 and EUROPOP2010 data.

Compared with the previous projection, total fertility rates are initially lower in 2013 for the EU as a whole in the EUROPOP2013 projection, but already become higher in 2020 and stay higher until 2040 (by 0.05 on average for the EU) after which the difference in total fertility rates between the projections remains stable. Especially high comparative increases in fertility rates of 0.1 or more by 2060 are projected for BG, CZ, DK, EE, EL, CY, LV, LU, HU, MT, PL and SK, (see Table I.1.24).

In the EU as a whole life expectancy at birth in 2013 is assumed to be higher in EUROPOP2013 compared with EUROPOP2010 for both males (+0.3 years) and females (+0.1 years). The largest increases in 2013 (of 0.5 years of more) for males occur in DK, EE, IE, LU, HU, SI and FI and for females in DK, EE, IE and PT. The increase in life expectancy at birth over the projection period to 2060 is expected to be slightly lower in the EU, for

---

([9]) For further information see Eurostat technical note (14 April 2014): 'Comparison between Eurostat population projections 2010-based (EUROPOP2010) and 2013-based (EUROPOP2013).

males, while for females the size of the increase remains unchanged (see Table I.1.25).

The revised methodology for the migration projections in EUROPOP2013 compared with the EUROPOP2010 affects the EU Member States differently (see Table I.1.26). In light of the recent observed decreases in net migration, inflows to the EU in 2013 (especially in DE and ES) in EUROPOP2013 are lower than in EUROPOP2010 by about 1.1 million. Overall, by 2060 EU net inward migration in EUROPOP2013 is projected to be 5.7 million lower than in EUROPOP2010.

The projected cumulated net migration in 2010 - 2060 as percent of the 2013 population based on EUROPOP2010 and EUROPOP2013 is shown in Graph I.1.4.

Graph I.1.4:   **Projected cumulated net migration per capita 2013-2060 according to EUROPOP2010 and EUROPOP2013 sorted by value of EUROPOP2013**
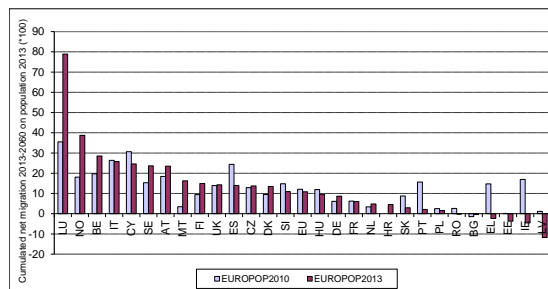
Source: Commission services based on Eurostat EUROPOP2013 and EUROPOP2010 data.

Table I.1.19:   **Total population compared (EUROPOP2013 - EUROPOP2010) ('000)**

	2013	2020	2030	2040	2050	2060	Diff in 2060 as % of total population EUROPOP2010
BE	79	251	707	1225	1649	1971	14,6
BG	-162	-143	-134	-147	-115	-50	-0,9
CZ	-127	-170	-53	178	415	626	6,0
DK	13	58	169	290	383	461	7,6
DE	159	612	1946	3046	3954	4693	7,1
EE	-19	-41	-73	-81	-82	-79	-6,8
IE	36	-232	-741	-1089	-1246	-1308	-19,9
EL	-365	-859	-1518	-2060	-2457	-2717	-24,1
ES	-41	-2364	-5557	-7139	-7103	-6104	-11,7
FR	-163	-159	116	606	1145	1921	2,6
HR	:	:	:	:	:	:	:
IT	-1185	-906	-335	561	1153	1369	2,1
CY	40	2	-54	-73	-53	-13	-1,2
LV	-195	-267	-392	-393	-340	-269	-16,1
LT	-311	-527	-854	-924	-899	-836	-31,3
LU	13	64	165	268	351	415	56,9
HU	-81	-99	-20	83	179	313	3,5
MT	10	24	40	56	72	89	23,1
NL	-47	-83	-17	35	39	13	0,1
AT	39	214	433	638	782	831	9,4
PL	201	-12	-34	138	309	603	1,8
PT	-220	-611	-1021	-1399	-1752	-2051	-20,0
RO	-1334	-1312	-1243	-958	-482	170	1,0
SI	-31	-56	-67	-62	-43	-15	-0,7
SK	-73	-168	-270	-360	-461	-546	-10,7
FI	0	47	184	337	437	499	8,7
SE	-19	81	441	860	1231	1545	13,4
UK	560	388	262	414	788	1036	1,3
NO	25	186	599	1024	1335	1556	23,6
EU	-3223	-6269	-7920	-5953	-2148	2565	0,5
EA	-1964	-4534	-6454	-5885	-3956	-1301	-0,4

Source: Commission services based on Eurostat EUROPOP2013 and EUROPOP2010 data.

Table I.1.20:   **Working-age population compared (EUROPOP2013 - EUROPOP2010) ('000)**

	2013	2020	2030	2040	2050	2060	Diff in 2060 as % of total population EUROPOP2010
BE	66	194	513	874	1175	1335	17,0
BG	-117	-93	-98	-80	-39	-32	-1,1
CZ	-113	-176	-142	2	197	413	7,1
DK	17	55	115	190	275	303	8,5
DE	130	276	1006	1727	2135	2446	6,8
EE	-19	-35	-62	-74	-63	-46	-7,1
IE	46	-136	-494	-733	-817	-783	-19,9
EL	-289	-579	-1029	-1341	-1487	-1591	-25,5
ES	-74	-1780	-4079	-5170	-4793	-3105	-10,6
FR	-152	-79	-123	77	827	1760	4,2
HR	:	:	:	:	:	:	:
IT	-888	-775	-405	394	1013	1196	3,3
CY	37	10	-32	-55	-43	-6	-1,0
LV	-164	-216	-306	-287	-204	-96	-11,0
LT	-259	-400	-643	-678	-584	-434	-29,6
LU	12	45	113	183	241	275	64,5
HU	-50	-97	-126	-71	106	232	4,7
MT	8	13	18	28	40	51	23,8
NL	-27	-27	36	50	49	18	0,2
AT	25	127	277	439	484	454	8,9
PL	151	46	-57	-69	185	546	3,1
PT	-217	-514	-828	-1096	-1211	-1299	-22,7
RO	-1271	-1296	-1392	-1016	-266	469	5,1
SI	-28	-53	-63	-56	-27	14	1,3
SK	-69	-108	-172	-251	-290	-333	-12,1
FI	5	50	142	239	314	337	10,3
SE	-9	72	317	598	876	1070	16,3
UK	411	203	162	244	83	374	0,8
NO	36	173	460	738	955	1043	27,3
EU	-2840	-5275	-7351	-5932	-1823	3564	1,2
EA	-1599	-3588	-5487	-5051	-2656	625	0,3

Source: Commission services based on Eurostat EUROPOP2013 and EUROPOP2010 data.

Table I.1.21:   **Population aged 0-14 compared (EUROPOP2013 - EUROPOP2010) ('000)**

	2013	2020	2030	2040	2050	2060	Diff in 2060 as % of total population EUROPOP2010
BE	16	62	186	312	381	411	18,7
BG	-72	-64	-6	-3	16	47	6,5
CZ	-20	-2	82	174	252	286	20,2
DK	-10	-13	30	73	84	101	10,3
DE	-21	232	646	734	903	1046	12,7
EE	-6	-15	-17	-9	-6	-3	-1,9
IE	-14	-81	-193	-269	-243	-209	-17,7
EL	-55	-208	-317	-363	-409	-425	-27,9
ES	-74	-537	-1181	-1280	-856	-452	-6,8
FR	47	-27	299	650	721	972	8,0
HR	:	:	:	:	:	:	:
IT	-158	75	400	709	877	840	10,4
CY	4	-6	-19	-20	-8	5	3,0
LV	-23	-29	-32	-17	12	29	14,8
LT	-58	-111	-139	-113	-75	-41	-11,3
LU	1	15	41	65	77	83	75,1
HU	-27	-10	101	169	187	228	20,9
MT	-1	3	11	15	18	23	45,3
NL	-21	-50	-52	-23	-29	-42	-1,6
AT	15	81	132	140	168	164	13,7
PL	15	-104	-3	223	265	381	9,7
PT	-51	-138	-200	-229	-272	-302	-24,6
RO	-101	-32	285	419	525	662	33,2
SI	-3	-4	-1	6	14	19	6,8
SK	-8	-61	-89	-78	-98	-107	-17,0
FI	-5	-5	33	79	88	91	9,9
SE	-4	21	127	242	303	346	17,9
UK	164	192	32	-60	149	209	1,5
NO	-9	8	110	217	242	261	23,1
EU	-469	-815	159	1545	3042	4360	5,9
EA	-356	-692	-351	421	1338	2142	4,5

Source: Commission services based on Eurostat EUROPOP2013 and EUROPOP2010 data.

Table I.1.22:   **Population aged 65 and over compared (EUROPOP2013 - EUROPOP2010) ('000)**

	2013	2020	2030	2040	2050	2060	Diff in 2060 as % of total population EUROPOP2010
BE	-3	-5	8	39	94	225	6,6
BG	28	15	-31	-64	-92	-65	-3,6
CZ	6	8	7	2	-33	-73	-2,3
DK	5	15	24	27	24	58	3,7
DE	50	105	293	586	916	1201	5,5
EE	6	9	6	2	-13	-30	-8,5
IE	4	-15	-55	-87	-186	-316	-21,9
EL	-21	-72	-172	-356	-562	-700	-19,9
ES	106	-46	-297	-689	-1454	-2547	-15,5
FR	-58	-53	-60	-122	-403	-810	-4,1
HR	:	:	:	:	:	:	:
IT	-139	-206	-330	-542	-737	-667	-3,2
CY	-1	-3	-4	1	-2	-12	-3,7
LV	-9	-23	-54	-89	-148	-202	-34,0
LT	7	-16	-72	-133	-240	-361	-43,3
LU	0	4	11	20	33	57	29,5
HU	-3	8	6	-15	-115	-147	-5,2
MT	3	7	11	13	14	15	12,7
NL	0	-5	-2	9	18	37	0,8
AT	-1	6	25	59	130	213	8,2
PL	35	47	26	-16	-141	-324	-2,9
PT	48	40	6	-74	-269	-449	-13,7
RO	38	16	-136	-361	-740	-962	-16,0
SI	0	1	-3	-12	-30	-48	-7,5
SK	5	1	-10	-32	-73	-106	-6,2
FI	0	2	9	19	35	70	4,5
SE	-6	-11	-3	19	52	129	4,3
UK	-15	-6	67	229	557	454	2,3
NO	-2	4	29	70	137	252	15,3
EU	86	-178	-728	-1566	-3367	-5359	-3,5
EA	-9	-254	-616	-1254	-2638	-4068	-4,0

Source: Commission services based on Eurostat EUROPOP2013 and EUROPOP2010 data.

Table I.1.23:   **Old-age dependency ratio (65+/(15-64)) compared (EUROPOP2013 - EUROPOP2010)**

	2013	2020	2030	2040	2050	2060	2013-2060
BE	-0,3	-0,9	-2,3	-3,8	-4,6	-3,9	-3,6
BG	1,2	1,0	0,2	-0,7	-2,2	-1,5	-2,8
CZ	0,5	0,9	0,8	0,0	-2,1	-4,8	-5,3
DK	0,0	-0,1	-0,5	-1,4	-2,4	-1,9	-2,0
DE	0,0	0,0	-0,4	-0,9	-0,8	-0,7	-0,7
EE	1,3	2,4	3,9	4,7	2,8	-0,8	-2,1
IE	-0,2	0,6	2,9	5,6	5,0	-0,9	-0,8
EL	0,9	1,7	3,5	5,4	6,1	4,3	3,4
ES	0,4	1,6	4,2	6,9	5,2	-3,1	-3,5
FR	0,0	-0,1	0,0	-0,4	-1,8	-3,7	-3,7
HR	:	:	:	:	:	:	:
IT	0,4	0,2	-0,4	-2,0	-3,5	-3,6	-4,0
CY	-1,4	-0,9	1,1	3,2	2,4	-1,3	0,1
LV	2,5	3,4	5,8	4,1	-4,4	-17,6	-20,0
LT	3,5	5,4	12,4	13,7	3,8	-11,0	-14,5
LU	-0,6	-1,6	-4,6	-8,1	-10,4	-9,6	-9,0
HU	0,1	0,6	0,8	0,2	-3,1	-5,5	-5,6
MT	0,5	1,0	1,2	0,4	-1,8	-5,0	-5,5
NL	0,1	0,0	-0,2	-0,1	0,0	0,3	0,2
AT	-0,1	-0,6	-1,5	-2,6	-1,8	-0,3	-0,2
PL	0,0	0,1	0,2	0,1	-1,2	-3,8	-3,8
PT	1,6	3,1	5,4	8,4	8,5	6,6	5,0
RO	2,3	2,8	2,4	0,5	-5,8	-13,0	-15,3
SI	0,5	1,3	1,7	1,2	-1,3	-4,9	-5,5
SK	0,4	0,7	1,3	2,0	2,8	4,1	3,7
FI	0,0	-0,5	-1,5	-2,4	-2,9	-2,5	-2,4
SE	-0,1	-0,6	-1,8	-3,2	-4,2	-4,8	-4,7
UK	-0,3	-0,2	0,0	0,3	1,2	0,6	0,9
NO	-0,3	-1,2	-3,1	-4,9	-5,3	-4,1	-3,7
EU	0,3	0,5	0,7	0,4	-0,8	-2,4	-2,7
EA	0,2	0,4	0,8	0,6	-0,6	-2,2	-2,4

Source: Commission services based on Eurostat EUROPOP2013 and EUROPOP2010 data.

Table I.1.24:   **Fertility rates compared (EUROPOP2013 - EUROPOP2010)**

	Fertility rate						
	2013	2020	2030	2040	2050	2060	2013-2060
BE	-0,03	-0,02	0,00	0,01	0,02	0,03	0,06
BG	-0,06	0,01	0,07	0,09	0,10	0,10	0,16
CZ	0,02	0,11	0,17	0,20	0,19	0,18	0,16
DK	-0,10	-0,06	-0,03	-0,01	0,01	0,02	0,12
DE	0,03	0,05	0,08	0,09	0,10	0,09	0,07
EE	-0,06	0,03	0,09	0,12	0,12	0,12	0,17
IE	-0,05	-0,04	-0,04	-0,03	-0,01	-0,01	0,04
EL	-0,19	-0,16	-0,12	-0,10	-0,08	-0,06	0,13
ES	-0,09	-0,07	-0,04	-0,04	-0,02	-0,01	0,08
FR	0,02	0,02	0,02	0,02	0,02	0,03	0,01
IT	0,00	0,02	0,03	0,04	0,04	0,04	0,04
CY	-0,11	-0,08	-0,05	-0,03	-0,02	0,00	0,10
LV	0,17	0,25	0,29	0,30	0,29	0,27	0,10
LT	0,05	0,09	0,12	0,14	0,14	0,13	0,08
LU	-0,01	0,03	0,06	0,08	0,10	0,10	0,10
HU	0,04	0,14	0,21	0,24	0,25	0,23	0,18
MT	-0,01	0,09	0,17	0,20	0,20	0,19	0,20
NL	-0,07	-0,06	-0,05	-0,03	-0,03	-0,01	0,06
AT	0,05	0,05	0,07	0,07	0,07	0,06	0,02
PL	-0,09	-0,04	0,01	0,03	0,05	0,06	0,15
PT	-0,06	-0,04	-0,03	-0,01	0,00	0,01	0,07
RO	0,26	0,32	0,34	0,33	0,31	0,28	0,02
SI	0,05	0,07	0,09	0,10	0,10	0,10	0,05
SK	-0,14	-0,12	-0,10	-0,07	-0,06	-0,04	0,10
FI	-0,06	-0,05	-0,03	-0,02	-0,01	0,00	0,06
SE	0,00	0,00	0,01	0,01	0,01	0,02	0,02
UK	-0,01	0,00	0,00	0,01	0,02	0,02	0,03
NO	-0,05	-0,14	-0,12	-0,10	-0,09	-0,06	-0,01
EU	-0,01	0,02	0,04	0,05	0,05	0,05	0,06
EA	-0,02	0,00	0,02	0,03	0,03	0,04	0,05

Source: Commission services based on Eurostat EUROPOP2013 and EUROPOP2010 data.

Table I.1.25: **Life-expectancy at birth compared (EUROPOP2013 - EUROPOP2010)**

	Males							Females						
	2013	2020	2030	2040	2050	2060	change 2013-2060	2013	2020	2030	2040	2050	2060	change 2013-2060
BE	0,0	-0,1	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	-0,1	-0,1	-0,1	-0,1	0,0
BG	0,0	0,0	-0,1	0,0	-0,1	-0,1	-0,1	-0,1	-0,2	-0,2	-0,2	-0,2	-0,2	-0,1
CZ	0,2	0,2	0,1	0,2	0,1	0,1	0,0	0,3	0,2	0,2	0,2	0,1	0,1	-0,2
DK	0,7	0,7	0,6	0,5	0,4	0,4	-0,3	0,5	0,4	0,4	0,4	0,3	0,3	-0,2
DE	0,4	0,3	0,3	0,4	0,3	0,4	0,0	0,1	0,1	0,1	0,2	0,1	0,2	0,1
EE	1,0	0,8	0,7	0,5	0,4	0,3	-0,7	0,7	0,6	0,5	0,5	0,4	0,3	-0,3
IE	1,2	1,1	1,0	0,8	0,7	0,7	-0,5	0,5	0,6	0,5	0,4	0,4	0,3	-0,2
EL	-0,3	-0,2	-0,1	-0,1	-0,1	0,0	0,3	0,2	0,2	0,4	0,5	0,6	0,7	0,5
ES	0,4	0,3	0,3	0,2	0,2	0,1	-0,3	0,2	0,2	0,2	0,1	0,1	0,1	-0,1
FR	0,2	0,2	0,2	0,2	0,1	0,1	-0,1	0,0	0,0	0,0	0,0	0,0	0,0	-0,1
HR	:	:	:	:	:	:	:	:	:	:	:	:	:	:
IT	0,4	0,4	0,3	0,2	0,1	0,0	-0,4	0,2	0,1	0,0	0,0	-0,1	0,0	-0,2
CY	0,3	0,2	0,2	0,1	0,2	0,1	-0,2	0,1	0,1	0,1	0,0	-0,1	-0,1	-0,2
LV	-0,1	-0,1	-0,2	-0,2	-0,2	-0,2	-0,1	0,3	0,2	0,1	0,0	-0,1	-0,2	-0,4
LT	0,1	0,1	0,1	0,2	0,2	0,2	0,2	0,3	0,3	0,3	0,4	0,4	0,3	0,0
LU	0,9	0,8	0,7	0,7	0,6	0,5	-0,3	0,1	0,2	0,2	0,2	0,1	0,0	-0,1
HU	0,7	0,6	0,4	0,3	0,1	0,1	-0,6	-0,3	-0,3	-0,3	-0,4	-0,4	-0,4	-0,1
MT	0,6	0,5	0,5	0,3	0,3	0,2	-0,4	0,0	0,2	0,1	0,2	0,2	0,2	0,1
NL	0,2	0,2	0,1	0,1	0,1	0,0	-0,2	-0,3	-0,3	-0,2	-0,2	-0,2	-0,2	0,1
AT	0,3	0,3	0,3	0,2	0,2	0,1	-0,2	0,1	0,0	0,1	0,0	0,0	0,0	-0,1
PL	0,3	0,3	0,3	0,2	0,2	0,2	-0,1	0,3	0,3	0,3	0,2	0,2	0,2	-0,1
PT	0,3	0,3	0,3	0,2	0,2	0,3	-0,1	0,6	0,5	0,6	0,6	0,6	0,6	0,0
RO	0,3	0,2	0,2	0,2	0,1	0,0	-0,3	0,1	0,1	0,0	0,1	0,0	0,0	-0,1
SI	0,8	0,7	0,6	0,5	0,5	0,3	-0,5	0,4	0,4	0,3	0,3	0,2	0,1	-0,2
SK	0,4	0,3	0,3	0,2	0,2	0,1	-0,3	0,2	0,1	0,1	0,1	0,0	0,0	-0,2
FI	0,5	0,5	0,4	0,3	0,3	0,2	-0,3	-0,1	-0,1	-0,1	0,0	-0,1	0,0	0,1
SE	0,3	0,2	0,1	0,1	0,1	0,1	-0,1	-0,2	-0,3	-0,2	-0,2	-0,2	-0,1	0,1
UK	0,3	0,3	0,2	0,2	0,2	0,1	-0,3	-0,1	0,0	-0,1	-0,1	-0,1	-0,1	0,0
NO	0,5	0,3	0,4	0,3	0,2	0,2	-0,3	0,1	0,0	0,0	0,0	0,0	-0,1	0,0
EU	0,3	0,3	0,2	0,2	0,2	0,1	-0,2	0,1	0,1	0,1	0,0	0,0	0,0	0,0
EA	0,3	0,3	0,2	0,2	0,1	0,1	-0,1	0,1	0,1	0,0	0,1	0,0	0,1	0,0

Source: Commission services based on Eurostat EUROPOP2013 and EUROPOP2010 data.

Table I.1.26: **Net migration flows compared (EUROPOP2013 - EUROPOP2010)**

	Net migration ('000)							Diff. in cum. net migr. (2013-2060) in % of total pop. in 2060 in EUROPOP2013
	2013	2020	2030	2040	2050	2060	2013-2060	
BE	4	34	38	31	11	10	1044	6,8
BG	7	9	-3	0	0	0	89	1,6
CZ	-34	-1	10	11	1	3	86	0,8
DK	9	8	8	6	2	1	227	3,5
DE	-1199	114	87	60	32	26	2067	2,9
EE	-2	-3	-2	0	0	0	-51	-4,7
IE	-23	-53	-33	-14	-1	-1	-966	-18,4
EL	-45	-59	-46	-35	-22	-21	-1924	-22,5
ES	-443	-346	-166	-24	96	90	-4730	-10,3
FR	-30	-3	4	7	4	4	-87	-0,1
HR	:	:	:	:	:	:	:	:
IT	780	4	44	24	-55	-48	-427	-0,6
CY	-4	-7	-3	1	4	4	-34	-3,0
LV	-8	-14	-10	-1	-1	-1	-262	-18,8
LT	-6	-32	-20	0	-2	-1	-521	-28,4
LU	5	8	8	6	3	2	249	21,7
HU	-17	-3	-1	-2	-7	-5	-250	-2,7
MT	2	1	1	1	1	1	55	11,4
NL	-6	15	12	8	3	3	240	1,4
AT	32	16	16	12	-1	-1	452	4,7
PL	-35	-10	-4	-1	-5	-3	-344	-1,0
PT	-64	-37	-28	-25	-22	-20	-1450	-17,7
RO	-13	-8	-28	-6	-10	-5	-599	-3,4
SI	-9	-2	-1	0	0	1	-80	-3,9
SK	-8	-7	-6	-6	-5	-4	-316	-6,9
FI	2	11	12	9	1	2	305	4,9
SE	15	27	30	25	13	12	835	6,4
UK	-31	-21	25	46	42	38	510	0,6
NO	8	36	36	28	12	10	1083	13,3
EU	-1118	-356	-51	137	87	92	-5691	-1,1
EA	-1016	-327	-72	54	47	47	-5412	-1,6

Source: Commission services based on Eurostat EUROPOP2013 and EUROPOP2010 data.

2. LABOUR FORCE PROJECTIONS

2.1. INTRODUCTION

In order to project participation rates by gender and single age, the cohort simulation model (CSM) ([10]) developed by the European Commission (DG ECFIN) is used. This methodology is based on the calculation of the average probability of labour force entry and exit observed over the last 10 years (2004-2013). ([11]) Last decade's average entry and exit rates are then used to project future participation rates as older generations are progressively replaced by younger ones. For those Member States having legislated pension reforms, average exit rates are changed (after fifty years of age) to take into account their projected impact, according to the best reasoned judgment of the EPC and Commission Services. Otherwise, both average entry and exit rates are kept constant throughout the projection period (at the average values for the period 2004-2013), reflecting a 'no policy change' assumption. ([12])

2.2. PAST TRENDS AND MAIN DRIVERS OF LABOUR MARKET DEVELOPMENTS

The rationale for using the CSM is to reflect the substantial changes in labour market behaviour in recent decades across different cohorts and gender groups. ([13]) In recent periods, labour force participation has undergone profound changes, especially for the young, women and the elderly. There are basically four sets of stylised facts underlying these changes, namely:

- social factors, such as longer schooling or change in the role of women in households;

- demographic factors, including the decline of fertility rates and delays in childbearing;

- institutional factors, in particular changes in early retirement or changes in the statutory/effective age of retirement, and/or;

- economic factors, such as, substitution and income effects of labour taxation particularly relevant for second earners, take-up rates of part-time employment, and the share (relative prices) of services in the economy.

Despite a large cross-country labour force variability (see Table I.2.1), some common features call for our attention and need to be catered for in any projection exercise. ([14]) They can be summarised as follows:

- the participation rates of prime-age male workers (aged 25 to 54), at around 90%, remain the highest of all groups. The participation rates of men aged 55 to 64 years, which had recorded a steady decline in the past twenty five years, are showing clear signs of a reversal in most countries since the turn of the century, mostly due to pension reforms raising the statutory retirement age or the state pension age;

- female participation rates have steadily increased over the past twenty five years, largely reflecting societal trends;

- the participation rates of young people (aged 15 to 24 years) have declined, mostly due to a longer stay in school;

([10]) The methodology was initially developed at the OECD, see J.-M. Burniaux, R. Duval, and F. Jaumotte (2003).

([11]) A more detailed description of the methodology and results can be found in Carone (2005).

([12]) For a given set of exogenous macroeconomic assumptions and using partial equilibrium methodologies, a 'no policy change' assumption tries to measure future outcomes corresponding to unchanged policies. It should not be interpreted as a forecast, because no assumptions are made regarding (entry/exit) probability distributions, but more as an 'unbiased' estimate.

([13]) Fallick and Pingle (2007) presents an alternative approach based on an econometric cohort model. Their econometric approach essentially breaks down participation rate developments into age and cohort (i.e. year of birth) effects, while controlling for the cycle.

([14]) Values reported in Tables I.2.1 to I.2.5 are taken from Eurostat's Labour Force Survey (LFS) and refer to average annual participation rates. Note that there are marginal discrepancies in the participation rates reported here and in Tables I.2.10 to I.2.13 for 2013, because in the former population is estimated using the LFS, while in the later EUROPOP2013 projections are being used. In order to be consistent with LFS data, rather than using EUROPOP2013 population projections on 1st of January, the projections are adjusted to reflect the average over the year.

Table I.2.1: **Historical participation rates: workers aged 15 to 64**

	Total							Men							Women							
	1985	1990	1995	2000	2005	2010	2013	1985	1990	1995	2000	2005	2010	2013	1985	1990	1995	2000	2005	2010	2013	
BE	59.6	58.7	62.1	65.2	66.7	67.7	67.5	74.2	71.3	72.3	73.8	73.9	73.4	72.7	45.1	46.1	51.7	56.6	59.5	61.8	62.3	BE
BG				61.6	62.1	66.5	68.4				67.4	67.0	70.8	72.2				56.1	57.3	62.3	64.5	BG
CZ				71.2	70.4	70.2	72.9				79.0	78.4	78.6	80.5				63.5	62.4	61.5	65.1	CZ
DK	80.3	82.4	79.5	80.0	79.8	79.4	78.1	86.0	87.1	85.6	84.0	83.6	82.6	80.6	74.6	77.6	73.3	75.9	75.9	76.0	75.6	DK
DE	66.2	69.9	70.5	71.0	73.8	76.6	77.5	81.1	82.1	79.6	78.8	80.6	82.3	82.4	51.7	57.6	61.3	63.0	66.9	70.8	72.5	DE
EE				70.5	70.7	73.9	75.1				75.1	73.6	76.8	78.6				66.1	67.9	71.1	71.8	EE
IE	60.9	60.7	61.6	67.5	70.8	69.4	69.8	82.3	78.8	76.1	79.3	80.6	77.0	77.0	39.1	41.9	47.1	55.6	60.8	61.9	62.7	IE
EL	60.0	59.1	60.1	63.9	66.8	68.2	68.0	80.6	76.8	77.2	77.6	79.2	78.9	77.4	41.0	42.6	44.3	50.6	54.5	57.6	58.5	EL
ES		58.7	60.6	65.1	69.7	73.4	74.0		77.6	75.5	78.5	80.9	80.7	79.7		40.6	45.8	51.8	58.3	65.9	68.2	ES
FR	67.6	67.1	67.6	68.8	69.9	70.4	71.2	78.9	76.5	74.9	75.2	75.2	74.9	75.5	56.7	58.0	60.6	62.5	64.8	66.1	67.0	FR
HR					63.3	61.4	59.6					70.0	67.2	64.5					56.7	55.9	54.8	HR
IT	58.8	59.8	57.6	59.9	62.5	62.2	63.5	78.6	77.0	73.2	73.8	74.6	73.3	73.4	39.7	43.2	42.4	46.2	50.4	51.1	53.6	IT
CY				68.9	72.4	73.6	73.6				81.3	82.9	80.4	80.6				57.3	62.5	67.4	67.2	CY
LV				67.1	69.6	73.0	74.0				73.0	74.4	75.3	76.6				61.7	65.1	70.8	71.6	LV
LT				71.2	68.4	70.2	72.4				74.9	72.1	72.0	74.7				67.7	64.9	68.6	70.3	LT
LU	60.3	60.1	60.3	64.2	66.6	68.2	69.9	79.2	77.4	75.9	76.4	76.0	76.0	76.3	41.5	42.4	44.1	51.7	57.0	60.3	63.2	LU
HU				59.9	61.3	62.4	65.1				67.6	67.9	68.3	71.7				52.5	55.1	56.7	58.8	HU
MT				58.2	58.1	60.4	65.0				80.3	79.1	77.8	79.4				35.8	36.9	42.5	50.2	MT
NL	58.4	66.2	69.2	74.9	76.9	78.2	79.7	75.4	79.7	79.9	83.9	83.7	83.7	84.7	41.1	52.4	58.3	65.7	70.0	72.6	74.6	NL
AT			71.5	71.3	72.4	75.1	76.1			80.8	80.1	79.3	80.9	81.2			62.3	62.5	65.6	69.3	71.1	AT
PL				66.1	64.4	65.3	67.0				71.8	70.8	72.1	73.9				60.5	58.1	58.5	60.1	PL
PT		68.8	67.4	71.1	73.4	74.0	73.6		81.4	76.4	78.7	79.0	78.2	77.1		57.1	59.1	63.7	67.9	69.9	70.2	PT
RO				69.6	62.3	63.6	64.6				75.7	69.4	71.5	72.7				63.6	55.3	55.8	56.5	RO
SI				67.4	70.7	71.5	70.5				71.7	75.1	75.4	74.2				63.1	66.1	67.4	66.6	SI
SK				69.5	68.9	68.7	69.9				76.5	76.5	76.1	77.2				62.8	61.5	61.3	62.5	SK
FI			72.1	76.8	74.7	74.5	75.2			74.8	79.4	76.6	76.4	76.8			69.4	74.1	72.8	72.5	73.4	FI
SE			77.7	75.3	78.7	79.1	81.1			79.6	77.2	80.9	81.9	83.3			75.9	73.4	76.3	76.2	78.8	SE
UK	73.6	76.5	74.7	75.2	75.4	75.5	76.6	86.2	86.8	83.3	82.8	82.0	81.7	82.3	61.0	66.1	66.0	67.8	68.8	69.4	71.0	UK
NO			76.8	80.7	78.3	78.1	78.2			81.2	84.8	81.6	80.6	80.2			72.3	76.4	74.9	75.5	76.0	NO
EA				67.5	69.9	71.4	72.2				77.2	78.2	78.2	78.2				57.9	61.7	64.6	66.2	EA
EU					69.7	70.9	71.9					77.3	77.5	78.0					62.2	64.3	65.9	EU

Source: Eurostat, LFS.

Table I.2.2: **Historical participation rates: workers aged 20 to 64**

	Total							Men							Women							
	1985	1990	1995	2000	2005	2010	2013	1985	1990	1995	2000	2005	2010	2013	1985	1990	1995	2000	2005	2010	2013	
BE	65.1	64.2	67.6	70.8	72.4	73.5	73.2	81.5	78.2	78.7	80.1	80.2	79.8	78.9	48.7	50.3	56.4	61.3	64.6	67.1	67.5	BE
BG				67.1	68.6	72.6	72.8				73.4	74.2	77.3	76.9				61.0	63.1	68.0	68.7	BG
CZ				77.4	76.5	75.7	77.8				86.2	85.3	84.9	86.0				68.8	67.7	66.4	69.5	CZ
DK	82.2	84.6	80.8	81.4	81.7	81.5	80.9	88.0	89.5	87.2	85.7	85.8	85.3	83.9	76.3	79.6	74.3	77.1	77.6	77.6	77.8	DK
DE	69.3	72.6	73.8	74.6	78.1	80.6	81.5	86.0	85.7	83.5	82.9	85.4	86.6	86.8	53.2	59.4	63.9	66.2	70.7	74.4	76.1	DE
EE				77.6	78.2	80.2	80.3				83.3	81.8	83.8	84.3				72.3	74.9	76.8	76.4	EE
IE	65.4	66.7	68.5	73.0	75.7	74.8	75.2	90.2	87.7	85.1	86.2	86.5	83.2	83.4	40.1	45.1	51.9	59.9	64.8	66.4	67.2	IE
EL	64.7	64.0	65.5	69.6	71.6	73.1	72.9	87.4	83.7	84.5	85.1	84.9	84.5	82.9	43.7	45.6	47.8	54.6	58.4	61.6	62.8	EL
ES		63.5	65.9	69.8	73.6	77.7	78.6		85.0	82.7	84.4	85.5	85.5	84.7		42.9	49.4	55.2	61.5	69.7	72.4	ES
FR	72.7	72.9	73.7	74.9	75.8	76.0	76.9	85.0	83.1	81.6	81.9	81.5	80.8	81.6	60.9	63.0	66.1	68.1	70.4	71.4	72.3	FR
HR					68.3	66.2	64.6					75.9	72.5	70.2					61.0	60.2	59.1	HR
IT	62.5	64.0	61.7	63.6	66.5	66.5	67.9	84.8	83.2	78.5	78.6	79.5	78.5	78.7	41.3	45.6	45.2	48.9	53.6	54.6	57.2	IT
CY				75.6	78.5	80.0	79.8				89.2	89.3	87.2	86.9				62.8	68.2	73.4	73.2	CY
LV				73.7	77.0	79.6	79.1				80.5	82.6	82.5	82.3				67.6	71.8	77.0	76.2	LV
LT				78.6	76.9	78.2	79.3				82.8	81.6	80.6	82.1				74.7	72.7	76.0	76.7	LT
LU	62.9	64.1	64.1	69.0	72.1	73.8	75.4	84.2	82.7	81.0	82.2	82.2	82.1	82.1	41.8	45.0	46.7	55.5	61.9	65.3	68.2	LU
HU				65.0	66.9	67.9	70.3				73.6	74.2	74.6	77.5				56.7	59.9	61.5	63.3	HU
MT				60.5	61.4	64.0	68.7				85.8	85.2	83.2	84.3				35.1	37.5	44.3	52.7	MT
NL	63.5	69.1	71.6	76.0	78.5	80.0	81.5	83.2	84.1	83.2	85.8	86.0	86.2	87.2	43.4	53.8	59.7	66.0	70.9	73.8	75.8	NL
AT			73.9	74.1	75.2	78.1	79.2			83.4	83.2	82.2	83.9	84.3			64.4	65.1	68.3	72.4	74.2	AT
PL				72.9	70.9	71.1	72.3				79.4	78.1	78.6	79.8				66.7	63.9	63.6	64.8	PL
PT		72.3	73.4	76.4	78.4	79.3	78.6		86.6	83.8	84.8	84.5	83.9	82.5		59.5	63.8	68.3	72.5	74.8	74.8	PT
RO				75.9	68.4	68.3	68.9				82.6	76.2	76.9	77.7				69.4	60.8	59.9	60.2	RO
SI				73.4	76.0	75.8	74.9				78.0	80.6	79.9	78.7				68.8	71.2	71.5	70.8	SI
SK				76.5	76.5	75.2	75.5				84.7	85.1	83.4	83.6				68.5	68.0	67.0	67.5	SK
FI			76.1	79.6	79.0	79.0	79.3			79.3	82.6	81.3	81.4	81.4			72.8	76.6	76.7	76.6	77.1	FI
SE			83.5	80.7	83.9	84.5	85.9			85.9	83.1	86.9	88.0	88.8			80.9	78.3	80.8	81.0	82.9	SE
UK	75.9	78.6	77.4	77.7	78.3	79.0	80.3	90.1	89.9	86.8	86.1	85.7	85.9	86.6	61.8	67.2	67.9	69.6	71.0	72.2	74.0	UK
NO			80.8	82.9	81.2	82.1	82.1			85.9	87.4	85.0	85.2	84.8			75.7	78.3	77.3	79.0	79.4	NO
EA				71.9	74.4	75.9	76.7				82.3	83.3	83.2	83.2				61.5	65.6	68.6	70.2	EA
EU					74.3	75.5	76.4					82.6	82.7	83.0					66.2	68.3	69.9	EU

Source: Eurostat, LFS.

Table I.2.3: **Historical participation rates: workers aged 20 to 24**

	Total							Men							Women							
	1985	1990	1995	2000	2005	2010	2013	1985	1990	1995	2000	2005	2010	2013	1985	1990	1995	2000	2005	2010	2013	
BE	67.6	60.1	57.9	60.7	59.6	55.2	52.3	69.3	62.7	60.5	65.5	63.1	59.5	56.6	65.9	57.6	55.3	55.8	56.1	51.0	48.0	BE
BG				48.5	51.3	51.2	46.3				58.3	58.3	58.4	53.0				38.5	44.1	43.3	39.2	BG
CZ				69.3	57.3	51.5	50.9				77.3	65.6	60.0	59.4				61.5	48.6	42.5	42.1	CZ
DK	85.0	82.5	78.9	79.1	77.3	76.0	70.8	86.5	86.0	83.4	84.4	80.1	77.7	71.9	83.4	78.9	74.7	74.2	74.5	74.1	69.8	DK
DE	74.5	76.2	71.9	71.1	69.8	69.9	69.6	77.3	77.9	74.3	74.6	73.0	72.4	71.6	71.8	74.6	69.6	67.8	66.4	67.3	67.5	DE
EE				64.7	63.7	60.8	61.3				75.8	72.5	67.2	64.6				52.8	54.7	54.3	57.9	EE
IE	82.0	78.1	73.0	73.6	74.8	67.0	64.8	88.5	82.0	76.8	79.2	79.1	69.3	67.3	75.4	73.9	69.2	67.9	70.5	64.7	62.1	IE
EL	60.3	61.6	60.3	63.1	53.4	52.1	50.7	74.7	70.4	69.7	69.3	58.2	57.0	55.4	49.1	54.0	51.9	57.1	48.6	47.1	45.9	EL
ES		68.8	61.8	60.9	67.0	64.6	59.4		76.0	65.8	65.2	72.1	67.4	61.9		61.6	57.7	56.6	61.8	61.7	56.8	ES
FR	76.8	70.7	59.1	59.3	61.3	61.7	60.3	82.5	74.9	62.1	63.2	65.7	65.9	64.9	71.7	66.8	56.5	55.7	57.0	57.6	55.6	FR
HR					59.6	53.1	45.4					67.7	61.1	53.5					50.8	44.0	37.1	HR
IT	66.7	68.0	55.8	55.8	52.8	47.0	45.4	76.1	74.3	62.7	61.9	59.7	54.4	51.3	57.6	62.0	49.1	49.9	45.7	39.3	39.2	IT
CY				72.6	71.6	69.4	65.8				78.2	74.9	68.8	67.7				68.0	68.5	70.1	64.1	CY
LV				64.8	63.3	65.0	60.6				74.7	73.3	68.7	65.8				54.7	53.1	61.2	55.2	LV
LT				64.6	48.0	52.3	54.1				70.0	56.1	57.4	60.5				59.1	39.6	47.0	47.3	LT
LU	77.2	68.0	61.9	56.3	50.4	40.8	41.0	79.1	68.4	63.3	61.5	54.4	42.6	47.2	75.5	67.6	60.5	51.0	46.4	39.0	34.6	LU
HU				57.6	47.4	44.8	46.5				66.0	52.8	49.9	51.8				49.0	42.0	39.7	41.2	HU
MT				79.5	76.9	73.8	75.4				81.7	80.6	77.9	79.1				77.1	73.0	69.5	71.6	MT
NL	71.1	75.6	76.4	80.6	81.7	78.1	78.6	72.5	75.6	76.0	82.5	82.4	78.4	78.3	69.7	75.5	76.8	78.7	81.1	77.8	78.9	NL
AT			74.5	71.7	74.8	74.0	75.1			74.7	75.3	77.8	77.4	77.7			74.3	68.1	71.8	70.7	72.5	AT
PL				63.7	59.1	57.9	55.7				68.3	65.0	65.3	63.9				59.2	53.0	50.1	47.0	PL
PT		74.1	62.0	63.6	63.3	59.4	57.2		81.3	68.1	70.0	68.3	61.4	59.1		67.4	55.9	57.1	58.2	57.4	55.2	PT
RO				60.9	48.9	45.4	45.8				67.2	55.2	52.2	53.1				54.9	42.4	38.3	38.3	RO
SI				59.4	61.9	57.7	51.5				63.4	67.1	63.3	55.5				55.1	56.4	50.8	46.9	SI
SK				70.1	63.2	52.7	50.9				78.0	70.7	62.3	62.4				62.3	55.5	42.8	39.1	SK
FI			68.1	77.7	69.7	69.7	69.8			73.2	82.2	72.7	72.4	71.1			63.0	73.3	66.8	66.9	68.5	FI
SE			66.7	61.3	71.0	72.0	72.3			67.8	64.8	73.4	75.3	74.5			65.6	57.7	68.5	68.5	70.0	SE
UK	81.6	83.3	77.7	76.9	76.6	75.6	76.1	91.4	90.7	84.8	83.8	82.4	80.9	79.9	71.6	75.6	70.2	70.1	70.8	70.2	72.2	UK
NO			69.1	74.6	72.9	72.3	72.5			70.3	78.8	75.3	74.6	73.5			68.1	70.4	70.7	70.0	71.5	NO
EA				64.1	64.4	62.4	60.8				68.7	69.0	66.3	64.4				59.5	59.8	58.5	57.2	EA
EU					63.9	62.2	61.3					69.0	66.9	65.6					58.7	57.4	56.8	EU

Source: Eurostat, LFS.

Table I.2.4: **Historical participation rates: workers aged 25 to 54**

	Total							Men							Women							
	1985	1990	1995	2000	2005	2010	2013	1985	1990	1995	2000	2005	2010	2013	1985	1990	1995	2000	2005	2010	2013	
BE	75.7	76.7	80.4	82.8	84.6	86.3	85.3	94.0	92.2	92.3	92.1	92.2	92.2	90.9	57.1	60.8	68.2	73.2	76.8	80.4	79.7	BE
BG				81.6	80.2	83.4	83.1				84.4	83.3	86.3	85.7				78.9	77.2	80.5	80.3	BG
CZ				88.5	88.3	87.8	89.1				95.0	94.8	95.5	95.8				81.9	81.6	79.8	81.9	CZ
DK	89.1	91.2	87.1	87.9	88.1	88.7	87.5	93.5	94.5	91.8	91.5	91.7	92.0	90.2	84.5	87.8	82.1	84.3	84.5	85.3	84.8	DK
DE	77.0	80.0	83.3	85.4	86.4	87.3	87.6	94.6	93.9	93.1	93.7	93.6	93.1	92.7	59.2	65.6	73.2	77.0	79.1	81.3	82.4	DE
EE				88.0	85.8	88.3	87.6				91.6	88.4	91.8	92.3				84.5	83.3	84.8	82.9	EE
IE	66.1	69.6	72.8	78.4	80.9	80.5	80.8	94.3	93.3	90.9	92.0	92.1	89.5	89.2	37.0	45.1	54.8	64.9	69.6	71.6	72.5	IE
EL	70.6	72.2	74.2	78.3	81.5	83.3	84.0	94.8	94.3	94.5	94.6	94.6	94.2	93.5	47.8	51.5	55.0	62.2	68.2	72.2	74.2	EL
ES		70.0	74.3	78.0	80.9	85.5	86.9		94.2	92.9	93.2	92.4	92.5	92.5		46.7	55.7	62.7	69.0	78.3	81.3	ES
FR	82.2	83.8	86.1	86.4	87.5	88.9	88.3	96.0	95.6	95.1	94.3	94.0	94.2	93.3	68.4	72.2	77.2	78.6	81.3	83.7	83.5	FR
HR					80.6	79.4	79.8					85.9	82.4	83.1					75.3	76.5	76.6	HR
IT	70.4	72.8	71.9	74.2	77.4	76.9	77.1	95.2	94.0	90.3	90.4	91.2	89.4	88.3	46.5	52.1	53.6	57.9	63.6	64.4	66.0	IT
CY				81.6	85.7	86.9	87.7				95.3	95.3	93.4	94.0				68.6	76.5	81.0	82.0	CY
LV				85.5	85.6	88.6	87.6				88.5	89.4	91.0	90.6				82.7	82.0	86.3	84.8	LV
LT				89.3	87.9	88.4	89.5				90.4	90.1	89.0	90.6				88.3	85.8	87.8	88.4	LT
LU	69.5	72.8	73.8	79.8	83.9	85.7	87.5	94.9	95.0	93.9	94.2	95.5	94.8	94.4	43.2	49.7	52.7	64.9	72.2	76.4	80.5	LU
HU				77.3	78.7	80.9	83.2				84.3	85.5	87.2	89.4				70.5	72.1	74.6	76.9	HU
MT				64.2	65.7	72.9	78.0				93.5	93.2	94.5	94.4				34.5	37.6	50.6	61.1	MT
NL	69.6	76.0	79.4	83.6	86.5	87.9	87.5	92.7	93.4	92.6	93.8	93.8	93.3	92.3	45.4	57.9	65.7	73.0	79.0	82.4	82.6	NL
AT			83.3	85.3	86.4	87.7	88.8			93.2	93.6	92.8	92.5	92.7			73.3	76.8	79.9	82.8	85.0	AT
PL				82.7	82.5	84.1	84.6				88.4	88.7	89.6	90.0				77.1	76.4	78.6	79.1	PL
PT		79.8	83.4	84.6	87.1	88.7	88.3		94.0	93.6	92.4	92.4	92.5	91.0		67.0	74.1	77.1	81.8	84.9	85.6	PT
RO				84.4	78.2	79.5	79.9				91.0	85.8	87.5	87.8				77.9	70.7	71.4	71.9	RO
SI				87.7	88.8	90.0	90.7				90.7	91.1	91.7	92.6				84.7	86.4	88.1	88.7	SI
SK				88.3	88.0	86.9	87.2				94.0	93.8	92.9	93.6				82.5	82.1	80.9	80.5	SK
FI			85.4	88.1	87.7	87.5	86.8			88.3	91.1	90.3	90.5	90.1			82.4	85.1	85.1	84.4	83.3	FI
SE			89.9	86.8	89.5	89.8	90.9			92.2	88.6	92.4	92.9	93.6			87.6	84.9	86.5	86.6	88.1	SE
UK	81.6	84.0	83.4	84.0	84.1	85.0	85.8	95.5	95.0	92.7	91.9	91.1	91.4	92.0	67.7	73.0	74.0	76.2	77.3	78.6	79.6	UK
NO			86.3	87.7	86.5	87.3	86.6			91.2	91.7	89.9	90.1	89.1			81.1	83.5	82.9	84.3	84.0	NO
EA				82.1	83.9	85.2	85.4				92.9	92.9	92.4	91.8				71.2	74.9	78.0	79.0	EA
EU					83.6	84.9	85.3					91.7	91.6	91.4					75.6	78.1	79.1	EU

Source: Eurostat, LFS.

Table I.2.5:   **Historical participation rates: workers aged 55 to 64**

	Total							Men							Women							
	1985	1990	1995	2000	2005	2010	2013	1985	1990	1995	2000	2005	2010	2013	1985	1990	1995	2000	2005	2010	2013	
BE	27.3	22.2	24.2	25.9	33.3	39.2	44.1	45.1	35.4	35.9	36.3	43.4	47.6	50.5	11.0	9.9	13.3	15.8	23.4	30.9	37.8	BE
BG				25.1	38.0	47.9	54.1				39.9	49.9	55.7	59.9				12.5	27.8	41.3	49.0	BG
CZ				38.1	46.9	49.7	54.8				54.5	62.1	62.5	66.1				23.3	32.9	38.0	44.2	CZ
DK	53.2	57.1	53.6	56.9	62.8	61.8	65.0	65.8	69.1	67.9	64.5	68.7	67.8	70.2	42.4	45.9	40.1	48.2	56.8	55.9	59.9	DK
DE	39.5	42.4	42.8	42.9	52.1	62.5	67.4	58.8	58.3	54.5	52.5	61.2	70.8	74.4	24.3	27.5	31.3	33.4	43.2	54.5	60.7	DE
EE				47.3	58.9	64.3	66.6				54.4	60.5	64.3	66.9				41.9	57.7	64.3	66.5	EE
IE	45.8	42.6	43.0	46.3	53.1	55.0	57.4	73.6	66.5	65.0	64.6	67.7	65.3	67.8	18.9	18.9	21.0	27.7	38.2	44.6	47.1	IE
EL	46.1	41.5	41.9	40.9	43.2	45.1	42.5	67.3	59.5	61.1	57.7	60.8	60.2	54.9	26.4	24.3	24.5	25.9	27.1	30.9	30.8	EL
ES		40.1	36.6	40.8	45.9	50.8	54.1		62.3	55.0	60.3	63.2	63.9	63.7		19.6	19.6	22.5	29.6	38.5	45.1	ES
FR	35.6	32.9	31.4	31.7	40.7	42.6	49.1	44.3	39.3	36.1	35.5	43.8	45.3	52.3	27.7	26.9	27.1	28.2	37.7	40.0	46.1	FR
HR					35.1	40.5	40.7					47.2	53.4	49.7					24.9	29.1	32.2	HR
IT	33.8	32.5	29.0	28.6	32.6	38.0	45.3	54.4	51.7	45.2	42.2	44.3	49.6	56.7	15.1	15.0	14.2	15.9	21.5	27.0	34.6	IT
CY				51.2	52.4	59.1	56.6				69.5	73.2	74.3	71.2				33.6	32.8	44.3	42.3	CY
LV				39.0	53.9	56.9	61.3				53.8	61.0	58.5	62.2				28.0	48.6	55.7	60.5	LV
LT				45.6	52.8	56.5	60.1				59.0	63.8	62.6	65.2				35.4	44.5	51.7	56.1	LT
LU	25.7	28.4	24.0	27.6	32.4	40.6	42.5	40.2	43.2	35.1	38.6	39.4	48.8	50.5	13.6	13.8	13.3	16.8	25.1	32.0	34.2	LU
HU				22.6	34.3	37.3	41.7				34.3	42.3	43.1	50.2				13.2	27.7	32.4	34.8	HU
MT				29.5	31.9	33.3	38.4				52.9	53.1	52.3	57.2				8.6	12.4	14.6	19.7	MT
NL	30.3	30.9	29.9	38.6	48.1	55.9	64.1	49.2	45.8	41.4	50.8	59.5	67.3	75.3	13.2	16.8	18.6	26.4	36.5	44.5	52.9	NL
AT			30.2	31.4	33.0	43.4	46.5			42.6	44.5	43.0	53.0	56.4			18.8	18.9	23.5	34.2	37.1	AT
PL				32.1	30.5	36.7	44.0				41.1	40.9	48.9	55.9				24.4	21.5	25.9	33.3	PL
PT		47.6	47.4	53.0	53.8	54.0	54.1		65.9	61.9	64.5	62.4	61.8	62.4		31.5	34.5	42.9	46.1	47.0	46.6	PT
RO				52.5	40.4	42.5	43.1				58.4	48.4	52.7	54.0				47.5	33.5	33.5	33.5	RO
SI				23.7	32.1	36.5	36.0				33.5	45.4	47.5	45.1				14.8	18.9	25.5	27.0	SI
SK				24.6	35.0	45.1	49.5				41.0	55.1	59.7	59.5				11.1	18.1	32.3	40.4	SK
FI			39.6	45.5	56.6	60.2	62.9			41.6	46.4	56.9	60.1	61.5			37.7	44.6	56.4	60.3	64.3	FI
SE			67.2	68.4	72.6	74.8	77.5			71.0	72.1	76.2	79.3	81.6			63.4	64.6	69.0	70.2	73.4	SE
UK	51.4	53.1	51.5	52.8	58.4	59.9	62.8	69.2	68.3	62.5	63.3	68.3	69.1	70.7	35.0	38.7	40.9	42.6	48.9	51.1	55.3	UK
NO			63.2	66.2	66.5	69.6	72.0			70.6	72.7	72.1	73.5	75.9			56.0	59.7	60.9	65.5	67.9	NO
EA				37.2	43.7	49.5	54.7				48.4	53.8	58.3	62.6				26.5	34.2	41.1	47.3	EA
EU					45.1	49.7	54.3					55.2	58.9	62.7					35.7	41.0	46.5	EU

Source: Eurostat, LFS.

Given these trends, the main drivers of change in the total participation rate will be changes in the labour force attachment of prime age women, older workers (especially men) and, to a lesser extent, young people.

2.3. MAIN FEATURES OF THE COHORT SIMULATION MODEL (CSM) AND MAIN ASSUMPTIONS OF THE 2015 EXERCISE

The CSM is used to project participation rates, as in the 2006, 2009 and 2012 long-term exercises. This methodology is particularly adapted to take into account the significant rise in the labour force participation of women over recent decades, as younger women, with a much stronger attachment to the labour force, gradually replace older women with relatively low participation rates. Simultaneously, the cohort methodology also caters for a (relatively small) decline in the participation rate of men over recent generations in a large majority of countries, a trend opposite to what is observed for women.

The 2015 projection is made using the EUROPOP2013 population projections [15] prepared independently by EUROSTAT with close involvement of National Institutes of Statistic. Population projections are the major driving force of labour force projections.

The EPC agreed on the following specifications to apply the CSM:

- The starting year for labour market projections is 2013;

- Labour market participation rates are calculated by gender and single age, [16] using average entry/exit rates in the labour force observed over the last ten years (2004-2013); [17]

---

[15] In order to be consistent with Labour Force Survey data, rather than using EUROPOP2013 population projections for 1st January, the projections are adjusted to reflect the average value for the year. This could explain some discrepancies with reported figures in Chapter 1.

[16] For Luxembourg, in line with what has been done in the 2009 and 2012 exercises, an adjustment is made that takes into account the high incidence of non-resident workers (i.e. cross-border workers).

[17] In the 2009 Ageing Report, participation rates were calculated using average entry/exit rates over the period 1998-2007; whereas in the 2012 Ageing Report, the period used was 2001-2010.

- Continue to apply a corrective mechanism for young cohorts (15-24), in order to avoid that any increase in education enrolment rates (and the corresponding decline in participation rates) feeds into future declines of participation rates for prime age workers. This assumption implies that participation rates cannot decline in the age bracket 15-24;

- Continue to model pension reforms through their estimated ([18]) impact on the labour market exit rates of older workers (aged 55-74). This is largely a judgemental approach, using the probabilistic nature of the CSM. Specifically, exit rates of older workers (55-74) are adjusted relatively to average historical values (2004-2013) in order to account for the future expected effects of enacted pension reforms.

2.3.1. Two main steps to project the labour force/supply

Firstly, participation rates by single age and gender are projected up to 2060 using the CSM. Aggregate values for participation rates are a weighted average of participation rates by single age and gender using population shares as weights. For example, the average participation rate for age groups $\underline{a}$ (lower age) to $\overline{a}$ (upper age) in period t is calculated as:

$$PR(\underline{a},\overline{a},t) = \sum_{a=\underline{a}}^{\overline{a}} \sum_{g=m,f} PR_{a,g}^t * p_{a,g}^t$$

where

$$p_{a,g}^t = \frac{pop_{a,g}^t}{\sum_{a=\underline{a}}^{\overline{a}} \sum_{g=m,f} pop_{a,g}^t} \qquad 2.1$$

where a is the age index; g is the gender index; $PR_{a,g}^t$ is the participation rate for single age a and gender g in period t; pop is the population; and p is the structure of the population.

Secondly, the labour force ($LF_{a,g}^t$)/labour supply (for each single age and gender combination) is

calculated multiplying the age/gender labour force participation rate by the corresponding population projection:

$$LF_{a,g}^t = PR_{a,g}^t * pop_{a,g}^t \qquad 2.2$$

The total labour supply for age groups $\underline{a}$ (lower age) to $\overline{a}$ (upper age) in period t is calculated as:

$$LF(\underline{a},\overline{a},t) = \sum_{a=\underline{a}}^{\overline{a}} \sum_{g=m,f} LF_{a,g}^t = \sum_{a=\underline{a}}^{\overline{a}} \sum_{g=m,f} PR_{a,g}^t * pop_{a,g}^t \qquad 2.3$$

Age aggregates commonly used are for example the groupings (15-64; 20-64; 25-54; 55-64; 20-71; 20-74).

2.3.2. Data sources and an additional assumption on labour input

Labour force participation rates are derived from the harmonised EU Labour Force Surveys of Member States (as compiled by Eurostat). ([19]) Detailed data by single age and gender are used, covering individuals aged 15 to 74 years old for the period 2004-2013. The starting point of the projections is 2013, the year for which the most recent figures are available.

For the current round of projections, the EPC decided to:

- use the production function methodology to project GDP growth (see Chapter 3), using total hours worked as the labour input variable, and;

- the split between full- and part-time work (for the age groupings 15-24, 25-54, 55-64, and 65-74), as well as the corresponding weekly hours of work are fixed at the average values for the last available year (2013), during the entire projection period.

Although part-time vs. full-time rates and the corresponding average weekly hours of work are frozen per age group considered over the projection period, total hours worked change due to "compositional effects" that mostly reflect the

---

([18]) By Commission Services, in close cooperation with EPC-AWG delegates. A more detailed description of the methodology can be found in Carone (2005).

([19]) For Luxembourg, an adjustment is made to correct for the large non-resident work force (i.e. cross-border workers).

projected increase in labour force participation of women, for which the incidence of part-time is higher than for men.

2.4. LEGISLATED PENSION REFORMS IN EU MEMBER STATES

A strong point of the CSM is that the baseline scenario takes into account the expected effects on the participation rate of older workers of legislated pension reforms, including measures to be phased in gradually. A description of past legislated pension reforms that have an impact on future participation rates, covering a total of 27 EU Member States, is provided in Box I.2.1. ([20])

This framework for analysis is able to incorporate a broad typology of measures, inter alia, increases in the statutory retirement age or in the state pension age ([21]), the convergence of women's lower statutory retirement age to that of men, the linking of the statutory retirement age to changes in life expectancy, the tightening of conditions for early retirement, and changes in (price) incentives affecting the retirement decision. Moreover, policy changes can be incorporated as one-off measures or be phased in progressively within a specified period.

Findings in the literature based on both micro data ([22]) and cross-country regressions ([23]) suggest that changing pension schemes has large and significant effects on the labour force participation of older workers (Duval 2003; Gruber and Wise, 2002 and 2005; and Bassanini and Duval, 2006).

Duval (2003) builds an indicator of implicit taxes on continued work and uses it to assess participation effects of retirement incentives embedded in pension schemes. Across OECD countries, there is a significant negative correlation between the fall in male labour force participation and the corresponding implicit tax rate on

continued work (OECD, 2005). ([24]) Bassanini and Duval (2006) find that a 10 pp cut in the implicit tax rate on continued work raises the average employment rate of older workers (55-64 age group) by 1 pp.

Using micro data, Gruber and Wise (2002) consider the average effect across 12 OECD countries of a reform that would delay benefit eligibility to a statutory pension by three years. They find that such a reform can engineer a dramatic rise in (male) participation rates. ([25])

([20]) This information was provided by EPC-AWG delegates.

([21]) Some countries (like the UK) do not have a statutory retirement age, only a state pension age, at which point the state pension will be received. Persons can therefore receive a pension and continue working and receive a salary.

([22]) Matching information on individual's characteristics with their retirement incentives and decisions.

([23]) Using macro data.

([24]) The implicit tax on continued work can be seen as a key summary indicator of retirement incentives embedded in statutory pension and early retirement schemes. At a given age, it measures the cost of remaining (an addition year) in the labour force in terms of foregone pensions and higher social security contributions paid against the discounted gains of higher future pensions (resulting from additional contributions paid and possibly also higher accrual rates).

([25]) Cross-country comparisons can be distorted by the wide variation in the age at which (normal) retirement begins. In order to account for this, Gruber and Wise (2002) define the first age at which at least 25% of men are out of the labour force as the "25% age". Then they consider the five ages beginning with the "25% age" (i.e. "25% age + 4 years". Within the "25% age + 4 years" range, they find that the proportion of men out of the labour force declines on average by 47%, following a pension reform that delays benefit eligibility by three years.

> **Box I.2.1: Pension reforms legislated in Member States and reflected in the labour force projections**
>
> **Belgium**
>
> The pension reform of 2011 (Act of 28 December 2011) introduces two major changes. Firstly, the reform raises the minimum early retirement age and the minimum number of career years required for eligibility, respectively from 60 to 62 years and from 35 (5 years for civil servants) to 40 years, with a short transition period from 2013 to 2016: as of 2013, the early retirement age is raised each year by six months in order to reach 62 years in 2016. Simultaneously, the minimum career length is fixed at 38 years from 2013, 39 years from 2014 and 40 years from 2015. However, exceptions are made for long careers: as of 2016, even with the new rules, people with a 42-year career will still be eligible for early retirement at 60 (and at 61 with a 41-year career). For the unemployed who fall within the company allowance scheme, the minimum career length requirement will be gradually increased to 40 years. The eligibility conditions of some special pension schemes in the public and the private sectors will also be toughened. Those more stringent eligibility conditions will contribute to reduce the number of pensioners and raise employment. Secondly, some aspects of the retirement benefit calculation are changed in the wage earners' scheme (valuation of the "equivalent" periods; cuts in periods of career interruption taken into account for pension entitlements) and in the public sector (cuts in periods of career interruption and of absence taken into account for pension entitlements; reference wage taken into account for the pension calculation based on the average wage over the last 10 career years and no longer the last 5 years). This last reform is supposed to have a direct budgetary impact (i.e. lowering expenditure) but no implications for total employment.
>
> More recently, two measures taken in the spring of 2014 will slightly increase the labour force. First of all, the survivors' pension is reformed. The minimum age to benefit from a survivor's retirement benefit will be 45 as from 2015 and gradually raised to 50 in 2025. Second, as from 2015, the last months worked before retiring will be taken into account for the calculation of the pension in the wage earners' and self-employed schemes (it was already the case in the civil servants' scheme).
>
> In general, the measures reduce generosity and tighten eligibility for the public pension scheme
>
> and increase the labour force participation rate of older workers.
>
> **Austria**
>
> On January 1st 2014, new pension reform measures came into effect. Overall, these measures tightened access to early retirement and modified invalidity pensions schemes. The main aim of these modifications is to harmonise the effective retirement age with the legal retirement age, enhancing participation rates of older people and, ultimately, curbing early retirement and invalidity pensions.
>
> Concretely, the early retirement scheme "Korridorpension", although can still be accessed by men with 62 years, it now requires an increased number of insurance years (40 years by 2017). For women, this option gets relevant only by 2028 due to the gradual increase of the female statutory retirement age from currently 60 years between 2024 and 2033. Also the early old-age pension scheme for long-term contributors "Hacklerregelung" was tightened by increasing the relevant retirement age by two years to 57 for women and 62 for men. The possibility to purchase schooling and study years for being used as equivalents for additional contributory years has been practically abolished now. Furthermore, deductions for early retirement were raised from 4.2% p.a. to 5.1% p.a. (in the heavy worker regulation "Schwerarbeitspension", this deduction is 1.8% p.a.). The bonus for later retirement continues to amount to 4.2% p.a. (cumulated to a maximum of 12.6%).
>
> Since January 2005, harmonised guaranteed pension accounts have been established. The new system of individual pension accounts provides for a transparent reporting of benefits accrued from contributions paid in and other credits acquired, such as from active child and elderly care. This system aims to provide an 80% replacement rate (average life-time earnings) for people retiring at 65 years of age with 45 years of contributions (pension formula '45-60-80'). In 2014, these pension accounts were finally put in (technical) practice and Austrian future public pension recipients were informed for the first time about their individual pension account balance.
>
> In December 2010, the government approved measures to foster rehabilitation and keep people in the workforce, thereby decreasing expenditure on
>
> *(Continued on the next page)*

invalidity pensions. Specifically, it is now necessary to apply for rehabilitation before applying for an invalidity pension. During rehabilitation, payments are higher than unemployment benefits, and unemployment benefits are paid for longer periods, if an individual does not find a job after rehabilitation. Temporary invalidity pensions have been abolished for people below the age of 50 and will be gradually phased out.

With all these modifications, the government aims to increase the effective retirement age by 1.7 years between 2012 and 2018; this is above expected gains in life-expectancy. Additionally, a binding monitoring mechanism has been introduced to trigger automatic policy adjustments in case of deviation of actual outcomes from projected targets.

Bulgaria

Since 1 October 2008, all old-age pension entitlements calculated before 31 December 2007 were recalculated using the 2007 average insurance income (about EUR 203.6) in order to standardise the set of parameters for calculating pension entitlements, namely the individual coefficients and length of service.

On 1 January 2009, the insurance contribution rate to the Public Social Security Pension Fund was reduced from 22% to 18%. The contribution rate of employers was set to 10% and that of employees to 8%. In addition, the government budget provides a 12% contribution to the Public Social Security Pension Fund. In 2010 this transfer amounted to EUR 1.18 billion, or 34% of all pension expenditure.

On 1 January 2009, minimum pensions were increased by 10%.

On 1 April 2009, the annual accrual rate for old-age pensions increased from 1 to 1.1. In addition, the maximum pension amount (excluding bonuses) was increased to EUR 357.9, from EUR 250.5.

On 1 July 1 2009, pensions were updated by 9.0% following the so called Swiss rule.

New pension reform measures entered into force on 1 January 2011, with amendments to the Social Security Code (SSC), aiming at strengthening the sustainability of the first pillar of the pension system and increasing the adequacy of benefits. One year later, some additional measures aiming at quickening the pace of pension reform have been adopted by Parliament. They envisage the gradual increase in the required length of service and in the statutory retirement age as follows:

i) As of 1 January 2012, the required length of service for pension is raised by 4 months each year until 37 years for women and 40 years for men in 2020 (in 2011, respectively, 34 and 37 years).

ii) Rises in the statutory retirement age are brought forward to 2012, instead of 2021 as initially planned. These rises are set to 4 months each year, until reaching 65 years of age for men in 2017, and 63 years for women in 2020.

At the end of 2013, the Bulgarian Parliament decided to freeze the retirement age for women at 60 years and 8 months, and for men at 63 years and 8 months. The final decision concerning early retirement of people working in hazardous environments has not yet been taken (planned for October 2014).

In the period 2010 – 2012, pension indexation has been suspended. One year after the initial decision to apply the so-called 'Golden Swiss rule' (50% CPI + 50% wages) as of 2013, new amendments in the law stipulated that CPI indexation will be carried out every year in July, starting in 2014. In 2013, as a result of political decision, pensions were indexed on average by 9.3% in April. In the second half of 2013, the indexation rule was changed again to the Golden Swiss rule.

In order to improve pension adequacy, the accrual rate for newly granted pensions will be increased from 1.1 to 1.2 as of 1 January 2017. From the same date, the contribution rate for the mandatory second pillar (universal pension funds) will be increased by 2 percentage points to 7%.

In general, the proposed measures included in the most recent pension reform reduce the eligibility of the public pension scheme and increase labour supply of older people. Due to longer contribution periods, people will at the same time be able to accumulate higher pension entitlements in the medium and long run.

Czech republic

In October 2011, a pension reform was approved. The statutory retirement age was increased above 65 years, depending on the year of birth. Younger cohorts (both genders) are subject to an additional increase of 2 months. As an example, for persons born in 1978 the statutory retirement age is 67

years and 2 months; for persons born in 1979 the statutory retirement age is 67 years and 4 months.

In November 2012, after one year process, the Czech Parliament approved the introduction of a new voluntary pension savings pillar (Act on Pension Savings No. 426/2011). It operates, staring from 1st of January 2013, by diverting 3% of the contribution from the first pillar and by adding a supplementary 2% employee contribution.

In addition, during the summer 2012, the Czech government, within its effort to consolidate public finances, introduced a temporary change in the indexation rule. During the 2013-2014 period, a temporary indexation rule of 1/3 inflation and 1/3 real wage increase will be applied, instead of the long term indexation rule of full CPI inflation and 1/3 for real wage increases. In 2015, the lower indexation rule was cancelled one year earlier than initially envisaged, while indexation is set to 1.8%. From 2016 onwards, the long term indexation rule applies (i.e. full CPI inflation plus 1/3 of real wage growth).

In general, the proposed measures reduce pension expenditure in the long term, while maintaining the preponderance of the public pension scheme. However, the shift of contribution to a second pillar will impact negatively on public finance in the short term.

Germany

Forthcoming increase of the statutory retirement age (latest reform of 2007)
- For persons born after 1946, the statutory retirement age is increased in steps of either 1 or 2 months from 65 years of age, depending on the year of birth (see attached Table). As an example, the statutory retirement age for persons born in 1946 or earlier remains at 65; for persons born in 1947, the statutory retirement age is 65 years and 1 month; for persons born in 1948, the statutory retirement age is 65 years and 2 months; for persons born in 1958, the statutory retirement age is 65 years and 12 months i.e. 66 years; for persons born in 1963, the statutory retirement age is 65 years and 22 months. For those born in 1964 and younger, the statutory retirement age will be 67.

Born in	Additional number of months
1947	1
1948	2
1949	3
1950	4
1951	5
1952	6
1953	7
1954	8
1955	9
1956	10
1957	11
1958	12
1959	14
1960	16
1961	18
1962	20
1963	22
1964	24

- Early retirement for persons with a minimum contributory period of 35 years will remain at 63 years of age. Since the statutory retirement age is planned to increase in the next two decades, the maximum penalties for early retirement at age 63 raise from 7.2% to 14.4%.

- Persons with a contributory career of 45 years or more can retire at full rate at 65.

Effects on the statutory retirement age (of previous reforms)
In the last two decades, the statutory and early retirement ages have also increased for different types of old age pensions. In some cases, further increases are still expected on account of past reforms. For example, women born before 1952 are entitled to a special old age pension. In the coming years, the relevance of these special pension types will decline further.

On July 2014, a pension reform has been legislated that aimed at improving pension benefits and early retirement conditions for certain groups:

(i) the provision of a pension supplement for those having raised children born before 1992 (Mütterrente);

(ii) the possibility of retirement without pension reductions two years ahead of the statutory retirement age (65) if contributions have been paid

for 45 years, including periods of unemployment (Rente mit 63). Beginning in 2016, the age will rise by 2 months a year until it returns to age 65. The new pension rules did not change the scheduled increase in the retirement age;

(iii) improved pension entitlements for people with reduced earning capacity for health reasons by basing benefits on the period from the onset of the disability to age 62 (up from age 60 previously) (Erwerbsminderungsrente).

(iv) *Continuation of labour agreement after reaching statutory retirement age:* Labour law contains no provision for an automatic expiration of an employment relationship when reaching the statutory pensionable age. However, in practice collective agreements usually include clauses providing for the termination of employment when reaching the statutory pensionable age. According to the last pension reform, employers and employees can continue the employment relationship for a certain period after the statutory pensionable age has been reached. The agreement to postpone retirement must be reached before the pensionable age.

Denmark

In 2006 Denmark introduced a major reform package known as the "Welfare Agreement". The key elements of the reform was a discretionary increase in the voluntary early retirement pension (VERP) age from 60 to 62 years in 2019-2022 and the public old-age pension age from 65 to 67 years in 2024-2027. Furthermore, retirement ages are indexed to life-expectancy for a 60 year old as of 2025 for VERP and 2030 for the public old-age pension. Finally, the minimum contribution period to VERP was increased from 25 to 30 years.

In 2011 the "Retirement Reform" brought forward the discretionary increase in the retirement ages agreed in the "Welfare Reform". The retirement age for VERP will increase from 60 to 62 years from 2014-2017, while the public old-age pension age will increase from 65 to 67 years in 2019-2022. Furthermore, the VERP period is reduced from 5 to 3 years from 2018-2023. Private pension wealth also lowers the VERP amount to a higher degree than before the reform, making the VERP scheme less favourable to people with large private pension wealth.

Overall the two reforms are expected to reduce the number of pensioners and increase employment significantly. In contrast, the share of the population receiving other forms of public

transfers, primarily disability pension, is expected to increase.

The reforms are expected to significantly improve the government balance, partly due to direct budgetary effects through lower cost of OAP and VERP, partly due to higher tax revenue from an increased employment rate for older workers.

Estonia

The Estonian pension system has three pillars: (i) the first pillar is the pay-as-you-go public pension; (ii) the second pillar is a mandatory fully funded pension scheme; and (iii) the third pillar is a voluntary additional saving scheme.

The funded second pillar pension scheme provides supplementary income for pensioners. It is a retirement savings plan where a working person saves for his or her own pension, contributing 2% of their gross salary to the pension fund. The state contributes an additional 4% of the 20% of the social tax used for pensions to the individual's personal account, and retains the remaining 16% for members of the first pillar. Subscription to the funded pension is mandatory for individuals born in 1983 or later, but is voluntary for those born before 1983. A large majority of the labour force has joined the second pillar.

Retirement age will be increased to 65 years for both males and females gradually by 2026.

Contributions to the second pillar were halted for the period of 1.7.2009 to 31.12.2010. For the year 2011 the contribution rates were halved. From 2012 onwards, the normal system will be restored.

Greece

On July 2010, the Parliament adopted a comprehensive pension reform of the main pension schemes. The reform simplified the highly fragmented pension system, enhanced transparency and fairness, postponed the retirement age, and decreased the generosity of benefits. The new universally binding rules on entitlements, contributions, accumulation rules and indexation of pension rights applies to the main pension funds (IKA, OGA, OAEE, public sector scheme, Bank of Greece scheme). The pension reform is applied pro-rata to all current and future workers.

The main elements of the reform are:

- The introduction of a new basic pension of EUR 360/month (12 yearly payments).

Box (continued)

- The new system introduces accrual rates with the same profile for all workers that depend only on the length of the career (ranging from 0.8 to 1.5 percent of earnings).

- The reform increases the statutory retirement age from 60 to 65. The minimum age for retirement is set to 60; penalties apply for persons with less than the full contributory career.

- The full contributory career is increased to 40 years (compared with generally 35 years previously).

- Equalisation of retirement ages of men and women in both the private and public sector by 2013.

- Indexation of benefits (including basic pension) will not exceed HICP inflation.

- Pensionable earnings will be calculated based on the full-earnings history.

The new legislation includes a sustainability clause (article 11.b.1, of Law 3863, 15 July 2010) which stipulates that, if long-term projections (to be run by the NAA every 2 years) show the rise in public pension expenditure between 2009 and 2060 to exceed 2.5 percentage points of GDP, then relevant parameters of the pension system will be changed to bring the increase of expenditure below the targeted threshold.

On February 2012, the Parliament adopted a reform of auxiliary pension schemes (Law 4052/2012), comprising the following elements:

- The nominal rate of return, which will be the annual growth in pensionable earnings (contributory earnings) of all insured with the Fund, is applied for the accrual of contributions.

- The life expectancy at retirement is applied for the calculation of the initial pension.

- A sustainability factor is applied to guarantee the scheme's financial stability.

Pensions paid must be equal to contributions received, or alternatively, the average contribution rate must be equal to the ratio of total benefits paid to total contributory earnings.

Paid pensions must be entirely linked to the pensioners' age. In order to calculate the amount of old-age pension, a whole life annuity will be used.

In November 2012, the parliament approved a pension law, scheduled for implementation on January 1, 2013, to increase the statutory retirement age from 65 to 67 to receive a full pension. According to an earlier law, the retirement age for women will equal the current retirement age of 65 for men by December 2013. In addition, from 2020 onwards, the statutory retirement age for men and women is scheduled to be automatically adjusted (every 3 years) to reflect changes in life expectancy.

Ireland

Effective on 1st January 2014, the State Pension Transition will be abolished from 2014, while the age of qualification will rise to 67 in 2021 and then to 68 in 2028. Separately the criteria to qualify for a contributory pension has been amended to increase the minimum number of paid contributions required for State Pension (Contributory) qualification in April 2012.

The Public Service Pensions (Single Scheme) and Remuneration Bill 2011 provides also for a new single pension scheme for all new entrants to the public service. E.g. it implies a new statutory pensionable age of 66 (linked to State Pension age, so rising progressively to 67 and 68).

Spain

The 2002 pension reform (Law 35/2002)
It abolished mandatory retirement at 65 in the private sector. Workers remaining active after 65 will increase their pension benefit by 2% per year, and both employers and employees are exempted from paying most social security contributions. For workers aged at least 60, social contributions are reduced by 50%, and this amount is increased by 10% to reach 100% for those aged 65. Early retirement is possible from 61 years, with at least 30 years of paid contributions and registered as unemployed for at least 6 months, but with a high penalty associated, from 6% to 8% per year (8% for those with only 30 years of contributions, 6% for those with at least 40 years of contributions). Pensions became compatible with part-time work (but the pension benefit was reduced according to the length of the working day).

A new law on Social Security measures was enacted in 2007

This package of reforms contains the following main measures:

- increase in the effective contribution period to be eligible for a retirement pension;

- partial retirement from age 61 instead of 60 for people entering the system after 1967 (and a minimum of 30 years of contribution instead of 15);

- incentives for people working after age 65;

- more restrictive rules to get an invalidity pension.

The 2011 pension reform (Law on Social Security Reform 27/2011, August 1st)
This reform contains the following main measures:

- The statutory retirement age will gradually increase from 65 in 2013 to 67 in 2027.

  Early retirement can be taken at age 63 (previously 61). Eligibility for early retirement requires 33 years of contributions (previously 30). Penalties are increased to 7.5% per year of early retirement for careers shorter than 38.5 years of contributions, and 6.5% for careers longer than 38.5 years of contributions.

- Early retirement at 61 is still possible during economic crisis for workers with contributory careers longer than 33 years.

- Partial retirement at 61 is still allowed, but it will be less attractive because the partial employee will have to pay total social security contributions.

- Depending on the length of the contributory career, bonuses for delaying retirement are increased: +2%, +2¾%, and +4% for an extra year, respectively, for careers below 25 years, between 25 and 37, and over 37.

- The period used to calculate pensionable earnings will be gradually increased from 15 years to 25 years (by 2022).

- The contributory career for a full pension will be gradually increased from 35 to 37 years, with calculations being made on a monthly basis, instead of rounding to the next full year.

- The percentage of the full pension received will be proportional to the length of the contributory career, starting at 50% for careers shorter than

15 years and rising to 100% for a 37 years career. This is expected to eliminate the previous bias favouring shorter careers.

Sustainability factor
Beginning in 2027, the fundamental parameters of the pension system will be revised each five years to take into account changes in life expectancy. Calculations will be based on projections carried out by official agencies.

Exceptions:

- Workers with contributory careers of more than 38.5 years are allowed to retire at 65 with a full pension.

- Women having interrupted their careers due to child care reasons can add, up to 112 days per child (below 6 year-old), starting in 2013, and increasing up to 270 days per child in 2018.

The 2013 pension reform:
A new pension reform was approved in 2013 (Law 5/2013, March; and Law 23/2013, December). The Law 5/2013 of March intends to prolong the working lives of older workers and to promote active ageing. In particular, it restricts access to early retirement (increasing the minimum age from 63 to 65 by 2027). The Law 23/2013 of December introduces a sustainability factor for setting the value of new pensions and changes the method for their revaluation. In particular, the sustainability factor introduces a link between changes in life expectancy and the amount of a new retirement pension as of 2019. It curtails the initial pension benefit in line with changes in life expectancy. A new indexation mechanism for pension was introduced as of 1st January 2014, which explains about two thirds of the expected reduction in pension expenditure to GDP ratio brought about by the reform package. The indexation formula implies that on average (old) pensions are indexed below CPI inflation, thus contributing to the financial sustainability of the public pension system.

Finland

Since 2005, flexible old-age retirement (63 to 68 years) with an increase of the accrual rate to 4.5% for those continuing to work beyond the age of 63. The ceiling on the maximum pension is abolished. A new early retirement scheme is introduced with a minimum age of 62 and an actuarial reduction of 0.6% per month prior to 63 for those born before 1952. The so called "unemployment pipeline" is 61 years of age for those born in 1957 and later:

Box (continued)

individuals are not eligible for the unemployment pension scheme which is replaced by an extended period of unemployment benefit.

France

Between 2004 and 2008, public sector pensions have been gradually aligned with private sector pensions by increasing the number of contribution years for entitlement to a full pension (from 37.5 to 40 years). Since 2009, the number of contribution years have increased with life expectancy following a rule that keeps constant the ratio of the number of contribution years to the number of years spent in pension to the level of 1.79 reached in 2003. The number of contribution years will be increased to 41 for generation 1952 and 41.5 for generation 1957, reflecting the expected gains in life expectancy (of 1.5 years every 10 years). A yearly 3% bonus has been introduced for postponing retirement in 2003. It increased to 5% in 2009. The penalty for early-retirement (before 40 years of contributions) has been modified too. Between 2006 and 2015, the yearly penalty ('la décote') for early-retirement will gradually decrease from 10% to 5% of pension benefits for private sector workers, while increasing from 0.5% to 5% for civil servants.

The 2010 pension reform (law n°2010-1330):
- (a) a progressive rise of age limits

– The standard pension age will be gradually increased, for all pension schemes, from 60 to 62 years of age. Simultaneously, the full rate pensionable age will rise from 65 to 67. These two rises imply a 4 months increase in age limits every year from generation 1951 to generation 1955. (For example, people born in 1956 will be able to claim pension at 62 in 2018 and a full rate pension at 67 in 2023);

– The early retirement age for long contributory careers will also be increased by 2 years.

- (b) convergence of pension rules between the public and private sectors

– Closing down of pathways to early retirement in the public sector: i) for parents with 3 children after a 15 years career; ii) provisions in the "Cessation Progressive d'Activité" programme;

– The minimum pension of the public sector ('minimum garanti') will be computed using the same rule as in the private sector ('minimum contributif'). To be entitled to the minimum

pension, insured persons will have first to reach the full rate pensionable age.

- (c) Discriminatory positive measures partly limiting the favourable effect on labour force participation of the pension reform

– Some categories/groups will still be granted a full rate pension at 65 years of age;

– People suffering from a professional disease or an accident that results in a permanent incapacity of at least 10% can continue to retire at 60 with a full rate pension.

The 2014 pension reform (law n°2014-40):
In December 2013, the National Assembly approved a public pension reform that gradually increases the required number of contribution years for a full retirement benefit. The number of required contribution years for a full benefit will rise gradually from 41.5 to 43 years in the 2020–2035 period. The increase in the contribution period already enacted before 2020 (from 40.75 years in 2013 - for those born in 1951 - to 41.5 in 2019 - for those born in 1957) is confirmed. From 2020 to 2035, the government decided to rise the full-pensionable contribution period to 43 years. This measure ensures that the full-pensionable contribution period increases in line with changes in life expectancy.

Hungary

The 1997 pension reform:
- Aimed to gradually increase the statutory pensionable age for men from 60 to 62 and for women from 55 to 62 by 2009.

- Started to build up a new framework for the mandatory pension system, by splitting the existing one into two parts: a) a dominant PAYG pension pillar; and b) a partly funded pension pillar;

- The new mixed system (approximately 3/4 PAYG and 1/4 funded pillar) is obligatory for new entrants into the labour market, for others it is optional. The mandatory mixed system became voluntary since December 2010.

In 2006-2007, Parliament adopted a package of reforms (two laws) which specifies that early retirement is allowed only 2 years before normal retirement (previously 3 years). From 2013 onwards, early retirement is possible from age 60 for both women and men, although subject to a penalty. The rate of reduction, depending on the

time remaining until the statutory retirement age, will be 0.3% per month for the 61-62 age-group, and 0.4% per month below the age of 61. It introduces also changes in the calculation of benefits, a minimum contribution from 40-41 for early retirement, and some favourable retirement conditions for those working in potentially health-hazard occupations.

The 2009 pension reform:

- The statutory retirement age is increased from 62 to 65 between 2014 and 2022. The early retirement age is also gradually increased from 60 to 63.

- Use of a less generous indexation rule for pensions, a mix of CPI and wage growth, depending on GDP growth. Full indexation to CPI is applied if GDP growth does not exceed 3.0%, and the Swiss indexation formula if GDP growth exceeds 5.0%.

Weights in the indexation formula		
GDP growth	CPI	Wages
< 3.0	100	0
3.0 - 3.9	80	20
4.0 - 4.9	60	40
> 5.0	50	50

- Abolition of the 13th month for pensions from the second half of 2009, in its place a pension premium is introduced.

- The 13th month for pensions had been introduced between 2004 and 2006, then capped at HUF 80,000 (average pension benefit) in 2008, and abolished in the second half of 2009. Instead, a pension supplement will now be paid, starting with GDP growth of 3.5%, and rising with GDP growth. For GDP growth of 7.5% or more, the pension premium will equal the 13th month for pensions, but will also be capped at HUF 80,000.

Changes adopted in 2010:
i) As from 2011, a special allowance was introduced, it gives women the opportunity to retire after 40 eligibility years, the latter including years in employment or pregnancy confinement benefit, child care fee, child home care allowance, and child raising support or nursing fee.

ii) Since November 2010, the membership of private pension systems is not compulsory, the members of private pension funds were given the right to choose to remain members, though approximately 3 million people remained in the

pure social security pension system. Between 1/10/2010 and 30/11/2011, contributions paid to the 2nd pillar were redirected to the 1st pillar, due to budgetary reasons.

iii) Since 1/1/2012, all paid insurance go into the mandatory public pension system. The rate of pension contribution is the same for private pension fund members. Hungary returned to a two-pillar pension system, based on compulsory social insurance system on the one hand, and voluntary private pension savings on the other.

The 2011 pension reform (167/2011 Act):

A recent pension reform, with effects since January 2012, was approved with the following main components.

i) First, the gradual elimination of nearly all early retirement possibilities (except for women with 40 eligibility years or more), leading to a convergence of the effective retirement age towards the statutory one. Former early retirement benefits are transformed into social benefits, the so-called "benefit prior to retirement age".

ii) Second, stringent eligibility conditions for disability pensions will also contribute to decrease the number of pensioners and increase employment. Disability pension before the retirement age are transformed into health insurance. The focus is to move way from passive support to rehabilitation programmes, trying to enhance individuals' conditions. The main aim of these changes is to carry out a complex review of people requiring support, and to provide the necessary tools for improving their conditions, eventually allowing them to return to the labour market.

iii) Third, the change in the indexation formula of pensions from a mix of wage growth and inflation to pure inflation will tend to lower expenditure.

In general, the proposed measures reduce the eligibility of the public pension scheme and increase labour supply of older people.

Italy

Major changes to pension legislation, since 2006:

Law 127/2007
Increases low pension benefits through an additional annual lump sum (€420 from 2008) given to pensioners aged 64 and over with income lower than 1.5 times the annual minimum pension

(€9.133 in 2011). Such an increase is reduced or augmented by 20% for contribution careers lower than 15 years or higher than 25, respectively (18 and 28, for the self-employed).

Additional increases are also foreseen for social assistance pensions (improving upon legislation passed in 2002), through the so-called 'social assistance additional lump sums' (*maggiorazioni sociali*). They are provided to the elderly with a personal income (in case of a single) or couple's income (in case of married people), including social security pensions, below certain limits and up to them. In 2011, personal income limits are 5,600 euro per year, in the age bracket 65-69, and 7,850 in the age bracket 70+. For married people, couple's income limits are 11,680 euro per year, in the age bracket (referring to the beneficiary) 65-69, and 13,290 in the age bracket 70+.

Law 247/2007
Includes the following measures:

> Minimum requirements for early retirement. The process of increasing the minimum requirements for early retirement has been slowed down, keeping unchanged the phased-in values foreseen by Law 243/2004. In particular, in 2008 the age requirement, for those with a contributory career of 35 years, is 58 for employees and 59 for self-employed instead of 60 and 61. From 2013 onwards (previously 2014, according to Law 243/2004) the age requirement, for those with a contributory career of 35 years, is 62 for employees and 63 for self-employed. In addition, from July 2009 onwards, workers may retire 1 year earlier provided that they have a contributory career of at least 36 years.

- Revision of transformation coefficients. The new transformation coefficients, revised on the basis of the procedure foreseen in Law 335/95, are applied since January 2010. Subsequent revisions will be made every three years, instead of every ten years, through a simplified procedure falling entirely under the application of administrative rules.

- Contribution rate of atypical workers. The contribution rate for atypical workers has been increased by 3 percentage points (up to 26% from 2010) in order to improve pension adequacy for this category.

Law 133/2008
States that old age and seniority pensions may be fully accumulated with labour income. The new

legislation improves upon the previous one which foresaw some restrictions in the possibility of accumulating, especially for employees.

Article 12 of the law 122/2010 (amending decree law 78/2010)
Introduces three changes to the public pension system:

- "Exit window' mechanism. The 'exit window' mechanism, which after completion of minimum age and/or contribution period postpones pension receipt, has been increased. It applies to those qualifying for a pension after 1 January 2011. It involves a 1 year postponement for employees and 1½ years for the self-employed, concerning both early (including those with a 40 years contributory career) and old age pensions.

- Indexation of retirement age. Age requirements for early and old age pensions, and old age allowances (*assegno sociale*) have been indexed to changes in life expectancy at 65, as measured by the National Statistical Institute over the preceding three-years. Indexation to life expectancy will be first applied in 2015, when the gradual increase of age requirements for retirement, according to previous legislation, has been fully phased-in, but cannot exceed three months. Subsequent retirement age indexations are envisaged for 2019 and then every three years, so as to align this mechanism with the revision of the transformation coefficients used to calculate pension entitlements according to the contributions-based method.

- Statutory retirement age of women in the public sector. In the public sector, the statutory retirement age of women (60, in 2009) will be equalised with that of men (currently 65) in 2012 (61 in 2010-2011), instead of 2018 as previously foreseen in law 102/2009. This accelerated pace of convergence reflects an European Court of Justice recommendation to remove any discrimination based on gender.

Law 111/2011[1] (amending decree law 98/2011), approved the 15th July 2011
Further strengthens the eligibility requirements, keeping unchanged the 'exit windows' mechanism, with the exception of early retirement with 40 years of contributions, as reported below. The major interventions may be summarized as follows:

- Statutory retirement age of women in the private sector. The statutory retirement age of

Box (continued)

women in the private sector will be gradually equalised to the one of men (and women in the public sector) passing from the current level of 60 to 65 over the period 2020-2032.

- Indexation of retirement age. The indexation of the eligibility requirements (early and old age pensions, and old age allowance), previously foreseen to start from 2015 (law 122/2010), has been brought forward to 2013. This implies a further increase in the age requirements of 4 months starting from 2016, compared to previous legislation (Law 122/2010).

- Early pension with 40 years of contributions. For those retiring with 40 years of contributions regardless of age, the postponement envisaged by the 'exit windows' mechanism has been further increased by 3 months starting from 2014 (1 month in 2012 and 2 months in 2013).

Benefit indexation. For the two-year period 2012-2013 and limited to pensions above five times the minimum pension, the indexation to price inflation is reduced to 70% and only applied to the part of pension up to three times the minimum. For the part exceeding such a threshold, the indexation is nil.

Law 148/2011 (amending decree law 138/2011)
Foresees two further interventions on retirement age:

- Statutory retirement age of women in the private sector. The alignment process of statutory retirement age of women in the private sector to that of men (and women in the public sector) has been brought forward 6 years, from 2020-2032 to 2014-2026.

'Exit window' mechanism.
Further postponement due to the exit window mechanism is also applied to workers in the public educational system, previously exempt.

Law 214/2011 (amending decree law 201/2011):

- Extension of the NDC method. The NDC method is applied also to workers under the DB regime, previously fully exempted. The extension concerns contributions accrued as of 1st January 2012, according to the pro-rata rule.

- 'Exit window' mechanism. The 'exit window' mechanism has been abolished and replaced

by a corresponding increase in the minimum age and/or contribution requirements;

- The statutory retirement age (SRA) of women in the private sector. The alignment process of the SRA of women in the private sector with that of other workers (men and women in the public sector) has been accelerated. The equalisation process will be completed by 2018. According to a specific legislative provision, the SRA must be at least 67 in 2021. Based on the official demographic projections, such a target may be achieved in advance through the indexation to changes in life expectancy.

- Old age allowance. Besides being indexed to changes in life expectancy, the minimum requirement to be entitled to the old age allowance has been increased by 1 year as of 2018, and then fully aligned to SRA;

- Early retirement with contribution and age requirements. The early retirement channel based on joint age and contribution (35 years) requirements has been abolished in all regimes. Under the NDC regime, early retirement is allowed, up to three years before the SRA, with 20 years of contributions and an amount of pension of at least 1,200 euro per month in 2012 (which corresponds to 2.8 times the old age allowance - *assegno sociale*), indexed with the five-year average of nominal GDP;

- Early retirement regardless of age. The minimum contribution requirement to be entitled to an early pension regardless of age is 41 for women and 42 for men (the latter has been increased by 1) in 2012. Such requirements have been indexed to changes in life expectancy as of 2013, as foreseen for the SRA. A penalty is applied to the quota of pension calculated according to the DB method (1% at the age of 61, 2% at the age of 60 and then increased by 2 pp each year below 60);

- Contribution rates. The contribution rates paid by the self-employed have been gradually increased from 20% in 2011 to 24% in 2018. Furthermore, the law no. 183/2011 (Stability Law for 2012) had already increased the contribution rate of atypical workers by 1pp bringing it up to 27% (18% for atypical workers already pensioners or insured to other pension schemes) as of 2012;

(Continued on the next page)

Box (continued)

- Indexation to price inflation. For the two-year period 2012-2013, pensions of an amount above 3 times the minimum pension (about 1,400 euro per month) are not indexed to price inflation

Interventions after Law 214/2011

- For the three-year period 2014-2016, indexation to price inflation is reduced to: 95% of the total amount for pensions in between 3 and 4 times the minimum, 75% for pension in between 4 and 5 times the minimum, 50% for pensions in between 5 and 6 times the minimum, 40% (45%, in 2015-2016) for pensions above 6 times the minimum. For 2014 alone, the quota of pension above 6 times the minimum is not indexed. Full indexation to price inflation is guaranteed to pensions up to three times the minimum.

- The number of workers safeguarded from the higher eligibility requirements foreseen by Law 2014/2001 has been increased.

- The contribution rate of atypical workers (who are not pensioners or contributors to other public pension schemes) has been progressively raised to equalise that of employees (33%) in 2018.

Luxembourg

A major pension reform has been introduced in 2012 in order to align the pension benefit to the evolution in life expectancy over a 40-year period. As of 1 January 2013, real wage indexation of pensions after the first calculation will be moderated or even suspended depending on the annual benefit-expenditure ratio. Moreover, a revised pension formula for the general scheme of the private sector has been established. Although the pension reform did not alter the four components (P=P1+P2+P3+P4) of the existing pension formula, different factors appearing in three of the four contributing summands have changed. Indeed, from 2013 onwards, the yearly pension depends on four annual pension formula parameters (p1, p2_1, p2_2, p3) and comprises the following main elements:

i) (P1) the pro-rata enhancement: corresponding to a given percentage (p1) of the total contributory income (I);

ii) (P2) the incremental enhancement: for each full year that the sum of the recipient's age plus the total of contributory years (CY) exceeds the given annual parameter (p2_1), the pro-rata enhancement is increased by a fixed percentage (p2_2) up to a ceiling of 2.05%;

iii) (P3) the flat rate (percentage p3 of SMI): calculated on the basis of the number of qualifying years (QY) including compulsory contribution years (CY) and credited non-contributory years (NY) such as years of study or years taken off to bring up children, the number of qualifying years being capped at 40;

iv) (P4) the end-of-year allowance bonus (2.5% of SMI): this bonus is due as long as the global contribution rate has not to be increased. The periods taken into account are the same as for the flat rate.

Thus, formerly constant pension parameters have been replaced by annually varying parameters whose initial values coincide with the pre-reform rates. E.g., the pro-rata enhancement factor (p1) now ranges between 1,850% before 2013 and 1.600% from 2052 onwards, while the flat rate (p3) starts at 23.5% of SMI in 2012 and ends at 28% of SMI in 2052.

Cyprus

On 20 March 2009, the Social Insurance Law No. 22(I)/2009 was approved regarding the pension reform package for securing the long-term viability of the Social Insurance Scheme. The two measures of the reform expected to impact in future labour force participation rates are:

- Stricter eligibility conditions to old-age pensions, which are to be introduced gradually over the period until January 2012, namely increase of the minimum contributory period to 10 years (previously 3 years);

- Maximum limit of 6 years on credits granted to an insured person in the lower end of the income distribution for any period of time spent in full time education or approved training after 16 years of age (previously no maximum limited existed). This measure came into effect on January 2010.

A recent pension reform was approved (21 December 2012, 193(I)/2012) which comprises three main components. First, the increase in in the minimum contributory period from 10 to 15 years by 2017, reducing the eligibility of the public pension scheme. Second, the gradual increase in the statutory retirement age to 65 by 2016, and the

(Continued on the next page)

subsequent linking of the retirement age in line with life expectancy, together with the introduction of penalties for early retirement. These measures are expected to have a decreasing impact on the number of pensioners and an increasing one on employment, while reducing the overall generosity of the public pension system. The effective retirement age is expected to follow changes in the statutory retirement age.

Latvia

A recent pension reform was approved (14/06/2012) which increases the minimum contributory period from 10 to 15 years in 2014 and to 20 years in 2025, and reduces the eligibility of the public pension scheme. It also introduces a possibility for early retirement, although with a large penalty (50%) for those with a long contributory period. The latter is expected to have a minor impact on retirement decisions. The envisaged gradual increase in the statutory retirement age to 65 by 2025 is expected to have a decreasing impact on the number of pensioners and an increasing one on employment. The effective retirement age is expected to follow changes in the statutory retirement age.

In general, the proposed measures reduce the eligibility of the public pension scheme and increase labour supply of older people. Due to longer contribution periods, people will at the same time be able to accumulate higher pension entitlements in the medium- and long-run.

Lithuania

In June 2011, a new law was passed that gradually increases the statutory retirement age from 62.5 to 65 for men and from 60 to 65 for women by 2026. Under the new law, the retirement age will increase every year by 2 months for men and by 4 months for women, starting in January 2012. In order to receive a full pension, workers must also have a career contribution of 30 years.

Malta

In December 2006, the government completed the legislative process associated with the enactment of the pensions reform bill. Following the implementation of the reform, pension age was to be gradually raised to 65 years, however, a number of provisos apply, whereby for persons born on or before the 31 December 1951, pension age is 61 years while for females pension age is 60 years; in the case of a person born during the calendar years 1952-1955, pension age is 62 years; for persons

born during the period 1956-1958, pension age is 63 years; for persons born in the period 1959-1961, pension age is 64 years.

Secondly, following the reform, a person of 61 years of age, not having attained pensionable age, may claim a pension if he/she is no longer employed provided that the claimant has accumulated since her/his 18th birthday a total of: (i) 40 years of paid or credited contributions (for those born after 1962); or (ii) 35 years of paid or credited contributions (for those born between 1952 and 1961).

According to the pension reform law, for those born after 1962, the pension shall be determined by taking the yearly average of the basic wage/salary/net income/net earnings as the case may be, during the best 10 calendar years within the last 40 years immediately preceding his/her retirement or invalidity. In determining pensionable income, past wages and incomes are indexed to the cost of living adjustment (COLA). COLA is a flat increase in wages and pensions to the average Retail Price Index inflation measured as the 12 months moving average recorded in September of that year. In 2014, the basic wage was around 15% higher than the National Minimum Wage that came into effect on 1st January 2011.

The contribution period was also changed: (i) a 30 years period is expected for persons born before 1952; (ii) 35 years for persons born between 1952 and 1961; and, (iii) 40 years for persons born after 1962.

Following the pension reform, persons born after 1962 have their pension valorised annually by a sum corresponding to 70% of the increase in the national average wage and 30% to consumer price inflation.

In the case of a person born on or after the 1 January 1962 whose retirement occurs on or after the 1 January 2007, the resultant maximum pensionable income shall not exceed: (i) €16,207.78 increased by such sum that the Government awards for the cost of living, in respect of the years 2007 to 2010; (ii) €16,207.78 increased on the 1 January of each year between 2011 and 2013 by one third of the difference between the sum referred to above and €20,964.36; (iii) €20,964.36 increased annually by 70 per cent of the percentage increase in the national average wage for the previous calendar year, plus 30 per cent of the inflation rate for that same year. This applies as from the 1 January 2014.

Crediting of contributions may be claimed for a maximum period of two years in the case of a parent who has stopped working to take care of

Box (continued)

his/her child, extended to four years in the case of a child suffering from a serious disability. An adoptive parent is also able to claim such credits. Credits may be claimed for every child, with no distinction between employed and self-employed persons.

The Maltese Government also introduced changes to the regime regulating the award of invalidity pensions and the procedures for their review, including changes in: (i) application; (ii) medical panel; (iii) specific medical criteria for their award; and (iv) setting of an independent audit system.

The Netherlands

Since 1 January 2006 the Dutch early retirement scheme is integrated with the second pillar old age pension system by a law called VPL ('VUT-Prepensioen-Levensloop). The enactment of this law implied a replacement of a previous scheme that facilitated actuarially unfair early retirement, called the VUT scheme. The old scheme had an important impact on the participation rate. Since January 2009, older workers receive an age-related tax credit on their wage income in order to increase participation (at 62, this credit is 5% of gross wages, at 63 it is 7%, at 64 it is 10%; then at 65 and 66 it is 2% and decreases to 1% at 67).

A recent pension reform was approved (7/02/2012) with the following main components. First, the effect of the envisaged gradual increase in the statutory retirement age to 67 in 2023 is expected to have a decreasing impact on the number of pensioners and an increasing one on employment. The effective retirement age is expected to closely follow the gradual increase in the statutory retirement age. Second, the link of the retirement age to gains in life expectancy as of 2023 will also contribute to decrease the number of pensioners and increase employment. Third, the duration of social security arrangements for people below the retirement age (disability pensions, survivors' pensions, unemployment schemes and social assistance) are prolonged in line with the rise in the statutory retirement age for retirement.

In general, the envisaged measures reduce the eligibility of the public pension scheme and increase labour supply of older people.

Poland

The general system: all insured persons born after 1948 are covered by the new defined contribution PAYG with notional accounts and three-pillars. The standard retirement age remains at 65 years of age for men and 60 for women. There are no early pension for those born after 1948 and retiring after 2008, with the exception of miners. Since 2007, disability pension insurance contributions were reduced.

In 2009, "bridging" pensions and compensation benefits replaced early retirement pensions for eligible workers. This only affects those that started working in special conditions before 1999.

Since May 2010, contributions to the funded tier are modeled accordingly to the PAYG contribution. From 2017 onwards (i.e. after the transition period) of the existing 7.3%, 3.5% will remain in the funded system, while an extra 3.8% will be paid to the public system to dedicated accounts.

A recent pension reform was approved (6/2012) with the following main components. First, the effect of the envisaged gradual increase in the statutory retirement age to 67 both for men (in 2020) and women (in 2040) is expected to have a decreasing impact on the number of pensioners and an increasing one on employment. The effective retirement age is expected to follow changes in the statutory retirement age. Second, restrictions in early retirement for special professions (farmers, judges and prosecutors) will also contribute to decrease the number of pensioners and increase employment. Third, reductions in pension generosity for some hazardous professions, such as police force and fire-fighters will have a decreasing impact on pension expenditures.

In general, the proposed measures reduce the eligibility of the public pension scheme and increase labour supply of older people. Due to longer contribution periods, people will at the same time be able to accumulate higher pension entitlements in the medium- and long-run.

Portugal

Portugal introduced in 2007 a "Sustainability factor" linking initial benefits to average life expectancy at retirement (i.e. at the legal retirement age of 65). Individuals can opt to postpone retirement beyond the legal retirement age to compensate (at least partially) for the financial penalty associated with the sustainability factor. Simultaneously, a "national strategy for the promotion of active ageing" was introduced aiming to encourage older workers to remain longer in the labour force through: better access to vocational training, improvement of older workers employment conditions, a higher penalty for early

(Continued on the next page)

retirement, and benefits granted in case of longer contribution careers.

In the framework of the 2006 Agreement on the Social Security Reform, a new law defining the social security contributory code to the general regime was approved (Law 110/2009, 119/2009 and 55-A/2010), and it is in force since 1 January 2011.

In December 2013, Portugal approved several laws restricting qualifying conditions for pensions, e.g. in 2014 and 2015 the statutory retirement age of old-age pensions is shifted to 66 years. As from 2015, the legal age for entitlement to old-age pensions will vary according to the evolution of life expectancy at 65 years of age.[a]

There are also changes in the calculation of the sustainability factor to be applied in the calculation of old age pensions before the statutory retirement age (or in the conversion of invalidity pensions into old age pensions at 65 years of age), namely the initial reference year of the average life expectancy at 65 years of age (EMV65) was changed from 2000 to 2006, implying a deterioration of the sustainability factor.

(a) Calculated according to the formula:

$$Mo = \sum_{i=2015}^{n}(EMV_{i-2} - EMV_{i-3}) * 12 * \frac{2}{3}$$

where *Mo* is the number of months to be added to the pensionable age in 2014; *n* is the year of pension entitlement; *EMV* is the average life expectancy at 65 years.

Romania

In 2007, a three pillar pension system was introduced. As regards the first pillar, the retirement age for men will increase from 64 to 65, while the statutory retirement age for women will increase to 63 by 2030. There will also be an increase in the mandatory contributory period. Additionally, the indexation of public pensions will also become less generous, with the current earnings-related indexation rule being replaced by a Swiss indexation rule. Penalties for early retirement will be increased, while eligibility for disability pensions will be tightened.

Sweden

The pension reform was approved by Parliament in 1999. Under the new notional defined contribution system it is possible to retire after 61 years of age,

with an actuarially fair compensation for those who stay in the labour force. Every year of contributions enters in the calculation of pensions. A person with an average wage will increase his yearly pension benefit by nearly 60 per cent if he/she postpones retirement until 67 years of age compared with leaving at 61. A yearly "statement of account" informs workers of the costs and benefits of retirement. The new system is phased in gradually for generations born between 1938 and 1953, while fully affecting those born after 1953.

Slovenia

Under the Pension and Disability Insurance Act entered into force on 1 January 2000 (comprising a three-pillar defined benefit PAYG system plus compulsory and voluntary supplementary funded schemes), the standard retirement age has been increased. It is now possible to retire between 58 and 63 for men and 61 for women (the minimum retirement age was 58 for men and 53 for women before the reform). Women that worked before the age of 18 can retire earlier (but not before the age of 55). Special regulations reduce the age of retirement to 55 in certain cases (before the reform it was possible even below 50). The minimum retirement age is raised from 53 to 58 for women (the same level as for men). The accrual rate was reduced from 2% to 1.5% since 2000. Postponing retirement has been encouraged: a person who fulfils the requirement for pension but continues to work beyond the age 63/61 will receive an additional pension increase (3.6% the first additional year, 2.4% the second year and 1.2% in the third, in addition to the normal rate of accrual of 1.5% per year).

A recent pension reform was approved (12/2012) which comprises three main components. First, the effect of the envisaged gradual increase in the statutory retirement age to 65 both for men (in 2016) and women (in 2020) is expected to have a decreasing impact on the number of pensioners and an increasing one on employment. The effective retirement age is expected to follow changes in the statutory retirement age. Second, higher penalties for early retirement, as well as bonuses for prolonging working lives, together with lengthening the definition of a full career will all contribute to decreasing the number of pensioners and increasing employment. Third, pension generosity is reduced through the introduction of a less favourable indexation rule (60% wage versus 40% price indexation, instead of 100% wage indexation) and an increased pensionable earnings base (increase from best 18 to best 24 years).

In general, the proposed measures reduce the eligibility of the public pension scheme and its generosity, while increasing labour supply of older people.

Slovakia

There has been a major reform of pension system in 2004 where a three-pillar system has been introduced. The statutory retirement age has been set to increase from 60 to 62 years for men (9 months per year) by 2006 and from 53-57 (depending on the number of children reared) to 62 years for women by 2014. In reality the statutory retirement age reached 62 years for men in 2008 and will reach 62 for all women in 2024. A worker can still retire earlier, provided that the early pension is higher than the minimum subsistence level by 20%. Early retirement is discouraged by the provision that the pension benefit is reduced by 0.5% per each 30 days or part thereof that remain until reaching the retirement age (6.5% per whole year), while it is increased by 6% pear each additional working year above the retirement age.

Opening of a second pillar

For a second time, between 15 November 2008 and 30 June 2009, all pension savers were given (as in 2008) an opportunity to leave the 2nd pillar, while at the same time, those individuals who had not yet entered it were allowed to join in. During this period, 66 thousands people left the 2nd pillar, while 14,6 thousands people joined, leading to a net decline of 3.5% in the number of individuals covered by the 2nd pillar. The second pillar was opened for a third time between 1 September 2012 and 31 January 2013, when 59.6 thousands persons left and 10.3 thousands joined it.

On 1st January 2008, eligibility conditions to early pensions were tightened. It can now be granted only two years before reaching the statutory retirement age.

As of 1st January 2008, the minimum contributory period was increased from 10 to 15 years.

As of 1st January 2011, it is not possible to cumulate an early pension with labour income.

In 2012, a major pension reform was approved comprising three main components. First, introduction a link between the statutory retirement age and life expectancy from 2017 onwards, having a decreasing impact on the number of pensioners and an increasing one on employment in the medium- long-run. The effective retirement age is expected to follow changes in the statutory retirement age. Second, access rules and contribution rate to the second pillar have been changed for the fourth time in the last decade. The scheme is now supposed to be voluntary and contribution is reduced to 4% in the short-term and to 6% in the medium- long term in favour of the first pillar (it was 9% before the reform). The increase in contribution affects positively the balance of the public pension scheme in the short term but it will involve an increase in expenditure in the medium- long-term. Third, the generosity of pensions will be reduced by changing the indexation rule from a Swiss one to one based on pensioners' household price inflation from 2018 onwards.

In general, the proposed measures reduce the eligibility of the public pension scheme and increase labour supply of older people.

The United Kingdom

Women's state pension age (SPA) is increasing to reach 65 (men's SPA) by 2018. Thereafter, both will be further increased to 66 from 2018-2020 and to 67 from 2026-2028.

Belgium

The pension reform of 2011 (Act of 28 December 2011) introduces two major changes. Firstly, the reform raises the minimum early retirement age and the minimum number of career years required for eligibility, respectively from 60 to 62 years and from 35 (5 years for civil servants) to 40 years, with a short transition period from 2013 to 2016: as of 2013, the early retirement age is raised each year by six months in order to reach 62 years in 2016. Simultaneously, the minimum career length is fixed at 38 years from 2013, 39 years from 2014 and 40 years from 2015. However, exceptions are made for long careers: as of 2016, even with the new rules, people with a 42-year career will still be eligible for early retirement at 60 (and at 61 with a 41-year career). For the unemployed who fall within the company allowance scheme, the minimum career length requirement will be gradually increased to 40 years. The eligibility conditions of some special pension schemes in the public and the private sectors will also be toughened. Those more stringent eligibility conditions will contribute to reduce the number of pensioners and raise employment. Secondly, some aspects of the retirement benefit calculation are changed in the wage earners' scheme (valuation of the "equivalent" periods; cuts in periods of career interruption taken into account for pension entitlements) and in the public sector (cuts in periods of career interruption and of absence taken into account for pension entitlements; reference wage taken into account for the pension calculation based on the average wage over the last 10 career years and no longer the last 5 years). This last reform is supposed to have a direct budgetary impact (i.e. lowering expenditure) but no implications for total employment.

More recently, two measures taken in the spring of 2014 will slightly increase the labour force. First of all, the survivors' pension is reformed. The minimum age to benefit from a survivor's retirement benefit will be 45 as from 2015 and gradually raised to 50 in 2025. Second, as from 2015, the last months worked before retiring will be taken into account for the calculation of the pension in the wage earners' and self-employed schemes (it was already the case in the civil servants' scheme).

In general, the measures reduce generosity and tighten eligibility for the public pension scheme and increase the labour force participation rate of older workers.

Austria

On January 1st 2014, new pension reform measures came into effect. Overall, these measures tightened access to early retirement and modified invalidity pensions schemes. The main aim of these modifications is to harmonise the effective retirement age with the legal retirement age, enhancing participation rates of older people and, ultimately, curbing early retirement and invalidity pensions.

Concretely, the early retirement scheme "Korridorpension", although can still be accessed by men with 62 years, it now requires an increased number of insurance years (40 years by 2017). For women, this option gets relevant only by 2028 due to the gradual increase of the female statutory retirement age from currently 60 years between 2024 and 2033. Also the early old-age pension scheme for long-term contributors "Hacklerregelung" was tightened by increasing the relevant retirement age by two years to 57 for women and 62 for men. The possibility to purchase schooling and study years for being used as equivalents for additional contributory years has been practically abolished now. Furthermore, deductions for early retirement were raised from 4.2% p.a. to 5.1% p.a. (in the heavy worker regulation "Schwerarbeitspension", this deduction is 1.8% p.a.). The bonus for later retirement continues to amount to 4.2% p.a. (cumulated to a maximum of 12.6%).

Since January 2005, harmonised guaranteed pension accounts have been established. The new system of individual pension accounts provides for a transparent reporting of benefits accrued from contributions paid in and other credits acquired, such as from active child and elderly care. This system aims to provide an 80% replacement rate (average life-time earnings) for people retiring at 65 years of age with 45 years of contributions (pension formula '45-60-80'). In 2014, these pension accounts were finally put in (technical) practice and Austrian future public pension

recipients were informed for the first time about their individual pension account balance.

In December 2010, the government approved measures to foster rehabilitation and keep people in the workforce, thereby decreasing expenditure on invalidity pensions. Specifically, it is now necessary to apply for rehabilitation before applying for an invalidity pension. During rehabilitation, payments are higher than unemployment benefits, and unemployment benefits are paid for longer periods, if an individual does not find a job after rehabilitation. Temporary invalidity pensions have been abolished for people below the age of 50 and will be gradually phased out.

With all these modifications, the government aims to increase the effective retirement age by 1.7 years between 2012 and 2018; this is above expected gains in life-expectancy. Additionally, a binding monitoring mechanism has been introduced to trigger automatic policy adjustments in case of deviation of actual outcomes from projected targets.

Bulgaria

Since 1 October 2008, all old-age pension entitlements calculated before 31 December 2007 were recalculated using the 2007 average insurance income (about EUR 203.6) in order to standardise the set of parameters for calculating pension entitlements, namely the individual coefficients and length of service.

On 1 January 2009, the insurance contribution rate to the Public Social Security Pension Fund was reduced from 22% to 18%. The contribution rate of employers was set to 10% and that of employees to 8%. In addition, the government budget provides a 12% contribution to the Public Social Security Pension Fund. In 2010 this transfer amounted to EUR 1.18 billion, or 34% of all pension expenditure.

On 1 January 2009, minimum pensions were increased by 10%.

On 1 April 2009, the annual accrual rate for old-age pensions increased from 1 to 1.1. In addition, the maximum pension amount (excluding bonuses) was increased to EUR 357.9, from EUR 250.5.

On 1 July 1 2009, pensions were updated by 9.0% following the so called Swiss rule.

New pension reform measures entered into force on 1 January 2011, with amendments to the Social Security Code (SSC), aiming at strengthening the sustainability of the first pillar of the pension system and increasing the adequacy of benefits. One year later, some additional measures aiming at quickening the pace of pension reform have been adopted by Parliament. They envisage the gradual increase in the required length of service and in the statutory retirement age as follows:

i) As of 1 January 2012, the required length of service for pension is raised by 4 months each year until 37 years for women and 40 years for men in 2020 (in 2011, respectively, 34 and 37 years).

ii) Rises in the statutory retirement age are brought forward to 2012, instead of 2021 as initially planned. These rises are set to 4 months each year, until reaching 65 years of age for men in 2017, and 63 years for women in 2020.

At the end of 2013, the Bulgarian Parliament decided to freeze the retirement age for women at 60 years and 8 months, and for men at 63 years and 8 months. The final decision concerning early retirement of people working in hazardous environments has not yet been taken (planned for October 2014).

In the period 2010 – 2012, pension indexation has been suspended. One year after the initial decision to apply the so-called 'Golden Swiss rule" (50% CPI + 50% wages) as of 2013, new amendments in the law stipulated that CPI indexation will be carried out every year in July, starting in 2014. In 2013, as a result of political decision, pensions were indexed on average by 9.3% in April. In the second half of 2013, the indexation rule was changed again to the Golden Swiss rule.

In order to improve pension adequacy, the accrual rate for newly granted pensions will be increased from 1.1 to 1.2 as of 1 January 2017. From the same date, the contribution rate for the mandatory second pillar (universal pension funds) will be increased by 2 percentage points to 7%.

In general, the proposed measures included in the most recent pension reform reduce the eligibility of the public pension scheme and increase labour

supply of older people. Due to longer contribution periods, people will at the same time be able to accumulate higher pension entitlements in the medium and long run.

Czech republic

In October 2011, a pension reform was approved. The statutory retirement age was increased above 65 years, depending on the year of birth. Younger cohorts (both genders) are subject to an additional increase of 2 months. As an example, for persons born in 1978 the statutory retirement age is 67 years and 2 months; for persons born in 1979 the statutory retirement age is 67 years and 4 months.

In November 2012, after one year process, the Czech Parliament approved the introduction of a new voluntary pension savings pillar (Act on Pension Savings No. 426/2011). It operates, staring from 1st of January 2013, by diverting 3% of the contribution from the first pillar and by adding a supplementary 2% employee contribution.

In addition, during the summer 2012, the Czech government, within its effort to consolidate public finances, introduced a temporary change in the indexation rule. During the 2013-2014 period, a temporary indexation rule of 1/3 inflation and 1/3 real wage increase will be applied, instead of the long term indexation rule of full CPI inflation and 1/3 for real wage increases. In 2015, the lower indexation rule was cancelled one year earlier than initially envisaged, while indexation is set to 1.8%. From 2016 onwards, the long term indexation rule applies (i.e. full CPI inflation plus 1/3 of real wage growth).

In general, the proposed measures reduce pension expenditure in the long term, while maintaining the preponderance of the public pension scheme. However, the shift of contribution to a second pillar will impact negatively on public finance in the short term.

Germany

Forthcoming increase of the statutory retirement age (latest reform of 2007)
- For persons born after 1946, the statutory retirement age is increased in steps of either 1 or 2 months from 65 years of age, depending on the year of birth (see attached Table). As an example, the statutory retirement age for

persons born in 1946 or earlier remains at 65; for persons born in 1947, the statutory retirement age is 65 years and 1 month; for persons born in 1948, the statutory retirement age is 65 years and 2 months; for persons born in 1958, the statutory retirement age is 65 years and 12 months i.e. 66 years; for persons born in 1963, the statutory retirement age is 65 years and 22 months. For those born in 1964 and younger, the statutory retirement age will be 67.

Born in	Additional number of months
1947	1
1948	2
1949	3
1950	4
1951	5
1952	6
1953	7
1954	8
1955	9
1956	10
1957	11
1958	12
1959	14
1960	16
1961	18
1962	20
1963	22
1964	24

- Early retirement for persons with a minimum contributory period of 35 years will remain at 63 years of age. Since the statutory retirement age is planned to increase in the next two decades, the maximum penalties for early retirement at age 63 raise from 7.2% to 14.4%.

- Persons with a contributory career of 45 years or more can retire at full rate at 65.

Effects on the statutory retirement age (of previous reforms)
In the last two decades, the statutory and early retirement ages have also increased for different types of old age pensions. In some cases, further increases are still expected on account of past

reforms. For example, women born before 1952 are entitled to a special old age pension. In the coming years, the relevance of these special pension types will decline further.

On July 2014, a pension reform has been legislated that aimed at improving pension benefits and early retirement conditions for certain groups:

(i) the provision of a pension supplement for those having raised children born before 1992 (Mütterrente);

(ii) the possibility of retirement without pension reductions two years ahead of the statutory retirement age (65) if contributions have been paid for 45 years, including periods of unemployment (Rente mit 63). Beginning in 2016, the age will rise by 2 months a year until it returns to age 65. The new pension rules did not change the scheduled increase in the retirement age;

(iii) improved pension entitlements for people with reduced earning capacity for health reasons by basing benefits on the period from the onset of the disability to age 62 (up from age 60 previously) (Erwerbsminderungsrente).

(iv) *Continuation of labour agreement after reaching statutory retirement age:* Labour law contains no provision for an automatic expiration of an employment relationship when reaching the statutory pensionable age. However, in practice collective agreements usually include clauses providing for the termination of employment when reaching the statutory pensionable age. According to the last pension reform, employers and employees can continue the employment relationship for a certain period after the statutory pensionable age has been reached. The agreement to postpone retirement must be reached before the pensionable age.

Denmark

In 2006 Denmark introduced a major reform package known as the "Welfare Agreement". The key elements of the reform was a discretionary increase in the voluntary early retirement pension (VERP) age from 60 to 62 years in 2019-2022 and the public old-age pension age from 65 to 67 years in 2024-2027. Furthermore, retirement ages are indexed to life-expectancy for a 60 year old as of 2025 for VERP and 2030 for the public old-age

pension. Finally, the minimum contribution period to VERP was increased from 25 to 30 years.

In 2011 the "Retirement Reform" brought forward the discretionary increase in the retirement ages agreed in the "Welfare Reform". The retirement age for VERP will increase from 60 to 62 years from 2014-2017, while the public old-age pension age will increase from 65 to 67 years in 2019-2022. Furthermore, the VERP period is reduced from 5 to 3 years from 2018-2023. Private pension wealth also lowers the VERP amount to a higher degree than before the reform, making the VERP scheme less favourable to people with large private pension wealth.

Overall the two reforms are expected to reduce the number of pensioners and increase employment significantly. In contrast, the share of the population receiving other forms of public transfers, primarily disability pension, is expected to increase.

The reforms are expected to significantly improve the government balance, partly due to direct budgetary effects through lower cost of OAP and VERP, partly due to higher tax revenue from an increased employment rate for older workers.

Estonia

The Estonian pension system has three pillars: (i) the first pillar is the pay-as-you-go public pension; (ii) the second pillar is a mandatory fully funded pension scheme; and (iii) the third pillar is a voluntary additional saving scheme.

The funded second pillar pension scheme provides supplementary income for pensioners. It is a retirement savings plan where a working person saves for his or her own pension, contributing 2% of their gross salary to the pension fund. The state contributes an additional 4% of the 20% of the social tax used for pensions to the individual's personal account, and retains the remaining 16% for members of the first pillar. Subscription to the funded pension is mandatory for individuals born in 1983 or later, but is voluntary for those born before 1983. A large majority of the labour force has joined the second pillar.

Retirement age will be increased to 65 years for both males and females gradually by 2026.

Box (continued)

Contributions to the second pillar were halted for the period of 1.7.2009 to 31.12.2010. For the year 2011 the contribution rates were halved. From 2012 onwards, the normal system will be restored.

Greece

On July 2010, the Parliament adopted a comprehensive pension reform of the main pension schemes. The reform simplified the highly fragmented pension system, enhanced transparency and fairness, postponed the retirement age, and decreased the generosity of benefits. The new universally binding rules on entitlements, contributions, accumulation rules and indexation of pension rights applies to the main pension funds (IKA, OGA, OAEE, public sector scheme, Bank of Greece scheme). The pension reform is applied pro-rata to all current and future workers.

The main elements of the reform are:

- The introduction of a new basic pension of EUR 360/month (12 yearly payments).

- The new system introduces accrual rates with the same profile for all workers that depend only on the length of the career (ranging from 0.8 to 1.5 percent of earnings).

- The reform increases the statutory retirement age from 60 to 65. The minimum age for retirement is set to 60; penalties apply for persons with less than the full contributory career.

- The full contributory career is increased to 40 years (compared with generally 35 years previously).

- Equalisation of retirement ages of men and women in both the private and public sector by 2013.

- Indexation of benefits (including basic pension) will not exceed HICP inflation.

- Pensionable earnings will be calculated based on the full-earnings history.

The new legislation includes a sustainability clause (article 11.b.1, of Law 3863, 15 July 2010) which stipulates that, if long-term projections (to be run by the NAA every 2 years) show the rise in public pension expenditure between 2009 and 2060 to exceed 2.5 percentage points of GDP, then relevant parameters of the pension system will be changed to bring the increase of expenditure below the targeted threshold.

On February 2012, the Parliament adopted a reform of auxiliary pension schemes (Law 4052/2012), comprising the following elements:

- The nominal rate of return, which will be the annual growth in pensionable earnings (contributory earnings) of all insured with the Fund, is applied for the accrual of contributions.

- The life expectancy at retirement is applied for the calculation of the initial pension.

- A sustainability factor is applied to guarantee the scheme's financial stability.

Pensions paid must be equal to contributions received, or alternatively, the average contribution rate must be equal to the ratio of total benefits paid to total contributory earnings.

Paid pensions must be entirely linked to the pensioners' age. In order to calculate the amount of old-age pension, a whole life annuity will be used.

In November 2012, the parliament approved a pension law, scheduled for implementation on January 1, 2013, to increase the statutory retirement age from 65 to 67 to receive a full pension. According to an earlier law, the retirement age for women will equal the current retirement age of 65 for men by December 2013. In addition, from 2020 onwards, the statutory retirement age for men and women is scheduled to be automatically adjusted (every 3 years) to reflect changes in life expectancy.

Ireland

Effective on 1st January 2014, the State Pension Transition will be abolished from 2014, while the age of qualification will rise to 67 in 2021 and then to 68 in 2028. Separately the criteria to qualify for a contributory pension has been amended to increase the minimum number of paid contributions required for State Pension (Contributory) qualification in April 2012.

(Continued on the next page)

The Public Service Pensions (Single Scheme) and Remuneration Bill 2011 provides also for a new single pension scheme for all new entrants to the public service. E.g. it implies a new statutory pensionable age of 66 (linked to State Pension age, so rising progressively to 67 and 68).

Spain

The 2002 pension reform (Law 35/2002)
It abolished mandatory retirement at 65 in the private sector. Workers remaining active after 65 will increase their pension benefit by 2% per year, and both employers and employees are exempted from paying most social security contributions. For workers aged at least 60, social contributions are reduced by 50%, and this amount is increased by 10% to reach 100% for those aged 65. Early retirement is possible from 61 years, with at least 30 years of paid contributions and registered as unemployed for at least 6 months, but with a high penalty associated, from 6% to 8% per year (8% for those with only 30 years of contributions, 6% for those with at least 40 years of contributions). Pensions became compatible with part-time work (but the pension benefit was reduced according to the length of the working day).

A new law on Social Security measures was enacted in 2007
This package of reforms contains the following main measures:

- increase in the effective contribution period to be eligible for a retirement pension;

- partial retirement from age 61 instead of 60 for people entering the system after 1967 (and a minimum of 30 years of contribution instead of 15);

- incentives for people working after age 65;

- more restrictive rules to get an invalidity pension.

The 2011 pension reform (Law on Social Security Reform 27/2011, August 1st)
This reform contains the following main measures:

- The statutory retirement age will gradually increase from 65 in 2013 to 67 in 2027.

Early retirement can be taken at age 63 (previously 61). Eligibility for early retirement requires 33 years of contributions (previously 30). Penalties are increased to 7.5% per year of early retirement for careers shorter than 38.5 years of contributions, and 6.5% for careers longer than 38.5 years of contributions.

- Early retirement at 61 is still possible during economic crisis for workers with contributory careers longer than 33 years.

- Partial retirement at 61 is still allowed, but it will be less attractive because the partial employee will have to pay total social security contributions.

- Depending on the length of the contributory career, bonuses for delaying retirement are increased: +2%, +2¾%, and +4% for an extra year, respectively, for careers below 25 years, between 25 and 37, and over 37.

- The period used to calculate pensionable earnings will be gradually increased from 15 years to 25 years (by 2022).

- The contributory career for a full pension will be gradually increased from 35 to 37 years, with calculations being made on a monthly basis, instead of rounding to the next full year.

- The percentage of the full pension received will be proportional to the length of the contributory career, starting at 50% for careers shorter than 15 years and rising to 100% for a 37 years career. This is expected to eliminate the previous bias favouring shorter careers.

Sustainability factor
Beginning in 2027, the fundamental parameters of the pension system will be revised each five years to take into account changes in life expectancy. Calculations will be based on projections carried out by official agencies.

Exceptions:

- Workers with contributory careers of more than 38.5 years are allowed to retire at 65 with a full pension.

  Women having interrupted their careers due to child care reasons can add, up to 112 days per

child (below 6 year-old), starting in 2013, and increasing up to 270 days per child in 2018.

The 2013 pension reform:

A new pension reform was approved in 2013 (Law 5/2013, March; and Law 23/2013, December). The Law 5/2013 of March intends to prolong the working lives of older workers and to promote active ageing. In particular, it restricts access to early retirement (increasing the minimum age from 63 to 65 by 2027). The Law 23/2013 of December introduces a sustainability factor for setting the value of new pensions and changes the method for their revaluation. In particular, the sustainability factor introduces a link between changes in life expectancy and the amount of a new retirement pension as of 2019. It curtails the initial pension benefit in line with changes in life expectancy. A new indexation mechanism for pension was introduced as of 1st January 2014, which explains about two thirds of the expected reduction in pension expenditure to GDP ratio brought about by the reform package. The indexation formula implies that on average (old) pensions are indexed below CPI inflation, thus contributing to the financial sustainability of the public pension system.

Finland

Since 2005, flexible old-age retirement (63 to 68 years) with an increase of the accrual rate to 4.5% for those continuing to work beyond the age of 63. The ceiling on the maximum pension is abolished. A new early retirement scheme is introduced with a minimum age of 62 and an actuarial reduction of 0.6% per month prior to 63 for those born before 1952. The so called "unemployment pipeline" is 61 years of age for those born in 1957 and later: individuals are not eligible for the unemployment pension scheme which is replaced by an extended period of unemployment benefit.

France

Between 2004 and 2008, public sector pensions have been gradually aligned with private sector pensions by increasing the number of contribution years for entitlement to a full pension (from 37.5 to 40 years). Since 2009, the number of contribution years have increased with life expectancy following a rule that keeps constant the ratio of the number of contribution years to the number of years spent in

pension to the level of 1.79 reached in 2003. The number of contribution years will be increased to 41 for generation 1952 and 41.5 for generation 1957, reflecting the expected gains in life expectancy (of 1.5 years every 10 years). A yearly 3% bonus has been introduced for postponing retirement in 2003. It increased to 5% in 2009. The penalty for early-retirement (before 40 years of contributions) has been modified too. Between 2006 and 2015, the yearly penalty ('la décote') for early-retirement will gradually decrease from 10% to 5% of pension benefits for private sector workers, while increasing from 0.5% to 5% for civil servants.

The 2010 pension reform (law n°2010-1330):

- (a) a progressive rise of age limits

- The standard pension age will be gradually increased, for all pension schemes, from 60 to 62 years of age. Simultaneously, the full rate pensionable age will rise from 65 to 67. These two rises imply a 4 months increase in age limits every year from generation 1951 to generation 1955. (For example, people born in 1956 will be able to claim pension at 62 in 2018 and a full rate pension at 67 in 2023);

- The early retirement age for long contributory careers will also be increased by 2 years.

- (b) convergence of pension rules between the public and private sectors

- Closing down of pathways to early retirement in the public sector: i) for parents with 3 children after a 15 years career; ii) provisions in the "Cessation Progressive d'Activité" programme;

- The minimum pension of the public sector ('minimum garanti') will be computed using the same rule as in the private sector ('minimum contributif'). To be entitled to the minimum pension, insured persons will have first to reach the full rate pensionable age.

- (c) Discriminatory positive measures partly limiting the favourable effect on labour force participation of the pension reform

- Some categories/groups will still be granted a full rate pension at 65 years of age;

– People suffering from a professional disease or an accident that results in a permanent incapacity of at least 10% can continue to retire at 60 with a full rate pension.

The 2014 pension reform (law n°2014-40):

In December 2013, the National Assembly approved a public pension reform that gradually increases the required number of contribution years for a full retirement benefit. The number of required contribution years for a full benefit will rise gradually from 41.5 to 43 years in the 2020–2035 period. The increase in the contribution period already enacted before 2020 (from 40.75 years in 2013 - for those born in 1951 - to 41.5 in 2019 - for those born in 1957) is confirmed. From 2020 to 2035, the government decided to rise the full-pensionable contribution period to 43 years. This measure ensures that the full-pensionable contribution period increases in line with changes in life expectancy.

Hungary

The 1997 pension reform:

• Aimed to gradually increase the statutory pensionable age for men from 60 to 62 and for women from 55 to 62 by 2009.

• Started to build up a new framework for the mandatory pension system, by splitting the existing one into two parts: a) a dominant PAYG pension pillar; and b) a partly funded pension pillar;

• The new mixed system (approximately 3/4 PAYG and 1/4 funded pillar) is obligatory for new entrants into the labour market, for others it is optional. The mandatory mixed system became voluntary since December 2010.

In 2006-2007, Parliament adopted a package of reforms (two laws) which specifies that early retirement is allowed only 2 years before normal retirement (previously 3 years). From 2013 onwards, early retirement is possible from age 60 for both women and men, although subject to a penalty. The rate of reduction, depending on the time remaining until the statutory retirement age, will be 0.3% per month for the 61-62 age-group, and 0.4% per month below the age of 61. It introduces also changes in the calculation of benefits, a minimum contribution from 40-41 for early retirement, and some favourable retirement

conditions for those working in potentially health-hazard occupations.

The 2009 pension reform:

• The statutory retirement age is increased from 62 to 65 between 2014 and 2022. The early retirement age is also gradually increased from 60 to 63.

• Use of a less generous indexation rule for pensions, a mix of CPI and wage growth, depending on GDP growth. Full indexation to CPI is applied if GDP growth does not exceed 3.0%, and the Swiss indexation formula if GDP growth exceeds 5.0%.

Weights in the indexation formula		
GDP growth	CPI	Wages
< 3.0	100	0
3.0 - 3.9	80	20
4.0 - 4.9	60	40
> 5.0	50	50

• Abolition of the 13th month for pensions from the second half of 2009, in its place a pension premium is introduced.

• The 13th month for pensions had been introduced between 2004 and 2006, then capped at HUF 80,000 (average pension benefit) in 2008, and abolished in the second half of 2009. Instead, a pension supplement will now be paid, starting with GDP growth of 3.5%, and rising with GDP growth. For GDP growth of 7.5% or more, the pension premium will equal the 13th month for pensions, but will also be capped at HUF 80,000.

Changes adopted in 2010:

i) As from 2011, a special allowance was introduced, it gives women the opportunity to retire after 40 eligibility years, the latter including years in employment or pregnancy confinement benefit, child care fee, child home care allowance, and child raising support or nursing fee.

ii) Since November 2010, the membership of private pension systems is not compulsory, the members of private pension funds were given the right to choose to remain members, though approximately 3 million people remained in the pure social security pension system. Between 1/10/2010 and 30/11/2011, contributions paid to

the 2nd pillar were redirected to the 1st pillar, due to budgetary reasons.

iii) Since 1/1/2012, all paid insurance go into the mandatory public pension system. The rate of pension contribution is the same for private pension fund members. Hungary returned to a two-pillar pension system, based on compulsory social insurance system on the one hand, and voluntary private pension savings on the other.

The 2011 pension reform (167/2011 Act):

A recent pension reform, with effects since January 2012, was approved with the following main components.

i) First, the gradual elimination of nearly all early retirement possibilities (except for women with 40 eligibility years or more), leading to a convergence of the effective retirement age towards the statutory one. Former early retirement benefits are transformed into social benefits, the so-called "benefit prior to retirement age".

ii) Second, stringent eligibility conditions for disability pensions will also contribute to decrease the number of pensioners and increase employment. Disability pension before the retirement age are transformed into health insurance. The focus is to move way from passive support to rehabilitation programmes, trying to enhance individuals' conditions. The main aim of these changes is to carry out a complex review of people requiring support, and to provide the necessary tools for improving their conditions, eventually allowing them to return to the labour market.

iii) Third, the change in the indexation formula of pensions from a mix of wage growth and inflation to pure inflation will tend to lower expenditure.

In general, the proposed measures reduce the eligibility of the public pension scheme and increase labour supply of older people.

Italy

Major changes to pension legislation, since 2006:

Law 127/2007
Increases low pension benefits through an additional annual lump sum (€420 from 2008)

given to pensioners aged 64 and over with income lower than 1.5 times the annual minimum pension (€9.133 in 2011). Such an increase is reduced or augmented by 20% for contribution careers lower than 15 years or higher than 25, respectively (18 and 28, for the self-employed).

Additional increases are also foreseen for social assistance pensions (improving upon legislation passed in 2002), through the so-called 'social assistance additional lump sums' (*maggiorazioni sociali*). They are provided to the elderly with a personal income (in case of a single) or couple's income (in case of married people), including social security pensions, below certain limits and up to them. In 2011, personal income limits are 5,600 euro per year, in the age bracket 65-69, and 7,850 in the age bracket 70+. For married people, couple's income limits are 11,680 euro per year, in the age bracket (referring to the beneficiary) 65-69, and 13,290 in the age bracket 70+.

Law 247/2007
Includes the following measures:

   Minimum requirements for early retirement. The process of increasing the minimum requirements for early retirement has been slowed down, keeping unchanged the phased-in values foreseen by Law 243/2004. In particular, in 2008 the age requirement, for those with a contributory career of 35 years, is 58 for employees and 59 for self-employed instead of 60 and 61. From 2013 onwards (previously 2014, according to Law 243/2004) the age requirement, for those with a contributory career of 35 years, is 62 for employees and 63 for self-employed. In addition, from July 2009 onwards, workers may retire 1 year earlier provided that they have a contributory career of at least 36 years.

• Revision of transformation coefficients. The new transformation coefficients, revised on the basis of the procedure foreseen in Law 335/95, are applied since January 2010. Subsequent revisions will be made every three years, instead of every ten years, through a simplified procedure falling entirely under the application of administrative rules.

   Contribution rate of atypical workers. The contribution rate for atypical workers has been increased by 3 percentage points (up to 26%

from 2010) in order to improve pension adequacy for this category.

Law 133/2008
States that old age and seniority pensions may be fully accumulated with labour income. The new legislation improves upon the previous one which foresaw some restrictions in the possibility of accumulating, especially for employees.

Article 12 of the law 122/2010 (amending decree law 78/2010)
Introduces three changes to the public pension system:

- "Exit window' mechanism. The 'exit window' mechanism, which after completion of minimum age and/or contribution period postpones pension receipt, has been increased. It applies to those qualifying for a pension after 1 January 2011. It involves a 1 year postponement for employees and 1½ years for the self-employed, concerning both early (including those with a 40 years contributory career) and old age pensions.

- Indexation of retirement age. Age requirements for early and old age pensions, and old age allowances (*assegno sociale*) have been indexed to changes in life expectancy at 65, as measured by the National Statistical Institute over the preceding three-years. Indexation to life expectancy will be first applied in 2015, when the gradual increase of age requirements for retirement, according to previous legislation, has been fully phased-in, but cannot exceed three months. Subsequent retirement age indexations are envisaged for 2019 and then every three years, so as to align this mechanism with the revision of the transformation coefficients used to calculate pension entitlements according to the contributions-based method.

- Statutory retirement age of women in the public sector. In the public sector, the statutory retirement age of women (60, in 2009) will be equalised with that of men (currently 65) in 2012 (61 in 2010-2011), instead of 2018 as previously foreseen in law 102/2009. This accelerated pace of convergence reflects an European Court of Justice recommendation to remove any discrimination based on gender.

Law 111/2011[1] *(amending decree law 98/2011), approved the 15th July 2011*
Further strengthens the eligibility requirements, keeping unchanged the 'exit windows' mechanism, with the exception of early retirement with 40 years of contributions, as reported below. The major interventions may be summarized as follows:

- Statutory retirement age of women in the private sector. The statutory retirement age of women in the private sector will be gradually equalised to the one of men (and women in the public sector) passing from the current level of 60 to 65 over the period 2020-2032.

- Indexation of retirement age. The indexation of the eligibility requirements (early and old age pensions, and old age allowance), previously foreseen to start from 2015 (law 122/2010), has been brought forward to 2013. This implies a further increase in the age requirements of 4 months starting from 2016, compared to previous legislation (Law 122/2010).

- Early pension with 40 years of contributions. For those retiring with 40 years of contributions regardless of age, the postponement envisaged by the 'exit windows' mechanism has been further increased by 3 months starting from 2014 (1 month in 2012 and 2 months in 2013).

  Benefit indexation. For the two-year period 2012-2013 and limited to pensions above five times the minimum pension, the indexation to price inflation is reduced to 70% and only applied to the part of pension up to three times the minimum. For the part exceeding such a threshold, the indexation is nil.

Law 148/2011 (amending decree law 138/2011)
Foresees two further interventions on retirement age:

- Statutory retirement age of women in the private sector. The alignment process of statutory retirement age of women in the private sector to that of men (and women in the public sector) has been brought forward 6 years, from 2020-2032 to 2014-2026.

'Exit window' mechanism.

Box (continued)

Further postponement due to the exit window mechanism is also applied to workers in the public educational system, previously exempt.

Law 214/2011 (amending decree law 201/2011):

- Extension of the NDC method. The NDC method is applied also to workers under the DB regime, previously fully exempted. The extension concerns contributions accrued as of 1st January 2012, according to the pro-rata rule.

- 'Exit window' mechanism. The 'exit window' mechanism has been abolished and replaced by a corresponding increase in the minimum age and/or contribution requirements;

- The statutory retirement age (SRA) of women in the private sector. The alignment process of the SRA of women in the private sector with that of other workers (men and women in the public sector) has been accelerated. The equalisation process will be completed by 2018. According to a specific legislative provision, the SRA must be at least 67 in 2021. Based on the official demographic projections, such a target may be achieved in advance through the indexation to changes in life expectancy.

- Old age allowance. Besides being indexed to changes in life expectancy, the minimum requirement to be entitled to the old age allowance has been increased by 1 year as of 2018, and then fully aligned to SRA;

- Early retirement with contribution and age requirements. The early retirement channel based on joint age and contribution (35 years) requirements has been abolished in all regimes. Under the NDC regime, early retirement is allowed, up to three years before the SRA, with 20 years of contributions and an amount of pension of at least 1,200 euro per month in 2012 (which corresponds to 2.8 times the old age allowance - *assegno sociale*), indexed with the five-year average of nominal GDP;

- Early retirement regardless of age. The minimum contribution requirement to be entitled to an early pension regardless of age is

41 for women and 42 for men (the latter has been increased by 1) in 2012. Such requirements have been indexed to changes in life expectancy as of 2013, as foreseen for the SRA. A penalty is applied to the quota of pension calculated according to the DB method (1% at the age of 61, 2% at the age of 60 and then increased by 2 pp each year below 60);

- Contribution rates. The contribution rates paid by the self-employed have been gradually increased from 20% in 2011 to 24% in 2018. Furthermore, the law no. 183/2011 (Stability Law for 2012) had already increased the contribution rate of atypical workers by 1pp bringing it up to 27% (18% for atypical workers already pensioners or insured to other pension schemes) as of 2012;

- Indexation to price inflation. For the two-year period 2012-2013, pensions of an amount above 3 times the minimum pension (about 1,400 euro per month) are not indexed to price inflation

Interventions after Law 214/2011

- For the three-year period 2014-2016, indexation to price inflation is reduced to: 95% of the total amount for pensions in between 3 and 4 times the minimum, 75% for pension in between 4 and 5 times the minimum, 50% for pensions in between 5 and 6 times the minimum, 40% (45%, in 2015-2016) for pensions above 6 times the minimum. For 2014 alone, the quota of pension above 6 times the minimum is not indexed. Full indexation to price inflation is guaranteed to pensions up to three times the minimum.

- The number of workers safeguarded from the higher eligibility requirements foreseen by Law 2014/2001 has been increased.

- The contribution rate of atypical workers (who are not pensioners or contributors to other public pension schemes) has been progressively raised to equalise that of employees (33%) in 2018.

Luxembourg

A major pension reform has been introduced in 2012 in order to align the pension benefit to the evolution in life expectancy over a 40-year period. As of 1 January 2013, real wage indexation of pensions after the first calculation will be moderated or even suspended depending on the annual benefit-expenditure ratio. Moreover, a revised pension formula for the general scheme of the private sector has been established. Although the pension reform did not alter the four components (P=P1+P2+P3+P4) of the existing pension formula, different factors appearing in three of the four contributing summands have changed. Indeed, from 2013 onwards, the yearly pension depends on four annual pension formula parameters (p1, p2_1, p2_2, p3) and comprises the following main elements:

i) (P1) the pro-rata enhancement: corresponding to a given percentage (p1) of the total contributory income (I);

ii) (P2) the incremental enhancement: for each full year that the sum of the recipient's age plus the total of contributory years (CY) exceeds the given annual parameter (p2_1), the pro-rata enhancement is increased by a fixed percentage (p2_2) up to a ceiling of 2.05%;

iii) (P3) the flat rate (percentage p3 of SMI): calculated on the basis of the number of qualifying years (QY) including compulsory contribution years (CY) and credited non-contributory years (NY) such as years of study or years taken off to bring up children, the number of qualifying years being capped at 40;

iv) (P4) the end-of-year allowance bonus (2.5% of SMI): this bonus is due as long as the global contribution rate has not to be increased. The periods taken into account are the same as for the flat rate.

Thus, formerly constant pension parameters have been replaced by annually varying parameters whose initial values coincide with the pre-reform rates. E.g., the pro-rata enhancement factor (p1) now ranges between 1,850% before 2013 and 1.600% from 2052 onwards, while the flat rate (p3) starts at 23.5% of SMI in 2012 and ends at 28% of SMI in 2052.

Cyprus

On 20 March 2009, the Social Insurance Law No. 22(I)/2009 was approved regarding the pension reform package for securing the long-term viability of the Social Insurance Scheme. The two measures of the reform expected to impact in future labour force participation rates are:

- Stricter eligibility conditions to old-age pensions, which are to be introduced gradually over the period until January 2012, namely increase of the minimum contributory period to 10 years (previously 3 years);

- Maximum limit of 6 years on credits granted to an insured person in the lower end of the income distribution for any period of time spent in full time education or approved training after 16 years of age (previously no maximum limited existed). This measure came into effect on January 2010.

A recent pension reform was approved (21 December 2012, 193(I)/2012) which comprises three main components. First, the increase in in the minimum contributory period from 10 to 15 years by 2017, reducing the eligibility of the public pension scheme. Second, the gradual increase in the statutory retirement age to 65 by 2016, and the subsequent linking of the retirement age in line with life expectancy, together with the introduction of penalties for early retirement. These measures are expected to have a decreasing impact on the number of pensioners and an increasing one on employment, while reducing the overall generosity of the public pension system. The effective retirement age is expected to follow changes in the statutory retirement age.

Latvia

A recent pension reform was approved (14/06/2012) which increases the minimum contributory period from 10 to 15 years in 2014 and to 20 years in 2025, and reduces the eligibility of the public pension scheme. It also introduces a possibility for early retirement, although with a large penalty (50%) for those with a long contributory period. The latter is expected to have a minor impact on retirement decisions. The envisaged gradual increase in the statutory retirement age to 65 by 2025 is expected to have a decreasing impact on the number of pensioners and an increasing one on employment. The effective

Box (continued)

retirement age is expected to follow changes in the statutory retirement age.

In general, the proposed measures reduce the eligibility of the public pension scheme and increase labour supply of older people. Due to longer contribution periods, people will at the same time be able to accumulate higher pension entitlements in the medium- and long-run.

Lithuania

In June 2011, a new law was passed that gradually increases the statutory retirement age from 62.5 to 65 for men and from 60 to 65 for women by 2026. Under the new law, the retirement age will increase every year by 2 months for men and by 4 months for women, starting in January 2012. In order to receive a full pension, workers must also have a career contribution of 30 years.

Malta

In December 2006, the government completed the legislative process associated with the enactment of the pensions reform bill. Following the implementation of the reform, pension age was to be gradually raised to 65 years, however, a number of provisos apply, whereby for persons born on or before the 31 December 1951, pension age is 61 years while for females pension age is 60 years; in the case of a person born during the calendar years 1952-1955, pension age is 62 years; for persons born during the period 1956-1958, pension age is 63 years; for persons born in the period 1959-1961, pension age is 64 years.

Secondly, following the reform, a person of 61 years of age, not having attained pensionable age, may claim a pension if he/she is no longer employed provided that the claimant has accumulated since her/his 18th birthday a total of: (i) 40 years of paid or credited contributions (for those born after 1962); or (ii) 35 years of paid or credited contributions (for those born between 1952 and 1961).

According to the pension reform law, for those born after 1962, the pension shall be determined by taking the yearly average of the basic wage/salary/net income/net earnings as the case may be, during the best 10 calendar years within the last 40 years immediately preceding his/her retirement or invalidity. In determining pensionable

income, past wages and incomes are indexed to the cost of living adjustment (COLA). COLA is a flat increase in wages and pensions to the average Retail Price Index inflation measured as the 12 months moving average recorded in September of that year. In 2014, the basic wage was around 15% higher than the National Minimum Wage that came into effect on 1st January 2011.

The contribution period was also changed: (i) a 30 years period is expected for persons born before 1952; (ii) 35 years for persons born between 1952 and 1961; and, (iii) 40 years for persons born after 1962.

Following the pension reform, persons born after 1962 have their pension valorised annually by a sum corresponding to 70% of the increase in the national average wage and 30% to consumer price inflation.

In the case of a person born on or after the 1 January 1962 whose retirement occurs on or after the 1 January 2007, the resultant maximum pensionable income shall not exceed: (i) €16,207.78 increased by such sum that the Government awards for the cost of living, in respect of the years 2007 to 2010; (ii) €16,207.78 increased on the 1 January of each year between 2011 and 2013 by one third of the difference between the sum referred to above and €20,964.36; (iii) €20,964.36 increased annually by 70 per cent of the percentage increase in the national average wage for the previous calendar year, plus 30 per cent of the inflation rate for that same year. This applies as from the 1 January 2014.

Crediting of contributions may be claimed for a maximum period of two years in the case of a parent who has stopped working to take care of his/her child, extended to four years in the case of a child suffering from a serious disability. An adoptive parent is also able to claim such credits. Credits may be claimed for every child, with no distinction between employed and self-employed persons.

The Maltese Government also introduced changes to the regime regulating the award of invalidity pensions and the procedures for their review, including changes in: (i) application; (ii) medical panel; (iii) specific medical criteria for their award; and (iv) setting of an independent audit system.

The Netherlands

(Continued on the next page)

Box (continued)

Since 1 January 2006 the Dutch early retirement scheme is integrated with the second pillar old age pension system by a law called VPL ('VUT-Prepensioen-Levensloop). The enactment of this law implied a replacement of a previous scheme that facilitated actuarially unfair early retirement, called the VUT scheme. The old scheme had an important impact on the participation rate. Since January 2009, older workers receive an age-related tax credit on their wage income in order to increase participation (at 62, this credit is 5% of gross wages, at 63 it is 7%, at 64 it is 10%; then at 65 and 66 it is 2% and decreases to 1% at 67).

A recent pension reform was approved (7/02/2012) with the following main components. First, the effect of the envisaged gradual increase in the statutory retirement age to 67 in 2023 is expected to have a decreasing impact on the number of pensioners and an increasing one on employment. The effective retirement age is expected to closely follow the gradual increase in the statutory retirement age. Second, the link of the retirement age to gains in life expectancy as of 2023 will also contribute to decrease the number of pensioners and increase employment. Third, the duration of social security arrangements for people below the retirement age (disability pensions, survivors' pensions, unemployment schemes and social assistance) are prolonged in line with the rise in the statutory retirement age for retirement.

In general, the envisaged measures reduce the eligibility of the public pension scheme and increase labour supply of older people.

Poland

The general system: all insured persons born after 1948 are covered by the new defined contribution PAYG with notional accounts and three-pillars. The standard retirement age remains at 65 years of age for men and 60 for women. There are no early pension for those born after 1948 and retiring after 2008, with the exception of miners. Since 2007, disability pension insurance contributions were reduced.

In 2009, "bridging" pensions and compensation benefits replaced early retirement pensions for eligible workers. This only affects those that started working in special conditions before 1999.

Since May 2010, contributions to the funded tier are modeled accordingly to the PAYG contribution. From 2017 onwards (i.e. after the transition period) of the existing 7.3%, 3.5% will remain in the funded system, while an extra 3.8% will be paid to the public system to dedicated accounts.

A recent pension reform was approved (6/2012) with the following main components. First, the effect of the envisaged gradual increase in the statutory retirement age to 67 both for men (in 2020) and women (in 2040) is expected to have a decreasing impact on the number of pensioners and an increasing one on employment. The effective retirement age is expected to follow changes in the statutory retirement age. Second, restrictions in early retirement for special professions (farmers, judges and prosecutors) will also contribute to decrease the number of pensioners and increase employment. Third, reductions in pension generosity for some hazardous professions, such as police force and fire-fighters will have a decreasing impact on pension expenditures.

In general, the proposed measures reduce the eligibility of the public pension scheme and increase labour supply of older people. Due to longer contribution periods, people will at the same time be able to accumulate higher pension entitlements in the medium- and long-run.

Portugal

Portugal introduced in 2007 a "Sustainability factor" linking initial benefits to average life expectancy at retirement (i.e. at the legal retirement age of 65). Individuals can opt to postpone retirement beyond the legal retirement age to compensate (at least partially) for the financial penalty associated with the sustainability factor. Simultaneously, a "national strategy for the promotion of active ageing" was introduced aiming to encourage older workers to remain longer in the labour force through: better access to vocational training, improvement of older workers employment conditions, a higher penalty for early retirement, and benefits granted in case of longer contribution careers.

In the framework of the 2006 Agreement on the Social Security Reform, a new law defining the social security contributory code to the general regime was approved (Law 110/2009, 119/2009

Box (continued)

and 55-A/2010), and it is in force since 1 January 2011.

In December 2013, Portugal approved several laws restricting qualifying conditions for pensions, e.g. in 2014 and 2015 the statutory retirement age of old-age pensions is shifted to 66 years. As from 2015, the legal age for entitlement to old-age pensions will vary according to the evolution of life expectancy at 65 years of age.([a])

There are also changes in the calculation of the sustainability factor to be applied in the calculation of old age pensions before the statutory retirement age (or in the conversion of invalidity pensions into old age pensions at 65 years of age), namely the initial reference year of the average life expectancy at 65 years of age (EMV65) was changed from 2000 to 2006, implying a deterioration of the sustainability factor.

(a) Calculated according to the formula:

$$Mo = \sum_{i=2015}^{n}(EMV_{i-2} - EMV_{i-3}) * 12 * \frac{2}{3}$$

where *Mo* is the number of months to be added to the pensionable age in 2014; *n* is the year of pension entitlement; *EMV* is the average life expectancy at 65 years.

Romania

In 2007, a three pillar pension system was introduced. As regards the first pillar, the retirement age for men will increase from 64 to 65, while the statutory retirement age for women will increase to 63 by 2030. There will also be an increase in the mandatory contributory period. Additionally, the indexation of public pensions will also become less generous, with the current earnings-related indexation rule being replaced by a Swiss indexation rule. Penalties for early retirement will be increased, while eligibility for disability pensions will be tightened.

Sweden

The pension reform was approved by Parliament in 1999. Under the new notional defined contribution system it is possible to retire after 61 years of age, with an actuarially fair compensation for those who stay in the labour force. Every year of contributions enters in the calculation of pensions. A person with

an average wage will increase his yearly pension benefit by nearly 60 per cent if he/she postpones retirement until 67 years of age compared with leaving at 61. A yearly "statement of account" informs workers of the costs and benefits of retirement. The new system is phased in gradually for generations born between 1938 and 1953, while fully affecting those born after 1953.

Slovenia

Under the Pension and Disability Insurance Act entered into force on 1 January 2000 (comprising a three-pillar defined benefit PAYG system plus compulsory and voluntary supplementary funded schemes), the standard retirement age has been increased. It is now possible to retire between 58 and 63 for men and 61 for women (the minimum retirement age was 58 for men and 53 for women before the reform). Women that worked before the age of 18 can retire earlier (but not before the age of 55). Special regulations reduce the age of retirement to 55 in certain cases (before the reform it was possible even below 50). The minimum retirement age is raised from 53 to 58 for women (the same level as for men). The accrual rate was reduced from 2% to 1.5% since 2000. Postponing retirement has been encouraged: a person who fulfils the requirement for pension but continues to work beyond the age 63/61 will receive an additional pension increase (3.6% the first additional year, 2.4% the second year and 1.2% in the third, in addition to the normal rate of accrual of 1.5% per year).

A recent pension reform was approved (12/2012) which comprises three main components. First, the effect of the envisaged gradual increase in the statutory retirement age to 65 both for men (in 2016) and women (in 2020) is expected to have a decreasing impact on the number of pensioners and an increasing one on employment. The effective retirement age is expected to follow changes in the statutory retirement age. Second, higher penalties for early retirement, as well as bonuses for prolonging working lives, together with lengthening the definition of a full career will all contribute to decreasing the number of pensioners and increasing employment. Third, pension generosity is reduced through the introduction of a less favourable indexation rule (60% wage versus 40% price indexation, instead of 100% wage indexation) and an increased pensionable earnings base (increase from best 18 to best 24 years).

Box (continued)

In general, the proposed measures reduce the eligibility of the public pension scheme and its generosity, while increasing labour supply of older people.

Slovakia

There has been a major reform of pension system in 2004 where a three-pillar system has been introduced. The statutory retirement age has been set to increase from 60 to 62 years for men (9 months per year) by 2006 and from 53-57 (depending on the number of children reared) to 62 years for women by 2014. In reality the statutory retirement age reached 62 years for men in 2008 and will reach 62 for all women in 2024. A worker can still retire earlier, provided that the early pension is higher than the minimum subsistence level by 20%. Early retirement is discouraged by the provision that the pension benefit is reduced by 0.5% per each 30 days or part thereof that remain until reaching the retirement age (6.5% per whole year), while it is increased by 6% pear each additional working year above the retirement age.

Opening of a second pillar

For a second time, between 15 November 2008 and 30 June 2009, all pension savers were given (as in 2008) an opportunity to leave the 2nd pillar, while at the same time, those individuals who had not yet entered it were allowed to join in. During this period, 66 thousands people left the 2nd pillar, while 14,6 thousands people joined, leading to a net decline of 3.5% in the number of individuals covered by the 2nd pillar. The second pillar was opened for a third time between 1 September 2012 and 31 January 2013, when 59.6 thousands persons left and 10.3 thousands joined it.

On 1st January 2008, eligibility conditions to early pensions were tightened. It can now be granted only two years before reaching the statutory retirement age.

As of 1st January 2008, the minimum contributory period was increased from 10 to 15 years.

As of 1st January 2011, it is not possible to cumulate an early pension with labour income.

In 2012, a major pension reform was approved comprising three main components. First, introduction a link between the statutory retirement age and life expectancy from 2017 onwards, having a decreasing impact on the number of pensioners and an increasing one on employment in the medium- long-run. The effective retirement age is expected to follow changes in the statutory retirement age. Second, access rules and contribution rate to the second pillar have been changed for the fourth time in the last decade. The scheme is now supposed to be voluntary and contribution is reduced to 4% in the short-term and to 6% in the medium- long term in favour of the first pillar (it was 9% before the reform). The increase in contribution affects positively the balance of the public pension scheme in the short term but it will involve an increase in expenditure in the medium- long-term. Third, the generosity of pensions will be reduced by changing the indexation rule from a Swiss one to one based on pensioners' household price inflation from 2018 onwards.

In general, the proposed measures reduce the eligibility of the public pension scheme and increase labour supply of older people.

The United Kingdom

Women's state pension age (SPA) is increasing to reach 65 (men's SPA) by 2018. Thereafter, both will be further increased to 66 from 2018-2020 and to 67 from 2026-2028.

2.5. THE IMPACT OF PENSION REFORMS ON THE PARTICIPATION RATE OF OLDER WORKERS

The impact of pension reforms on the participation rate of older workers is simulated through its estimated effects on the retirement decision (or labour market exit). The likely impact of pension reforms is incorporated in the baseline labour force projection by appropriately changing (average) labour market exit probabilities calculated using the CSM for the period 2004-2013. More specifically, the distribution of labour market exit probabilities (between ages 55 and 74), calculated separately for both genders, is 'shifted' according to the expected effects of pension reforms. The estimation of the 'shift' takes into account country-specific information about the relationship between retirement behaviour and the parameters of the pension system, together with cross-country econometric evidence of the impact of changes in the implicit tax rate on continuing work and retirement decisions.

Estimation of the effects of pension reforms highlights the following stylised fact. Although the age profiles of the probability of retirement vary across countries, reflecting the heterogeneity of pension systems, a common feature is that the distribution of retirement decisions is markedly skewed towards the earliest possible retirement age. In fact, a typical distribution of the retirement age tends to have spikes/modes at both the minimum age for early retirement and the normal (statutory) retirement ages (or the state pension age). ([26])

A comprehensive assessment of how to shift the distribution of retirement ages ultimately depends on the considered judgement of all the relevant factors underlying retirement decisions, which is carried out by Commission Services (DG ECFIN) in close cooperation with EPC-AWG delegates.

Finally, historical retirement/exit rates (the average over the period 2004-2013) are replaced in the CSM with the new estimated exit rates, according to the phasing-in of the reforms. Consequently, pension reforms change estimated participation rates for older workers. The magnitude of the expected impact of pension reforms can be assessed by comparing participation rates calculated with and without the effect of reforms.

2.5.1. Estimates of the impact of pension reforms

The average exit age from the labour force has increased by approximately 1½ years in the EU between 2001 and 2010, reaching 61.5 years (Table I.2.6), being on a rising path in a large majority of EU Member States. ([27])

Table I.2.6: **Historical average exit age from the labour force**

	Total				Men				Women			
	2001	2005	2009	2010	2001	2005	2009	2010	2001	2005	2009	2010
BE	56.8	60.6			57.8	61.6			55.9	59.6		
BG		60.2				62.4				58.4		
CZ	58.9	60.6	60.5	60.5	60.7	62.3	61.5	61.4	57.3	59.1	59.6	59.6
DK	61.6	61.0	62.3	62.3	62.1	61.2	63.2		61.0	60.7	61.4	
DE	60.6		62.2	62.4	60.9		62.6	62.2	60.4		61.9	62.7
EE	61.1	61.7	62.6									
IE	63.2	64.1			63.4	63.6			63.0	64.6		
EL		61.7	61.5			62.5	61.3			61.0	61.6	
ES	60.3	62.4	62.3	62.3	60.6	62.0	61.2	61.8	60.0	62.8	63.4	62.8
FR	58.1	59.0	60.0	60.2	58.2	58.7	60.3	60.4	58.0	59.3	59.8	60.1
HR		60.5	60.6									
IT	59.8	59.7	60.1	60.4	59.9	60.7	60.8	60.8	59.8	58.8	59.4	60.0
CY	62.3		62.8									
LV	62.4	62.1										
LT	58.9	60.0										
LU	56.8	59.4										
HU	57.6	59.8	59.3	59.7	58.4	61.2	60.1		57.0	58.7	58.8	
MT	57.6	58.8	60.3	60.5								
NL	60.9	61.5	63.5		61.1	61.6	63.9		60.8	61.4	63.1	
AT	59.2	59.9			59.9	60.3			58.5	59.4		
PL	56.6	59.5			57.8	62.0			55.5	57.4		
PT	61.9	63.1			62.3	62.4			61.6	63.8		
RO	59.8	63.0			60.5	64.7			59.2	61.5		
SI		58.5										
SK	57.5	59.2	58.8		59.3	61.1	60.4		56.0	57.6	57.5	
FI	61.4	61.7	61.7		61.5	61.8	62.3		61.3	61.7	61.1	
SE	62.1	63.6	64.3	64.4	62.3	64.3	64.7	65.0	61.9	63.0	64.0	63.7
UK	62.0	62.6	63.0		63.0	63.4	64.1		61.0	61.9	62.0	
NO	63.3	63.1	63.2		63.0	63.1	63.0		63.6	63.1	63.3	
EA	59.9	60.7	61.2	61.5	60.2	60.9	61.4	61.4	59.6	60.5	61.0	61.3
EU	59.9	61.0	61.4	61.5	60.4	61.6	61.8	61.7	59.4	60.4	61.0	61.3

Source: Eurostat.

The duration of the working life indicator also suggests a postponement in the effective average retirement age (Table I.2.7). In the EU, the average

---

([26]) For example, let us assume that in a given country the (historical) retirement probability is concentrated at age 58, while a reform ends with early retirement schemes or increases the minimum years of contribution. In order to calculate the impact of this reform, the peak of the retirement probability distribution is shifted away from the historical peak of 58 years and moved closer to the statutory retirement age (usually 65 for men and 60 for women).

([27]) The indicator "average exit age from the labour market" has quality problems linked to the mathematical model used when combined with the lower reliability of the LFS data for older people. A new indicator called "duration of working life" has been developed to replace the former one. The new indicator does not have quality issues.

duration of working life increased by about 2 years from 2000 to 2012. Given that the average entry age in the labour market for younger workers are on a long-term rising trend, reflecting increasing enrolment rates in education, it is plausible to argue that average exit ages have also increased.

The average exit ages for 2060 presented in Graph I.2.1 are calculations based on participation rates before and after the impact of pension reforms. Graph I.2.1 gives us a summary measure of the long-term impact of enacted pension reforms in 26 Member States. ([28])

Table I.2.7: **Historical duration of working life**

	Total				Males				Females			
	2000	2005	2010	2012	2000	2005	2010	2012	2000	2005	2010	2012
BE	30.2	31.4	32.5	32.2	33.8	34.6	35.0	34.7	26.4	28.1	29.9	29.6
BG	29.0	29.6	31.5	31.6	31.0	31.3	33.1	32.7	26.9	27.8	29.9	30.3
CZ	33.6	33.7	33.9	34.3	36.7	36.8	37.3	37.5	30.3	30.4	30.4	30.9
DK	38.3	39.0	39.4	39.3	40.2	40.8	41.0	40.7	36.3	37.1	37.8	37.8
DE	34.3	35.6	36.8	37.5	37.7	38.6	39.4	39.9	30.8	32.4	34.1	34.9
EE	33.3	34.1	35.8	36.2	34.4	34.6	36.2	36.7	32.1	33.6	35.4	35.7
IE	33.2	34.6	34.3	34.1	39.4	39.9	38.2	37.9	26.6	29.1	30.0	30.1
EL	31.6	31.6	32.3	32.0	37.8	37.1	37.0	36.0	24.7	25.9	27.5	27.8
ES	30.8	32.7	34.4	34.7	37.0	37.9	37.7	37.4	24.2	27.2	30.9	31.9
FR	31.9	33.0	34.1	34.6	34.4	35.2	36.0	36.5	29.2	30.8	32.2	32.6
HR	30.5	31.4	31.2	31.1	33.2	33.7	33.3	33.3	27.6	28.8	29.1	28.7
IT	28.5	29.6	29.7	30.5	34.8	35.2	34.8	35.3	21.9	23.7	24.2	25.4
CY	34.1	35.7	36.9	36.3	40.1	40.9	40.7	39.9	27.9	30.1	33.1	32.4
LV	31.7	33.2	34.4	35.0	32.8	34.1	34.5	35.2	30.6	32.3	34.3	34.9
LT	33.6	31.9	33.1	34.0	33.9	32.2	32.8	33.7	33.4	31.6	33.4	34.2
LU	29.2	30.4	31.6	32.5	34.3	34.4	35.2	35.5	23.7	26.3	28.1	29.4
HU	27.5	28.4	29.3	30.4	30.3	30.7	31.3	32.5	24.7	26.0	27.3	28.2
MT	28.8	28.4	30.3	31.6	39.4	38.2	38.6	38.9	17.4	18.2	21.6	23.7
NL	35.5	37.5	39.0	39.6	39.6	40.8	41.8	42.2	31.2	34.0	36.2	37.0
AT	33.5	34.6	36.3	36.9	37.2	37.7	38.9	39.4	29.7	31.5	33.6	34.2
PL	31.1	30.6	31.6	32.1	33.3	33.0	34.1	34.6	28.8	28.1	29.0	29.5
PT	35.7	36.5	36.9	36.9	39.0	38.9	38.6	38.7	32.2	34.0	35.1	35.0
RO	36.0	31.2	31.6	31.9	37.8	33.5	34.2	34.5	34.2	28.7	28.9	29.2
SI	31.8	33.5	34.2	33.6	33.6	35.3	35.9	34.9	30.0	31.5	32.6	32.1
SK	32.1	32.3	32.4	32.8	34.8	35.3	35.2	35.6	29.3	29.2	29.5	29.7
FI	36.4	35.9	36.8	37.4	37.3	36.6	37.5	38.0	35.5	35.3	36.2	36.7
SE	36.8	38.9	40.0	40.6	37.9	40.1	41.6	41.8	35.7	37.6	38.4	39.3
UK	36.9	37.4	37.9	38.1	40.3	40.6	40.8	41.0	33.3	34.1	34.8	35.1
NO	38.9	38.4	39.5	39.6	40.6	39.9	40.7	40.8	37.0	36.8	38.1	38.3
EA	32.2	33.5	34.4	34.9	36.3	37.0	37.3	37.6	27.9	29.8	31.3	32.0
EU	32.9	33.6	34.5	35.0	36.4	36.7	37.3	37.6	29.2	30.3	31.6	32.2

Source: Eurostat.

Projections show an average increase of 2.4 years in the effective retirement age for men. ([29]). In Greece, Italy, Slovakia, Hungary, Spain, Denmark, Cyprus, the Netherlands, and the Czech Republic the expected increase exceeds three years. The expected increase in the retirement age of women is slightly higher (3.0 years on average), reflecting in a number of countries the progressive convergence of retirement ages across gender.

Tables I.2.8 and I.2.9 show the estimated impact of pension reforms on participation rates. In most of the 26 EU Member States that have recently legislated pension reforms, they are projected to have a sizeable impact on the labour market participation of older workers (aged 55 to 64), which depends on their magnitude and phasing-in.

Overall in the EU, the participation rate of older people (55-64) is estimated to be higher by about 6.4 pp in 2020, 13.9 pp in 2040, and 14.4 pp in 2060 due to the projected impact of pension reforms. In the euro area, the impact is estimated to be even larger: 7.6 pp, 15.2 pp, and 15.8 pp, respectively, in 2020, 2040, and 2060. In Denmark, Greece, France, Italy, Cyprus, Hungary, and Slovenia the impact is estimated to be close or above 10 pp already by 2020, but in a large number of countries is projected to be more than 10 pp by 2040.

It should be recalled that total participation rates (15-64) are mainly driven by changes in the participation rate of prime-age workers (25-54), as this group accounts for about 60% of the total labour force. Therefore, even these significant projected rises in participation rates for older workers will only have a rather limited impact on the total participation rate. For example, the 14.4 pp increase in the participation rate of workers aged 55 to 64 years in the EU will lead to an increase in the total participation rate (15-64) of only about 3 pp by 2060.

([28]) All EU Member States except Luxembourg and Sweden.
([29]) Non-weighted average of the 26 Member States considered.

Graph I.2.1:   **Impact of pension reforms on the average effective retirement age from the labour force**

Average exit age from the labour force in 2060, men

Avg exit (no reform)   Avg exit age (impact of pension reform)

Average exit age from the labour force in 2060, women

Avg exit (no reform)   Avg exit age (impact of pension reform)
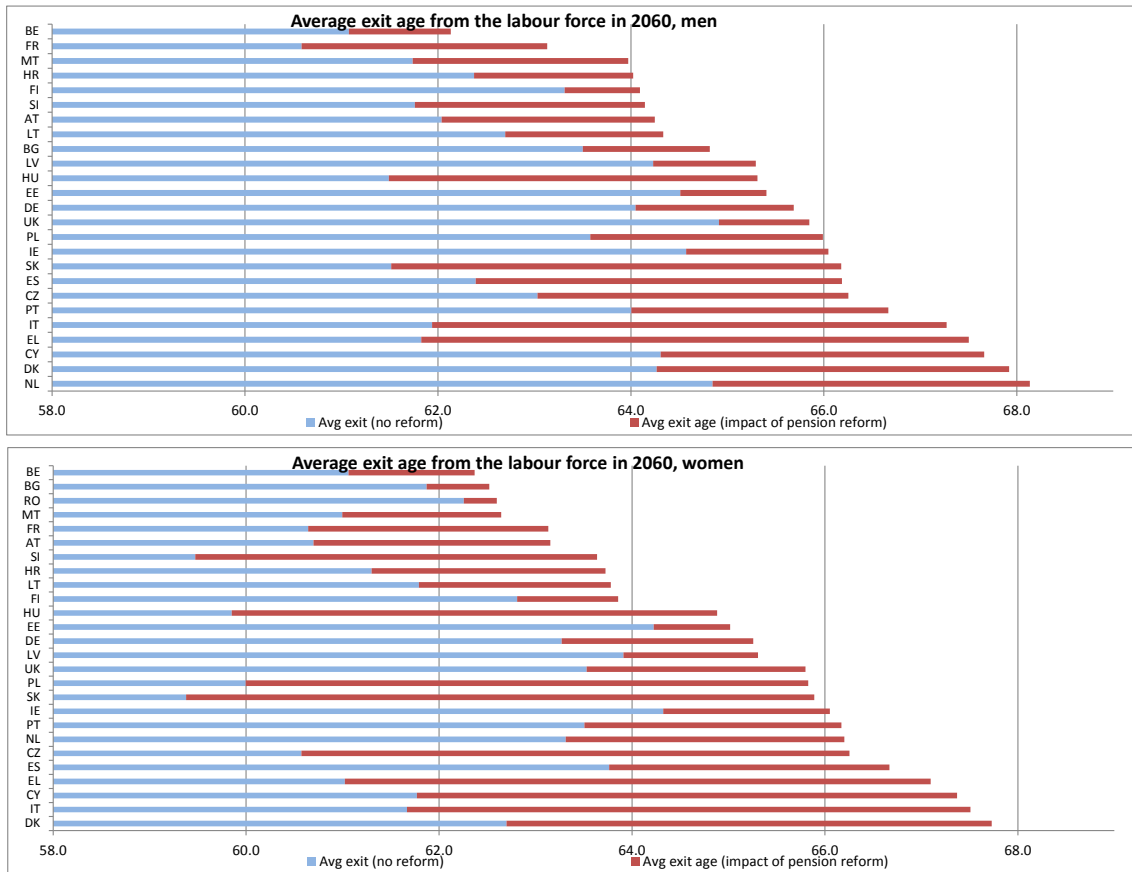
(1) Based on the age group 50-70.
Source: Commission services, EPC.

Table I.2.8: **Estimated impact of pension reforms on participation rates (2020, 2040, 2060) in percentage points - comparison of projections with and without pension reforms**

Ages	Gender	BE 2020	BE 2040	BE 2060	BG 2020	BG 2040	BG 2060	CZ 2020	CZ 2040	CZ 2060	DK 2020	DK 2040	DK 2060	DE 2020	DE 2040	DE 2060
15_64	M	1.7	1.8	1.9	0.8	1.5	1.1	0.3	2.0	2.4	1.5	1.9	2.3	1.6	1.9	2.0
	F	1.7	1.9	1.9	0.4	0.6	0.4	0.6	5.2	5.8	2.4	2.8	3.4	1.5	2.7	2.8
	T	1.7	1.8	1.9	0.6	1.0	0.8	0.5	3.6	4.1	1.9	2.3	2.9	1.5	2.3	2.4
15_74	M	1.3	1.5	1.5	1.1	2.2	1.9	0.3	3.0	4.3	1.9	4.0	5.2	1.6	2.5	2.7
	F	1.4	1.6	1.7	0.5	1.2	1.0	0.5	5.6	7.5	2.6	4.6	7.0	1.5	2.9	3.2
	T	1.3	1.6	1.6	0.8	1.7	1.5	0.4	4.3	5.9	2.2	4.3	6.1	1.5	2.7	2.9
20_64	M	1.9	2.0	2.1	0.9	1.6	1.3	0.3	2.2	2.7	1.6	2.1	2.6	1.7	2.0	2.2
	F	1.8	2.1	2.1	0.4	0.6	0.4	0.7	5.7	6.5	2.7	3.1	3.8	1.6	2.9	3.1
	T	1.9	2.0	2.1	0.7	1.1	0.9	0.5	3.9	4.5	2.1	2.6	3.2	1.7	2.5	2.6
55_64	M	7.5	9.1	8.8	3.7	5.5	5.4	1.5	8.5	13.1	7.4	11.0	11.8	5.9	8.0	8.4
	F	7.4	9.4	9.4	1.0	1.5	1.2	3.2	21.3	31.8	11.9	15.6	16.8	5.5	11.3	12.1
	T	7.4	9.2	9.1	2.3	3.5	3.3	2.4	14.9	22.4	9.6	13.3	14.3	5.7	9.6	10.2
20_74	M	1.4	1.6	1.6	1.2	2.4	2.1	0.3	3.3	4.6	2.0	4.4	5.6	1.7	2.6	2.9
	F	1.5	1.8	1.8	0.6	1.2	1.1	0.6	6.0	8.2	2.8	5.0	7.6	1.6	3.1	3.4
	T	1.5	1.7	1.7	0.9	1.8	1.6	0.5	4.6	6.4	2.4	4.7	6.6	1.6	2.9	3.2

Ages	Gender	EE 2020	EE 2040	EE 2060	IE 2020	IE 2040	IE 2060	EL 2020	EL 2040	EL 2060	ES 2020	ES 2040	ES 2060	FR 2020	FR 2040	FR 2060
15_64	M	0.0	1.8	1.4	0.3	1.1	0.9	3.4	7.1	6.0	1.6	4.6	3.0	2.2	3.5	3.7
	F	1.6	2.9	2.1	0.3	1.2	0.7	2.9	6.5	5.8	1.0	3.3	2.1	1.8	3.3	3.3
	T	0.7	2.4	1.7	0.3	1.2	0.8	3.2	6.8	5.9	1.3	3.9	2.6	2.0	3.4	3.5
15_74	M	0.0	1.5	1.1	0.5	2.0	1.4	3.2	8.7	8.3	2.1	7.0	4.8	1.5	3.5	3.7
	F	0.0	1.4	0.6	0.6	2.4	1.4	2.8	7.7	8.0	1.4	5.6	3.9	1.4	3.5	3.5
	T	0.0	1.5	0.9	0.6	2.2	1.4	3.0	8.2	8.2	1.7	6.3	4.4	1.5	3.5	3.6
20_64	M	0.0	2.0	1.5	0.3	1.2	1.0	3.7	7.7	6.5	1.7	4.9	3.3	2.4	3.9	4.1
	F	1.8	3.2	2.3	0.4	1.3	0.8	3.1	7.0	6.4	1.1	3.5	2.3	2.0	3.6	3.6
	T	0.8	2.6	1.9	0.3	1.3	0.9	3.4	7.4	6.5	1.4	4.2	2.8	2.2	3.8	3.9
55_64	M	0.0	6.8	6.7	1.1	5.1	4.8	15.7	27.5	28.3	6.8	17.8	15.5	10.1	18.9	18.8
	F	6.4	11.2	10.9	1.9	5.2	4.7	11.6	23.3	26.2	4.5	12.0	10.6	7.9	16.2	16.2
	T	2.7	9.1	8.8	1.5	5.1	4.7	13.6	25.4	27.3	5.6	14.9	13.1	9.0	17.5	17.5
20_74	M	0.0	1.6	1.2	0.6	2.2	1.5	3.5	9.3	9.0	2.2	7.4	5.2	1.7	3.8	4.0
	F	0.0	1.5	0.7	0.7	2.6	1.5	3.0	8.2	8.6	1.5	5.9	4.2	1.5	3.8	3.8
	T	0.0	1.6	0.9	0.6	2.4	1.5	3.2	8.7	8.8	1.9	6.7	4.7	1.6	3.8	3.9

Ages	Gender	HR 2020	HR 2040	HR 2060	IT 2020	IT 2040	IT 2060	CY 2020	CY 2040	CY 2060	LV 2020	LV 2040	LV 2060	LT 2020	LT 2040	LT 2060
15_64	M	0.1	1.4	1.5	3.0	5.5	5.8	1.5	2.5	2.6	0.9	2.1	1.3	0.8	2.2	1.5
	F	0.4	3.2	3.0	2.4	4.6	4.8	2.5	5.0	4.5	0.6	2.4	1.4	1.3	3.5	2.2
	T	0.3	2.3	2.2	2.7	5.0	5.3	2.0	3.8	3.5	0.7	2.2	1.4	1.1	2.9	1.8
15_74	M	0.1	1.7	2.1	2.7	6.8	7.6	1.9	3.8	4.7	0.5	1.7	1.0	0.7	2.2	1.6
	F	0.3	3.0	3.2	2.3	5.8	6.9	2.6	6.5	6.9	0.6	2.3	1.5	1.0	3.0	2.0
	T	0.2	2.3	2.6	2.5	6.3	7.3	2.3	5.2	5.8	0.6	2.0	1.3	0.8	2.6	1.8
20_64	M	0.1	1.6	1.8	3.2	6.0	6.3	1.7	2.8	2.8	0.9	2.3	1.5	0.9	2.4	1.7
	F	0.5	3.7	3.7	2.6	5.0	5.3	2.7	5.5	4.9	0.7	2.6	1.6	1.4	3.9	2.4
	T	0.3	2.5	2.4	2.9	5.5	5.8	2.2	4.1	3.8	0.8	2.4	1.5	1.2	3.2	2.1
55_64	M	0.6	6.1	6.8	13.0	24.9	25.8	7.8	11.5	13.6	3.6	9.1	8.7	3.1	10.9	10.7
	F	1.5	12.4	12.5	10.2	20.4	22.1	11.4	19.4	23.2	2.3	8.9	8.5	5.0	15.4	15.6
	T	1.0	9.3	9.6	11.5	22.6	24.0	9.7	15.7	18.3	2.9	9.0	8.6	4.2	13.4	13.2
20_74	M	0.2	1.9	2.4	2.9	7.3	8.2	2.1	4.1	5.1	0.6	1.8	1.1	0.8	2.4	1.8
	F	0.4	3.3	3.7	2.5	6.1	7.4	2.8	7.0	7.4	0.6	2.5	1.7	1.0	3.2	2.2
	T	0.3	2.5	2.8	2.7	6.7	7.8	2.5	5.6	6.3	0.6	2.2	1.4	0.9	2.8	2.0

Source: Commission services, EPC.

Table I.2.9: **Estimated impact of pension reforms on participation rates (2020, 2040, 2060) in percentage points - comparison of projections with and without pension reforms (continuation)**

Ages	Gender	HU 2020	HU 2040	HU 2060	MT 2020	MT 2040	MT 2060	NL 2020	NL 2040	NL 2060	AT 2020	AT 2040	AT 2060	PL 2020	PL 2040	PL 2060
15_64	M	3.4	6.9	6.0	1.7	5.0	4.7	1.4	2.3	3.1	2.2	2.4	2.7	1.7	3.6	3.0
	F	5.6	9.3	8.0	0.5	2.8	2.8	0.7	2.0	2.7	1.4	3.7	3.9	1.0	7.0	6.3
	T	4.5	8.1	7.0	1.1	3.9	3.8	1.1	2.1	2.9	1.8	3.0	3.3	1.3	5.3	4.6
15_74	M	2.9	6.8	5.8	0.9	3.9	3.3	1.3	3.5	4.7	1.8	3.0	3.4	1.4	3.9	3.3
	F	4.5	8.8	7.6	0.3	2.3	2.1	0.8	2.9	4.1	1.2	3.4	3.8	1.0	7.3	7.4
	T	3.7	7.8	6.7	0.6	3.1	2.7	1.1	3.2	4.4	1.5	3.2	3.6	1.2	5.6	5.3
20_64	M	3.7	7.6	6.6	1.8	5.5	5.2	1.6	2.5	3.4	2.3	2.6	2.9	1.8	3.9	3.3
	F	6.1	10.2	8.8	0.5	3.1	3.1	0.8	2.2	3.0	1.6	4.0	4.3	1.1	7.6	6.9
	T	4.9	8.9	7.7	1.2	4.3	4.2	1.2	2.4	3.2	1.9	3.3	3.6	1.4	5.7	5.1
55_64	M	18.8	30.1	28.4	7.8	22.0	23.1	6.5	12.2	14.4	9.6	11.6	12.3	8.2	13.7	14.2
	F	27.6	38.2	37.3	1.9	11.5	12.9	2.9	9.5	12.2	6.1	17.5	18.0	3.9	24.6	28.2
	T	23.5	34.3	32.9	4.8	16.8	18.1	4.7	10.8	13.3	7.9	14.6	15.1	5.9	19.3	21.3
20_74	M	3.1	7.3	6.3	0.9	4.2	3.6	1.4	3.8	5.0	1.9	3.2	3.6	1.5	4.2	3.6
	F	4.8	9.4	8.2	0.3	2.4	2.2	0.9	3.1	4.4	1.3	3.7	4.1	1.1	7.8	7.9
	T	4.0	8.4	7.2	0.6	3.3	2.9	1.2	3.5	4.7	1.6	3.5	3.9	1.3	6.0	5.7

| Ages	Gender	PT 2020	PT 2040	PT 2060	RO 2020	RO 2040	RO 2060	SI 2020	SI 2040	SI 2060	SK 2020	SK 2040	SK 2060	FI 2020	FI 2040	FI 2060
15_64	M	1.1	2.9	2.8	0.7	1.0	0.9	3.1	4.1	3.1	0.4	2.7	4.8	0.9	1.1	1.1
	F	1.0	3.0	2.7	0.2	1.3	1.1	3.8	7.8	6.0	2.7	6.8	7.9	1.2	1.1	1.2
	T	1.0	2.9	2.8	0.4	1.2	1.0	3.5	5.9	4.5	1.6	4.7	6.3	1.0	1.1	1.1
15_74	M	0.9	4.1	4.3	0.0	0.0	0.0	2.4	4.1	3.2	0.4	3.2	6.9	0.7	1.1	1.1
	F	1.0	4.5	4.5	0.0	0.2	0.3	2.9	7.1	5.6	0.6	6.3	8.6	1.3	1.4	1.6
	T	0.9	4.3	4.4	0.0	0.1	0.1	2.6	5.6	4.4	1.2	4.8	7.8	1.0	1.3	1.3
20_64	M	1.2	3.1	3.1	0.7	1.1	1.0	3.4	4.5	3.4	0.5	2.9	5.2	1.0	1.2	1.2
	F	1.1	3.2	2.9	0.2	1.5	1.3	4.1	8.5	6.6	3.0	7.3	8.6	1.3	1.3	1.3
	T	1.1	3.2	3.0	0.5	1.3	1.1	3.7	6.4	5.0	1.7	5.1	6.9	1.1	1.2	1.3
55_64	M	4.7	11.4	10.8	3.1	4.0	3.8	14.1	17.0	16.5	2.4	10.5	22.2	4.0	5.1	5.1
	F	3.5	10.2	9.7	0.6	4.8	4.8	15.2	30.8	30.4	12.5	24.5	34.0	4.9	5.4	5.6
	T	4.1	10.8	10.2	1.8	4.4	4.3	14.7	23.8	23.4	7.6	17.6	28.1	4.5	5.3	5.4
20_74	M	0.9	4.4	4.6	-0.1	0.0	-0.1	2.5	4.4	3.5	0.4	3.4	7.4	0.8	1.2	1.2
	F	1.1	4.8	4.8	0.0	0.3	0.3	3.1	7.6	6.1	2.2	6.7	9.1	1.4	1.6	1.7
	T	1.0	4.6	4.7	0.0	0.1	0.1	2.8	6.0	4.7	1.3	5.1	8.3	1.1	1.4	1.4

Ages	Gender	UK 2020	UK 2040	UK 2060	EA 2020	EA 2040	EA 2060	EU 2020	EU 2040	EU 2060
15_64	M	0.0	0.5	0.8	2.0	3.5	3.4	1.5	2.8	2.8
	F	0.7	2.3	2.3	1.6	3.4	3.3	1.4	3.4	3.2
	T	0.4	1.4	1.5	1.8	3.4	3.4	1.5	3.1	3.0
15_74	M	0.0	0.5	1.3	1.8	4.4	4.4	1.4	3.5	3.6
	F	0.3	2.8	3.0	1.6	4.1	4.2	1.3	4.0	4.1
	T	0.1	1.6	2.2	1.7	4.2	4.3	1.3	3.7	3.8
20_64	M	0.0	0.5	0.9	2.1	3.8	3.8	1.7	3.1	3.1
	F	0.8	2.5	2.5	1.8	3.7	3.6	1.5	3.8	3.6
	T	0.4	1.5	1.7	2.0	3.7	3.7	1.6	3.4	3.3
55_64	M	0.0	1.9	3.8	8.4	15.9	16.2	6.8	12.9	13.4
	F	3.3	11.1	11.8	6.8	14.6	15.3	6.1	14.8	15.4
	T	1.6	6.6	7.8	7.6	15.2	15.8	6.4	13.9	14.4
20_74	M	0.0	0.5	1.4	1.9	4.7	4.8	1.5	3.7	3.9
	F	0.4	3.1	3.3	1.7	4.4	4.6	1.4	4.3	4.5
	T	0.2	1.8	2.4	1.8	4.6	4.7	1.4	4.0	4.2

Source: Commission services, EPC.

Graph I.2.2:   **Age profiles of participation and employment rates by gender in 2013 and 2060 - EU**
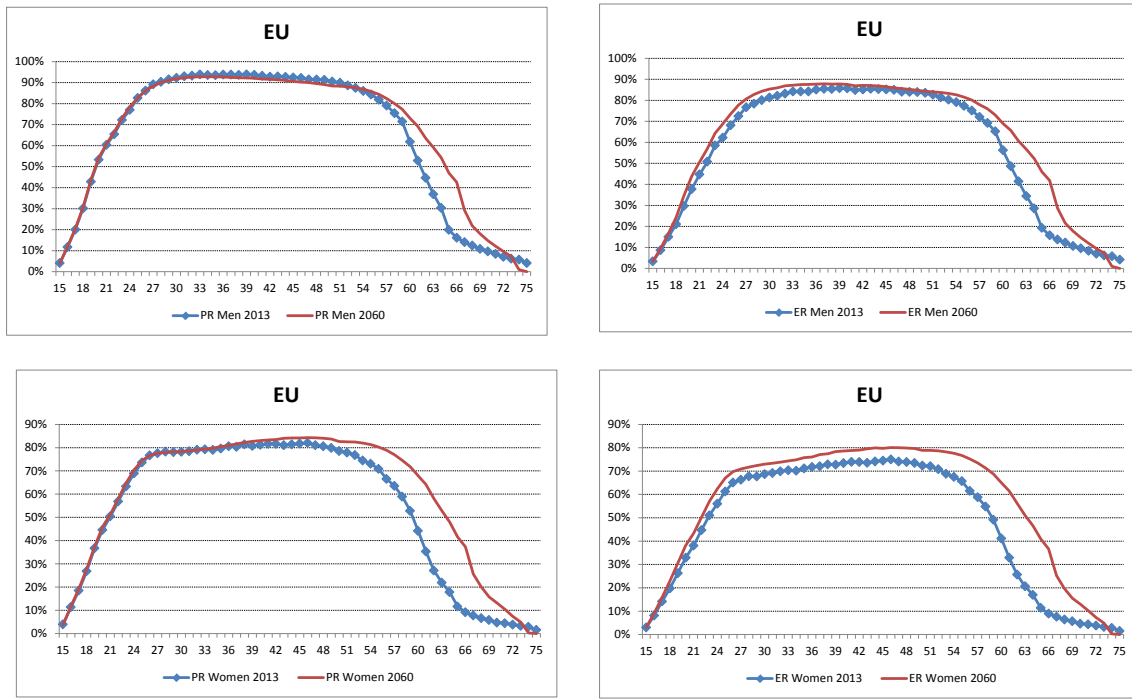
Source: Commission services, EPC.

2.6.   MAIN RESULTS OF THE PROJECTION OF LABOUR MARKET PARTICIPATION RATES

2.6.1. Projection of participation rates

The outcome of the CSM projections is reflected in a rightward shift in the age profile of participation rates, particularly visible at 50+ ages, reflecting the combined effect of the rising attachment of younger generations of women to the labour market, together with the expected effect of pension reforms (see Graphs I.2.2 and I.2.3).

Age profiles of participation and employment rates by gender in 2013 and 2060 - EA18
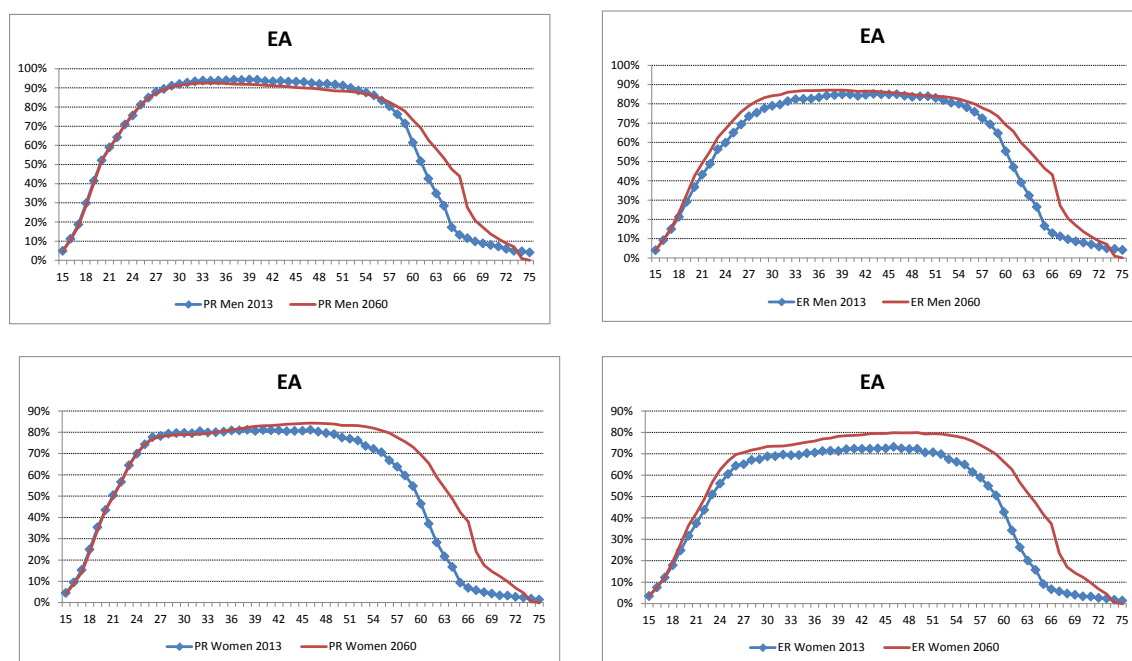
Source: Commission services, EPC.

Table I.2.10 presents participation rate projections. The total participation rate (for the age group 20 to 64) in the EU is projected to increase by 3.5 percentage points (from 76.5% in 2013 to 80.1% in 2060). For the euro area a slightly lower increase of 3.1 pp is projected (from 76.8% in 2013 to 79.8% in 2060). For the age group 15-74, the projected increases in participation rates are smaller (compared with the age group 20-64), reflecting composition effects as young and (very) old people have lower participation rates than prime age workers.

The population of working age is projected to decline substantially in the coming decades, as large cohorts of people retire and are replaced by smaller ones of younger workers. Other things being equal and given the age profile of participation rates, the increasing share of older workers in the labour force puts downward pressure on the total participation rate.

Tables I.2.11 to I.2.13 provide an overview of major developments in participation rates between 2013 and 2060 broken down by age groups and gender. By large, the biggest increase in participation rates is projected for older workers (around 20 pp for women and 10 pp for men) in

the EU. Consequently, the gender gap in terms of participation rates is projected to narrow substantially in the period up to 2060.

Although the participation rate of total prime age workers (25-54) in the EU is projected to remain almost unchanged between 2013 and 2060, at about 85½%, this is the outcome of opposite trends by gender. In fact, women's participation rate is projected to rise by 2.4 pp, reaching 81.5% in 2060, while men's participation rate is projected to decline by 1.9 pp, attaining 89.9% in 2060.

Table I.2.10: **Projected changes in participation rates**

| | Age group 15 to 74 | | | | | | Age group 20 to 64 | | | | | | |
	Level 2013	Level 2023	Level 2060	Change in participation rates 2060-2013	2023-2013	2060-2023	Level 2013	Level 2023	Level 2060	Change in participation rates 2060-2013	2023-2013	2060-2023	
BE	59.9	60.4	59.8	-0.1	0.5	-0.6	73.3	75.8	76.0	2.7	2.5	0.2	BE
BG	59.7	60.9	58.4	-1.3	1.2	-2.5	73.0	75.8	75.7	2.7	2.8	-0.1	BG
CZ	64.4	64.2	66.4	2.0	-0.2	2.2	77.9	80.5	82.5	4.6	2.5	2.0	CZ
DK	68.6	71.0	73.2	4.6	2.4	2.2	81.0	82.8	83.3	2.3	1.8	0.5	DK
DE	68.0	68.7	68.0	0.0	0.7	-0.7	81.6	82.6	84.4	2.8	1.0	1.9	DE
EE	68.4	66.6	65.8	-2.7	-1.9	-0.8	80.3	82.2	84.0	3.6	1.9	1.7	EE
IE	64.3	62.0	63.5	-0.7	-2.3	1.6	75.2	74.6	74.5	-0.7	-0.6	-0.1	IE
EL	59.4	63.0	66.9	7.5	3.6	3.8	72.6	78.3	82.0	9.4	5.6	3.8	EL
ES	66.0	67.8	70.6	4.6	1.8	2.8	78.7	82.7	85.2	6.5	4.0	2.5	ES
FR	63.0	62.3	64.3	1.3	-0.7	2.1	76.9	79.0	80.1	3.2	2.1	1.1	FR
HR	56.2	55.5	56.0	-0.2	-0.7	0.5	68.5	69.2	70.3	1.9	0.7	1.1	HR
IT	55.3	57.8	58.4	3.1	2.5	0.5	67.8	70.4	70.6	2.8	2.7	0.1	IT
CY	66.7	70.2	70.2	3.5	3.4	0.1	79.2	83.5	85.2	6.0	4.3	1.8	CY
LV	66.3	65.9	65.9	-0.4	-0.5	0.1	79.3	80.9	83.6	4.2	1.6	2.6	LV
LT	64.7	62.5	62.5	-2.1	-2.1	0.0	79.3	78.3	80.3	1.1	-1.0	2.1	LT
LU	63.2	63.4	60.8	-2.4	0.2	-2.6	74.9	76.1	76.0	1.0	1.2	-0.2	LU
HU	57.0	62.7	61.7	4.8	5.7	-1.0	70.1	79.4	79.6	9.6	9.3	0.2	HU
MT	57.4	61.0	62.6	5.2	3.6	1.6	69.0	75.9	80.4	11.4	6.9	4.5	MT
NL	70.7	71.6	73.7	3.0	0.9	2.1	81.5	82.9	85.0	3.5	1.4	2.0	NL
AT	67.2	68.3	67.3	0.1	1.1	-1.0	79.2	79.8	81.3	2.2	0.6	1.6	AT
PL	61.5	61.1	59.9	-1.6	-0.4	-1.2	72.7	75.5	76.1	3.4	2.8	0.6	PL
PT	65.8	66.0	67.2	1.4	0.1	1.2	78.3	79.9	80.5	2.2	1.6	0.6	PT
RO	59.0	57.0	54.1	-4.9	-1.9	-3.0	68.5	69.7	67.8	-0.7	1.2	-1.9	RO
SI	63.2	64.0	64.1	0.9	0.8	0.1	75.1	80.3	80.4	5.3	5.2	0.1	SI
SK	63.4	61.4	59.8	-3.6	-2.0	-1.6	75.6	76.5	77.2	1.6	0.9	0.7	SK
FI	65.8	65.3	65.3	-0.5	-0.5	-0.3	79.2	80.3	80.0	0.8	1.0	-0.3	FI
SE	71.7	72.7	72.0	0.3	1.0	-0.7	85.9	87.1	87.7	1.8	1.1	0.7	SE
UK	68.7	69.0	70.6	1.8	0.2	1.6	80.2	81.5	84.0	3.8	1.3	2.4	UK
NO	71.2	71.1	69.9	-1.2	-0.1	-1.1	82.2	82.7	83.1	0.9	0.5	0.4	NO
EA	63.8	64.6	65.2	1.4	0.8	0.6	76.8	78.8	79.8	3.1	2.1	1.0	EA
EU	64.0	64.6	65.4	1.4	0.6	0.8	76.5	78.7	80.1	3.5	2.2	1.4	EU

Source: Commission services, EPC.

Table I.2.11: **Participation rates by age groups - Total, 2013-2060**

| | Total 20-64 | | Young 20-24 | | Prime age 25-54 | | Older 55-64 | | Change 2060-2013 Total 20-64 | Young 20-24 | Prime age 25-54 | Older 55-64 | |
	2013	2060	2013	2060	2013	2060	2013	2060					
BE	73.3	76.0	52.7	54.1	85.4	85.6	44.0	56.0	2.7	1.5	0.3	12.0	BE
BG	73.0	75.7	47.3	51.3	83.1	83.9	54.4	61.0	2.7	4.0	0.9	6.6	BG
CZ	77.9	82.5	51.2	51.6	89.0	88.5	55.1	78.3	4.6	0.4	-0.5	23.3	CZ
DK	81.0	83.3	71.0	71.6	87.5	86.9	65.3	78.0	2.3	0.6	-0.6	12.7	DK
DE	81.6	84.4	69.7	70.0	87.7	89.6	67.6	76.1	2.8	0.3	1.9	8.5	DE
EE	80.3	84.0	61.8	63.4	87.6	89.7	66.6	74.8	3.6	1.6	2.1	8.2	EE
IE	75.2	74.5	65.4	65.5	80.7	78.5	57.3	64.6	-0.7	0.1	-2.2	7.3	IE
EL	72.6	82.0	51.0	51.5	84.0	88.1	42.4	78.0	9.4	0.5	4.1	35.5	EL
ES	78.7	85.2	59.8	60.2	86.9	89.6	54.2	82.5	6.5	0.4	2.7	28.2	ES
FR	76.9	80.1	60.8	61.7	88.4	88.5	49.2	63.4	3.2	0.9	0.1	14.2	FR
HR	68.5	70.3	45.5	52.2	81.0	79.8	41.4	50.9	1.9	6.7	-1.3	9.5	HR
IT	67.8	70.6	45.5	46.0	77.1	74.7	45.4	69.0	2.8	0.5	-2.4	23.6	IT
CY	79.2	85.2	63.9	66.9	87.7	89.7	57.0	78.4	6.0	3.1	2.0	21.4	CY
LV	79.3	83.6	62.3	63.7	87.6	89.1	61.5	73.1	4.2	1.4	1.5	11.6	LV
LT	79.3	80.3	54.6	56.6	89.4	87.3	60.2	65.6	1.1	2.0	-2.1	5.5	LT
LU	74.9	76.0	41.9	46.8	87.5	89.8	42.2	46.5	1.0	4.9	2.3	4.3	LU
HU	70.1	79.6	47.1	48.2	83.3	85.1	41.8	77.5	9.6	1.1	1.8	35.7	HU
MT	69.0	80.4	75.9	78.3	78.2	85.7	38.7	64.8	11.4	2.4	7.4	26.2	MT
NL	81.5	85.0	78.6	79.8	87.5	88.4	64.1	77.6	3.5	1.2	0.9	13.5	NL
AT	79.2	81.3	75.1	76.6	88.8	89.4	46.4	59.7	2.2	1.5	0.6	13.3	AT
PL	72.7	76.1	56.2	56.1	84.6	82.8	44.2	64.3	3.4	-0.1	-1.8	20.1	PL
PT	78.3	80.5	57.6	59.2	88.2	88.4	54.3	68.6	2.2	1.6	0.2	14.3	PT
RO	68.5	67.8	46.1	45.7	80.1	77.6	43.0	48.7	-0.7	-0.3	-2.5	5.7	RO
SI	75.1	80.4	51.4	54.1	90.8	89.4	35.6	63.4	5.3	2.7	-1.4	27.8	SI
SK	75.6	77.2	51.4	53.1	87.2	82.9	49.6	70.4	1.6	1.8	-4.3	20.8	SK
FI	79.2	80.0	69.8	70.3	86.8	86.1	62.7	65.7	0.8	0.5	-0.7	3.0	FI
SE	85.9	87.7	72.4	73.1	90.9	92.6	77.7	78.9	1.8	0.7	1.7	1.3	SE
UK	80.2	84.0	75.9	76.6	85.8	88.3	62.9	73.3	3.8	0.7	2.5	10.4	UK
NO	82.2	83.1	72.8	75.2	86.6	88.3	72.1	70.8	0.9	2.4	1.7	-1.4	NO
EA	76.8	79.8	61.0	60.9	85.5	85.8	54.8	70.7	3.1	-0.1	0.3	15.9	EA
EU	76.5	80.1	61.6	62.6	85.3	85.9	54.4	70.2	3.5	1.0	0.6	15.8	EU

Source: Commission services, EPC.

Table I.2.12: **Participation rates by age groups - Men, 2013-2060**

	Total		Young		Prime age		Older		Change 2060-2013				
	20-64		20-24		25-54		55-64		Total	Young	Prime age	Older	
	2013	2060	2013	2060	2013	2060	2013	2060	20-64	20-24	25-54	55-64	
BE	79.0	79.0	56.7	57.4	90.9	89.0	50.4	57.6	0.1	0.7	-1.9	7.2	BE
BG	77.1	80.8	53.8	59.3	85.8	87.5	60.2	69.5	3.7	5.5	1.7	9.3	BG
CZ	86.1	88.7	59.6	59.9	95.8	95.5	66.4	80.6	2.6	0.4	-0.3	14.2	CZ
DK	84.0	84.8	72.0	72.6	90.2	88.6	70.6	79.3	0.8	0.6	-1.5	8.7	DK
DE	86.9	87.4	71.7	71.8	92.7	93.2	74.6	77.7	0.5	0.1	0.4	3.1	DE
EE	84.4	86.6	66.0	68.6	92.3	92.8	67.0	74.2	2.2	2.6	0.5	7.1	EE
IE	83.4	79.8	68.2	68.3	89.2	84.7	67.7	68.0	-3.6	0.1	-4.5	0.3	IE
EL	82.6	87.7	55.6	55.8	93.6	93.5	55.1	85.2	5.2	0.3	-0.1	30.1	EL
ES	84.8	85.5	62.2	62.7	92.5	90.5	63.9	79.6	0.6	0.5	-2.0	15.7	ES
FR	81.6	83.7	65.4	66.3	93.3	92.5	52.4	64.9	2.1	0.8	-0.8	12.5	FR
HR	73.6	73.2	53.5	62.5	84.1	82.2	50.7	51.6	-0.4	9.0	-1.9	1.0	HR
IT	78.7	77.8	51.7	52.0	88.3	82.5	56.9	75.0	-0.9	0.3	-5.7	18.0	IT
CY	86.3	89.7	66.8	72.1	94.0	93.9	71.5	83.6	3.4	5.3	-0.2	12.1	CY
LV	82.7	86.4	68.3	70.3	90.6	91.4	62.7	74.9	3.7	2.0	0.8	12.2	LV
LT	82.2	82.5	61.5	64.2	90.7	88.5	65.4	67.1	0.3	2.7	-2.1	1.7	LT
LU	82.0	79.4	48.4	50.8	94.3	94.6	50.6	45.6	-2.6	2.4	0.3	-4.9	LU
HU	77.1	84.5	52.3	54.0	89.5	90.7	50.1	79.7	7.4	1.7	1.2	29.6	HU
MT	84.7	89.0	80.2	82.0	94.4	94.5	58.0	74.5	4.3	1.8	0.1	16.6	MT
NL	87.1	87.3	78.2	79.8	92.3	90.4	75.3	81.6	0.1	1.5	-1.8	6.3	NL
AT	84.3	83.3	77.6	80.2	92.7	91.1	56.6	61.7	-1.0	2.5	-1.6	5.1	AT
PL	80.2	82.2	64.3	64.2	90.1	88.9	56.2	69.3	2.0	-0.1	-1.2	13.1	PL
PT	82.3	81.4	59.8	60.8	91.0	89.1	62.7	69.5	-0.9	1.0	-1.9	6.8	PT
RO	77.3	77.2	53.2	52.4	87.8	86.6	53.9	59.9	-0.1	-0.8	-1.2	6.0	RO
SI	79.0	82.5	55.6	57.9	92.7	91.4	44.7	64.8	3.5	2.3	-1.3	20.1	SI
SK	83.7	85.9	62.7	65.3	93.7	92.3	59.7	75.9	2.2	2.6	-1.4	16.2	SK
FI	81.4	81.3	70.9	71.1	90.1	88.1	61.5	64.8	-0.1	0.1	-1.9	3.3	FI
SE	88.9	90.7	74.6	75.4	93.6	95.2	81.7	83.6	1.8	0.8	1.6	1.9	SE
UK	86.5	87.8	79.7	80.1	92.0	92.6	70.7	75.5	1.3	0.4	0.6	4.8	UK
NO	84.9	84.5	73.9	75.8	89.1	89.9	76.2	72.3	-0.3	2.0	0.8	-4.0	NO
EA	83.3	83.5	64.6	64.6	91.8	89.9	62.7	72.9	0.2	0.0	-1.9	10.2	EA
EU	83.0	84.1	65.9	66.7	91.4	90.3	62.8	73.0	1.1	0.9	-1.1	10.2	EU

Source: Commission services, EPC.

Table I.2.13: **Participation rates by age groups - Women, 2013-2060**

	Total		Young		Prime age		Older		Change 2060-2013				
	20-64		20-24		25-54		55-64		Total	Young	Prime age	Older	
	2013	2060	2013	2060	2013	2060	2013	2060	20-64	20-24	25-54	55-64	
BE	67.6	72.9	48.6	50.7	79.7	82.1	37.6	54.3	5.3	2.1	2.4	16.7	BE
BG	68.9	70.4	40.3	42.8	80.2	80.2	49.2	52.5	1.5	2.5	0.0	3.3	BG
CZ	69.5	76.0	42.4	42.8	81.9	81.2	44.5	76.0	6.5	0.3	-0.6	31.6	CZ
DK	77.9	81.7	69.9	70.5	84.9	85.1	60.1	76.8	3.8	0.6	0.2	16.6	DK
DE	76.2	81.3	67.5	68.0	82.4	85.8	60.8	74.4	5.1	0.5	3.4	13.6	DE
EE	76.4	81.2	57.2	57.8	82.9	86.5	66.3	75.4	4.8	0.7	3.6	9.2	EE
IE	67.2	68.8	62.6	62.6	72.5	71.9	47.0	61.1	1.6	0.0	-0.6	14.1	IE
EL	62.8	76.1	46.2	47.0	74.4	82.4	30.8	70.7	13.3	0.8	8.0	39.9	EL
ES	72.4	84.8	57.4	57.5	81.3	88.7	45.0	85.5	12.4	0.2	7.4	40.5	ES
FR	72.4	76.3	56.2	56.9	83.5	84.2	46.3	61.9	3.9	0.8	0.7	15.6	FR
HR	63.4	67.3	37.2	41.3	77.9	77.2	32.7	50.2	4.0	4.1	-0.7	17.4	HR
IT	57.1	63.1	39.1	39.9	66.0	66.6	34.6	62.9	6.1	0.8	0.6	28.3	IT
CY	72.7	80.7	60.9	61.9	82.0	85.5	42.8	73.0	8.0	1.0	3.5	30.1	CY
LV	76.2	80.6	55.9	56.6	84.7	86.7	60.5	71.4	4.4	0.7	1.9	10.9	LV
LT	76.6	78.1	47.3	48.6	88.2	86.0	56.1	64.2	1.5	1.3	-2.3	8.1	LT
LU	67.6	72.4	35.0	42.7	80.4	84.9	33.6	47.5	4.8	7.7	4.5	13.9	LU
HU	63.3	74.7	41.7	42.2	77.2	79.3	34.8	75.4	11.4	0.5	2.1	40.5	HU
MT	52.8	71.4	71.3	74.2	61.3	76.2	19.5	54.9	18.6	2.9	14.9	35.4	MT
NL	75.8	82.5	78.9	79.8	82.6	86.2	52.9	73.6	6.7	0.9	3.5	20.7	NL
AT	74.1	79.3	72.5	72.8	85.0	87.7	36.8	57.7	5.2	0.3	2.7	20.9	AT
PL	65.2	69.8	45.7	43.4	79.1	76.6	33.4	59.3	4.6	-0.2	-2.5	25.9	PL
PT	74.6	79.5	55.4	57.4	85.6	87.7	46.7	67.6	4.9	2.1	2.1	20.9	PT
RO	59.7	58.2	38.5	38.8	72.0	68.1	33.4	37.7	-1.5	0.3	-3.8	4.3	RO
SI	71.0	78.1	47.1	50.0	88.7	87.2	26.4	62.0	7.1	2.9	-1.5	35.7	SI
SK	67.5	68.2	39.6	40.4	80.5	73.2	40.5	64.9	0.7	0.8	-7.3	24.4	SK
FI	77.0	78.6	68.6	69.6	83.3	83.9	63.9	66.7	1.6	1.0	0.6	2.9	FI
SE	82.9	84.7	70.0	70.7	88.1	90.0	73.6	74.0	1.8	0.7	1.9	0.4	SE
UK	74.0	80.0	72.0	72.9	79.6	83.8	55.4	71.1	6.0	0.9	4.2	15.7	UK
NO	79.4	81.6	71.6	74.5	84.0	86.7	67.9	69.2	2.2	2.9	2.7	1.3	NO
EA	70.3	76.1	57.3	57.1	79.1	81.5	47.3	68.4	5.8	-0.2	2.4	21.1	EA
EU	70.0	75.9	57.1	58.2	79.2	81.3	46.5	67.4	5.8	1.1	2.1	20.9	EU

Source: Commission services, EPC.

Table I.2.14: **Labour supply - age group 20-64 (thousands persons)**

	Total			Annual growth rate		Men			Annual growth rate		Women			Annual growth rate		
	2013	2023	2060	2023-2013	2060-2023	2013	2023	2060	2023-2013	2060-2023	2013	2023	2060	2023-2013	2060-2023	
BE	4897	5294	6291	0.8%	0.5%	2653	2817	3326	0.6%	0.5%	2244	2477	2965	1.0%	0.5%	BE
BG	3313	3017	2033	-0.9%	-1.1%	1762	1620	1106	-0.8%	-1.0%	1551	1397	927	-1.0%	-1.1%	BG
CZ	5186	4995	4647	-0.4%	-0.2%	2900	2775	2548	-0.4%	-0.2%	2285	2219	2099	-0.3%	-0.2%	CZ
DK	2649	2770	2910	0.4%	0.1%	1382	1432	1512	0.4%	0.1%	1267	1338	1398	0.5%	0.1%	DK
DE	40594	38798	29910	-0.5%	-0.7%	21869	20715	15804	-0.5%	-0.7%	18725	18083	14106	-0.3%	-0.7%	DE
EE	649	585	452	-1.0%	-0.7%	334	300	237	-1.1%	-0.6%	314	285	215	-1.0%	-0.8%	EE
IE	2059	1922	2092	-0.7%	0.2%	1129	1029	1155	-0.9%	0.3%	930	893	937	-0.4%	0.1%	IE
EL	4827	4783	3467	-0.1%	-0.9%	2730	2636	1892	-0.3%	-0.9%	2098	2147	1575	0.2%	-0.8%	EL
ES	22825	22308	20261	-0.2%	-0.3%	12378	11553	10470	-0.7%	-0.3%	10448	10755	9791	0.3%	-0.3%	ES
FR	29137	29719	31592	0.2%	0.2%	15206	15473	16807	0.2%	0.2%	13931	14246	14785	0.2%	0.1%	FR
HR	1780	1678	1342	-0.6%	-0.6%	955	883	710	-0.8%	-0.6%	825	794	632	-0.4%	-0.6%	HR
IT	24493	25822	24189	0.5%	-0.2%	14089	14630	13524	0.4%	-0.2%	10404	11192	10665	0.7%	-0.1%	IT
CY	438	457	503	0.4%	0.3%	230	236	268	0.3%	0.3%	208	220	235	0.6%	0.2%	CY
LV	987	833	581	-1.7%	-1.0%	495	420	307	-1.6%	-0.8%	492	412	274	-1.7%	-1.1%	LV
LT	1426	1119	739	-2.4%	-1.1%	710	553	388	-2.5%	-1.0%	717	566	351	-2.3%	-1.3%	LT
LU	256	321	483	2.3%	1.1%	143	173	256	1.9%	1.1%	114	148	227	2.7%	1.2%	LU
HU	4341	4596	3727	0.6%	-0.6%	2354	2439	2005	0.4%	-0.6%	1986	2157	1722	0.8%	-0.6%	HU
MT	181	195	195	0.7%	0.0%	113	115	111	0.1%	-0.1%	68	80	84	1.7%	0.1%	MT
NL	8210	8230	7559	0.0%	-0.2%	4407	4339	3977	-0.2%	-0.2%	3803	3891	3582	0.2%	-0.2%	NL
AT	4150	4302	4118	0.4%	-0.1%	2205	2266	2145	0.3%	-0.1%	1946	2036	1973	0.5%	-0.1%	AT
PL	18149	17241	12456	-0.5%	-0.9%	9959	9505	6825	-0.5%	-0.9%	8190	7736	5631	-0.6%	-0.9%	PL
PT	4954	4712	3290	-0.5%	-1.0%	2522	2351	1702	-0.7%	-0.9%	2431	2360	1589	-0.3%	-1.1%	PT
RO	8560	8025	5970	-0.6%	-0.8%	4839	4590	3445	-0.5%	-0.8%	3721	3435	2525	-0.8%	-0.8%	RO
SI	981	972	829	-0.1%	-0.4%	531	516	439	-0.3%	-0.4%	451	456	391	0.1%	-0.4%	SI
SK	2687	2555	1724	-0.5%	-1.1%	1489	1411	974	-0.5%	-1.0%	1199	1143	750	-0.5%	-1.1%	SK
FI	2528	2517	2610	0.0%	0.1%	1313	1310	1346	0.0%	0.1%	1215	1207	1264	-0.1%	0.1%	FI
SE	4783	5047	6033	0.5%	0.5%	2511	2662	3181	0.6%	0.5%	2273	2384	2851	0.5%	0.5%	SE
UK	30317	31441	35132	0.4%	0.3%	16235	16679	18762	0.3%	0.3%	14082	14762	16370	0.5%	0.3%	UK
NO	2485	2808	3657	1.2%	0.7%	1314	1473	1889	1.2%	0.7%	1171	1335	1769	1.3%	0.8%	NO
EA	154853	154323	140147	0.0%	-0.3%	83835	82292	74739	-0.2%	-0.3%	71018	72032	65409	0.1%	-0.3%	EA
EU	235358	234251	215135	0.0%	-0.2%	127441	125432	115221	-0.2%	-0.2%	107917	108820	99914	0.1%	-0.2%	EU

Source: Commission services, EPC.

2.6.2. Projection of labour supply

Labour supply projections are calculated by single age and gender (by multiplying participation rates by population values). Total labour supply in the EU (and in the euro area) is projected to nearly stabilise between 2013 and 2023 (age group 20 to 64), while it is expected to decline by 8.2% between 2023 and 2060, representing roughly 19 million people (see Table I.2.14). In the euro area, the projected fall in labour supply between 2023 and 2060 is 9.2%, equivalent to about 14 million people.

Graph I.2.14 highlights the wide diversity across Member States of labour supply projections, ranging from an increase of 50.3% in Luxembourg to a decrease of 34.0% in Lithuania (2060-2023). The initial largely neutral trend across most countries in the first ten years of the projections (2013-2023) is projected to deteriorate after 2023, when a large majority of countries are expected to record a decline (20 EU Member States in total).

In the eight largest (in terms of labour force) EU Member States, representing about ¾ of the total EU labour force in 2013, their prospective evolution in the period 2013-2060 is strikingly dissimilar (see Table I.2.15). Expected differences in the annual growth rate of total labour force are very significant, because they are "compounded" over a long period. DE, PL and RO are projected to register average annual declines of between ½ and ¾ of a percentage point, ES and NL are expected to register a decline of about ¼ pp, which are equivalent to the EU average. Conversely, the UK, FR (and IT) are expected to register expansions (stabilisation) in the total labour force. Consequently, country rankings (in terms of labour force shares) are expected to change significantly in the period 2013-2060.

Obviously, and all else being equal, such dissimilar prospects for labour supply growth will result in marked differences in the growth potential of the economy. In fact, the growth rate of potential output is the sum of (trend) total factor productivity plus a weighted average of the growth rate of labour and capital inputs, weighted by their respective income shares (see Chapter 3):

$$\Delta \log Y_p = \Delta \log \text{TFP} + \beta * \Delta \log LF_a + (1 - \beta) * \Delta \log K$$

where

$$LF_a \equiv LF * (1 - Nawru) * \ Hours \qquad\qquad 2.4$$

Graph I.2.4:   **Percentage change in total labour supply of the population aged 20 to 64 (2060-2013)**

Total

■ 2023-2013   ‖‖ 2060-2023

Men

■ 2023-2013   ‖‖ 2060-2023

Women

■ 2023-2013   ‖‖ 2060-2023
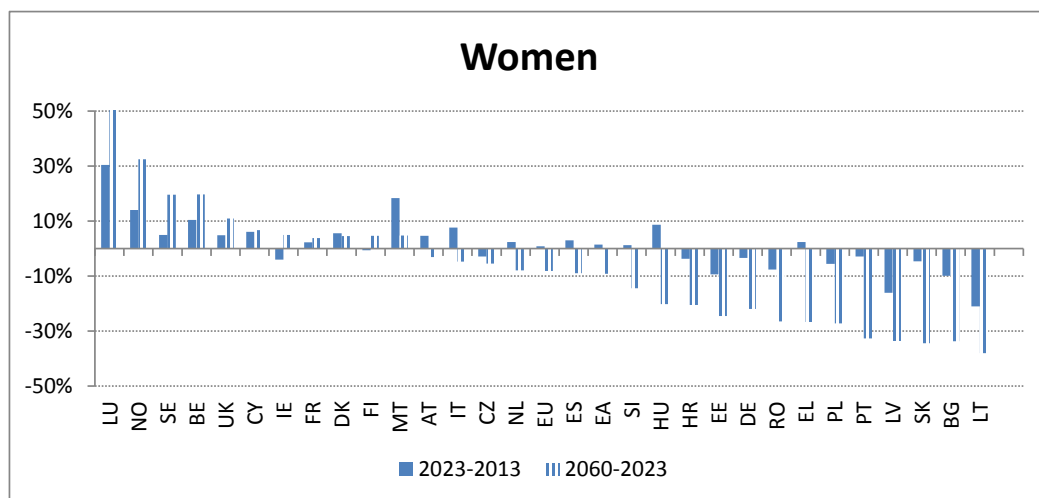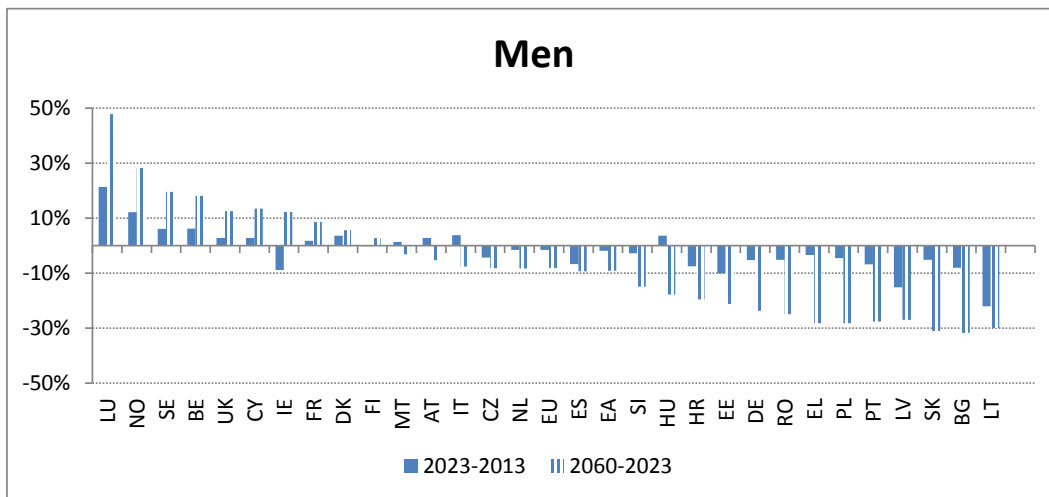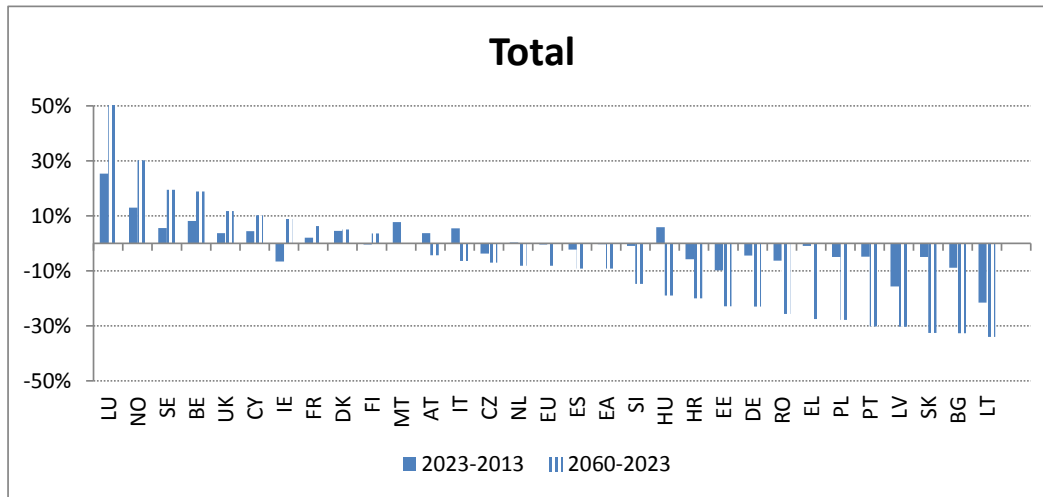
(1) Countries ranked in descending order of total changes over the period 2060-2013.
Source: Commission services, EPC.

Table I.2.15: **Labour supply projections in the "largest" eight EU Member States**

	Total LF (20-64) (thousands persons)		Avg. annual growth rate of the LF	Impact on potential output growth (1)
	2013	2060	2060-2013	
DE	40594	29910	-0.6%	-0.3%
ES	22825	20261	-0.3%	0.0%
FR	29137	31592	0.2%	0.2%
IT	24493	24189	0.0%	0.1%
NL	8210	7559	-0.2%	0.0%
PL	18149	12456	-0.8%	-0.4%
RO	8560	5970	-0.8%	-0.4%
UK	30317	35132	0.3%	0.3%
EA	154853	140147	-0.2%	0.0%
EU	235358	215135	-0.2%	0.0%

(1) Impact of LF growth differentials relative to the EU average.
Source: Commission services, EPC.

where Δ represents first differences (i.e. $\Delta y_t = y_t - y_{t-1}$); Yp is potential GDP; *TFP* is trend total factor productivity; *LFa* is total labour input; *K* is capital services input; and β is the labour income share. [30]

Graph I.2.5: **Population and labour supply in 2060-2013 (percentage change in the age group 20-64)**
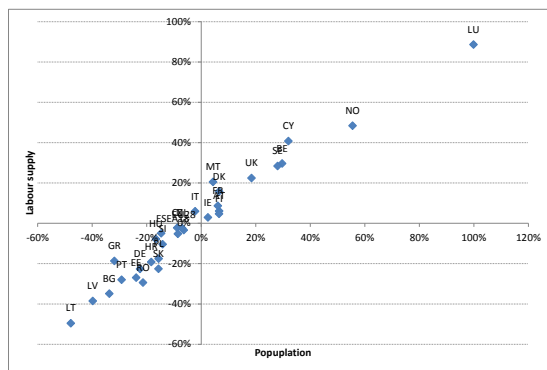
Source: Commission services, EPC.

As an example and all else being equal, the contraction (expansion) in labour force in Germany (the UK) (compared to the EU average) brings about an annual 0.3% reduction (increase) in potential output growth relative to the EU average (see last column of Table I.2.15). These huge differences in potential growth rates basically reflect the partial equilibrium nature of the projection methodology, namely the fact that demographic, labour force participation, migration and productivity assumptions are effectively independent i.e. do not interact. [31]

The projected negative labour force growth over the period 2013-2060 in the EU is mainly due to negative demographic developments, given that participation rates over the period – especially for older workers and women - are projected to continue to increase (Graph I.2.5).

2.6.3. Breaking down changes in participation rates and labour force

Table I.2.16 applies a shift-share analysis to changes in the total participation rate over the period 2013 to 2060, focusing on both the age and gender dimensions. The overall participation rate is algebraically broken down in three components: i) a participation rate effect; ii) a population/demographic effect, and iii) an interaction/residual effect. [32]

The participation rate effect, reflecting changes in participation rates of specific age/gender groups, tends to be positive across a large majority of Member States. It basically reflects the trend rise in the participation rates of women and older workers. Graph I.2.6 (the first two panels) also suggest that the projected rise in the participation rates of women and older workers is a major driving force of changes in the aggregated participation rate.

[30] The labour income share is assumed to be 0.65.

[31] Especially, there is no interaction between migration flows and productivity.

[32] This breakdown is based on the rule for approximating the difference of a product:
$y_1 x_1 - y_0 x_0 = x_0 \Delta y + y_0 \Delta x + \Delta y \Delta x$. For more details see Carone (2005), pp. 54.

Graph I.2.6:   **Correlations between the total change in participation rates (2060-2013) and possible determinants**
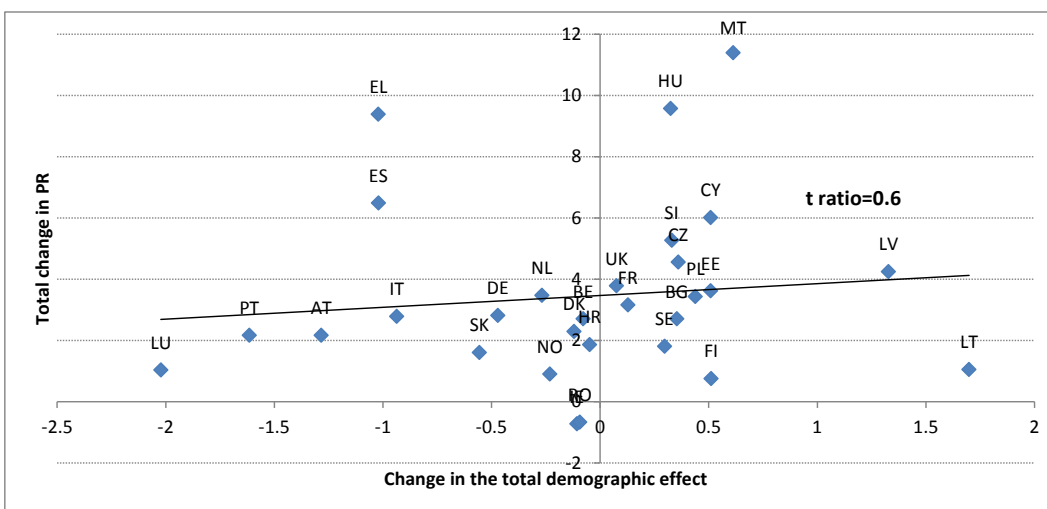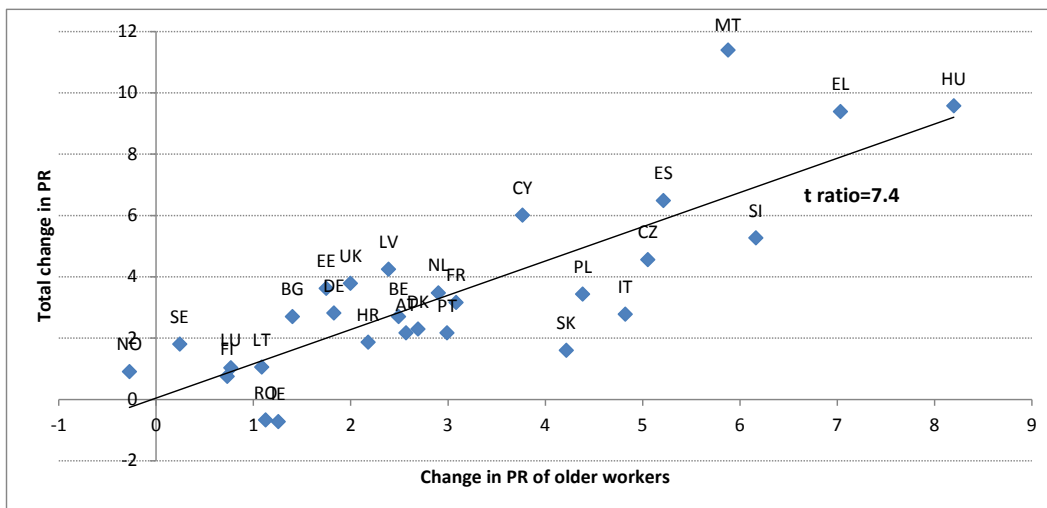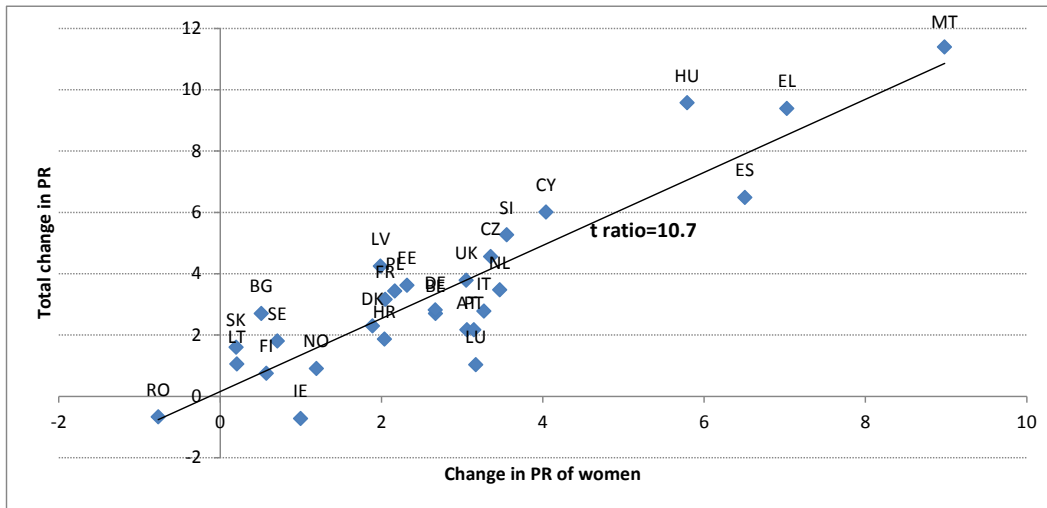
Source: Commission services, EPC.

Table I.2.16: **Contribution to the overall change in participation rates, 2060-2013 (in %)**

	Participation rates in 2060	Total change in participation rates (in %)	Men & Women				Men				Women				Demographic effect						Interaction effect	
			Total (20-64)	Young (20-24)	Prime age (25-54)	Older (55-64)	Total (20-64)	Young (20-24)	Prime age (25-54)	Older (55-64)	Total (20-64)	Young (20-24)	Prime age (25-54)	Older (55-64)	Total (20-64)	Young (20-24)	Prime age (25-54)	Older (55-64)	Men	Women		
BE	76.0	2.7	2.8	0.2	0.2	2.5	0.1	0.0	-0.6	0.7	2.7	0.1	0.8	1.8	-0.1	0.2	-0.3	0.0	0.3	-0.4	0.0	BE
BG	75.7	2.7	2.4	0.4	0.6	1.4	1.9	0.3	0.6	1.0	0.5	0.1	0.0	0.4	0.4	0.3	1.0	-0.9	0.5	-0.1	0.0	BG
CZ	82.5	4.6	4.8	0.0	-0.3	5.1	1.4	0.0	-0.1	1.5	3.4	0.0	-0.2	3.6	0.4	0.6	0.8	-1.1	0.3	0.0	-0.6	CZ
DK	83.3	2.3	2.3	0.1	-0.4	2.7	0.4	0.0	-0.5	0.9	1.9	0.0	0.1	1.8	-0.1	-0.2	-0.6	0.6	0.5	-0.7	0.1	DK
DE	84.4	2.8	3.2	0.0	1.3	1.8	0.5	0.0	0.2	0.3	2.7	0.0	1.2	1.5	-0.5	0.1	-2.3	1.7	0.1	-0.6	0.1	DE
EE	84.0	3.6	3.3	0.2	1.4	1.7	1.0	0.1	0.2	0.7	2.3	0.0	1.2	1.1	0.5	0.1	2.0	-1.6	1.6	-1.1	-0.2	EE
IE	74.5	-0.7	-0.6	0.0	-1.9	1.3	-1.6	0.0	-1.6	0.0	1.0	0.0	-0.2	1.2	-0.1	2.0	-2.1	0.0	1.5	-1.6	0.0	IE
EL	82.0	9.4	9.9	0.1	2.8	7.0	2.9	0.0	0.0	2.9	7.0	0.0	2.8	4.2	-1.0	0.6	-2.7	1.0	0.4	-1.4	0.5	EL
ES	85.2	6.5	7.2	0.0	2.0	5.2	0.7	0.0	-0.7	1.4	6.5	0.0	2.7	3.8	-1.0	1.1	-3.4	1.2	0.4	-1.4	0.3	ES
FR	80.1	3.2	3.1	0.1	0.0	3.1	1.1	0.0	-0.3	1.3	2.0	0.0	0.2	1.8	0.1	0.6	-0.2	-0.3	1.4	-1.2	-0.1	FR
HR	70.3	1.9	1.9	0.6	-0.9	2.2	-0.1	0.4	-0.6	0.1	2.0	0.2	-0.2	2.1	0.0	0.1	-0.3	0.2	0.6	-0.6	0.0	HR
IT	70.6	2.8	3.1	0.0	-1.8	4.8	-0.2	0.0	-2.0	1.8	3.3	0.0	0.2	3.0	-0.9	0.5	-2.8	1.4	0.2	-1.2	0.6	IT
CY	85.2	6.0	5.4	0.4	1.2	3.8	1.4	0.3	-0.1	1.1	4.0	0.1	1.3	2.7	0.5	-1.7	1.2	0.9	2.4	-1.9	0.1	CY
LV	83.6	4.2	3.5	0.2	0.9	2.4	1.5	0.1	0.3	1.1	2.0	0.0	0.7	1.3	1.3	0.5	4.1	-3.3	3.0	-1.7	-0.6	LV
LT	80.3	1.1	-0.2	0.2	-1.5	1.1	-0.4	0.2	-0.7	0.2	0.2	0.1	-0.8	0.9	1.7	0.3	5.0	-3.5	3.2	-1.5	-0.5	LT
LU	76.0	1.0	3.0	0.5	1.7	0.8	-0.2	0.1	0.1	-0.4	3.2	0.4	1.6	1.2	-2.0	0.4	-3.9	1.5	-1.2	-0.9	0.1	LU
HU	79.6	9.6	9.4	0.1	1.1	8.2	3.6	0.1	0.4	3.1	5.8	0.0	0.7	5.1	0.3	0.0	0.3	0.1	1.0	-0.6	-0.2	HU
MT	80.4	11.4	11.0	0.3	4.8	5.9	2.0	0.1	0.0	1.9	9.0	0.2	4.8	4.0	0.6	-0.9	1.8	-0.4	0.7	-0.1	-0.2	MT
NL	85.0	3.5	3.6	0.1	0.6	2.9	0.1	0.1	-0.6	0.7	3.5	0.0	1.2	2.2	-0.3	0.0	-1.3	1.0	0.8	-1.0	0.1	NL
AT	81.3	2.2	3.1	0.1	0.4	2.6	0.0	0.1	-0.6	0.5	3.1	0.0	1.0	2.1	-1.3	-0.4	-2.6	1.7	0.1	-1.4	0.3	AT
PL	76.1	3.4	3.1	0.0	-1.3	4.4	0.9	0.0	-0.4	1.4	2.2	0.0	-0.8	3.0	0.4	-0.4	0.8	0.1	0.8	-0.4	-0.1	PL
PT	80.5	2.2	3.2	0.1	0.1	3.0	0.1	0.0	-0.6	0.7	3.1	0.1	0.7	2.3	-1.6	0.2	-4.7	2.9	1.4	-3.0	0.5	PT
RO	67.8	-0.7	-0.6	0.0	-1.7	1.1	0.2	0.0	-0.4	0.6	-0.8	0.0	-1.3	0.5	-0.1	0.3	-0.5	0.1	0.2	-0.3	0.0	RO
SI	80.4	5.3	5.4	0.2	-1.0	6.2	1.9	0.1	-0.5	2.2	3.6	0.1	-0.5	3.9	0.3	1.0	0.0	-0.7	0.2	0.2	-0.5	SI
SK	77.2	1.6	1.4	0.2	-3.0	4.2	1.2	0.1	-0.5	1.6	0.2	0.0	-2.5	2.6	-0.6	-0.9	-1.5	1.9	0.2	-0.7	0.7	SK
FI	80.0	0.8	0.3	0.1	-0.5	0.7	-0.3	0.0	-0.6	0.4	0.6	0.0	0.2	0.3	0.5	0.0	1.9	-1.4	0.4	0.1	-0.1	FI
SE	87.7	1.8	1.5	0.1	1.2	0.2	0.8	0.0	0.5	0.2	0.7	0.0	0.6	0.0	0.3	-0.7	1.5	-0.5	0.4	-0.1	0.0	SE
UK	84.0	3.8	3.7	0.1	1.7	2.0	0.7	0.0	0.2	0.5	3.1	0.1	1.5	1.5	0.1	-0.3	-0.1	0.4	1.2	-1.1	0.0	UK
NO	83.1	0.9	1.2	0.3	1.2	-0.3	0.0	0.1	0.3	-0.4	1.2	0.2	0.9	0.1	-0.2	-0.3	-1.3	1.4	-0.5	0.3	-0.1	NO
EA	79.8	3.1	3.4	0.0	0.2	3.3	0.4	0.0	-0.7	1.0	3.1	0.0	0.8	2.3	-0.5	0.5	-1.9	0.9	0.5	-1.1	0.2	EA
EU	80.1	3.5	3.7	0.1	0.3	3.3	0.7	0.0	-0.4	1.0	3.0	0.1	0.7	2.2	-0.2	0.3	-1.1	0.6	0.7	-0.9	0.1	EU

Source: Commission services, EPC.

The demographic effect (i.e. the effect of the structure of the working age population) is negative in many Member States, being mainly driven by projected developments in the prime-age population (aged 25 to 54) and women. Women are associated with both positive participation and negative demographic effects. The former reflects the upward displacement of the participation rate age profile of younger cohorts embedded in the CSM, the latter reflects the ageing of the population which has a stronger impact on women than on men, largely due to their (still) relatively lower average exit ages from the labour force.

2.7. ASSUMPTIONS ON STRUCTURAL UNEMPLOYMENT

As in previous rounds of the Ageing Report, DG-ECFIN's structural unemployment rate estimates (NAWRU) are used as a proxy for structural unemployment rate in the baseline scenario.

As a general rule, actual unemployment rates are assumed to converge to NAWRU rates by 2018 corresponding to the closure of the output gap. On their turn, NAWRU rates are assumed to gradually [33] converge to the minimum of country-specific *Anchors* [34] or the weighted median of national *Anchors*, whichever is the lowest.

Anchor values are country-specific values for the NAWRU that are calculated assuming that non-structural variables are set at their average values, [35] thereby averaging out the impact of cyclical fluctuations, while structural variables are assumed to remain unchanged at their last observed values (i.e. "no policy change" principle).

Capping country-specific NAWRU values to the weighted median is done in order to avoid extrapolating into the far future too high unemployment rate values. [36] It should be noted

---

[33] The gradual convergence is assumed to be completed by 2040.

[34] Under the guidance of the EPC-OGWG and with the twin objectives of improving the medium-term framework for fiscal surveillance up to T+10 (currently 2023), and correcting for the counter-cyclicality of the NAWRU, DG ECFIN carried out some econometric work (Orlandi, 2012) leading to the estimation of *Anchor* values for the NAWRU.

[35] Over the estimation sample.

[36] Furthermore, for those countries were current NAWRU anchors exceed unemployment rates for 2060 projected in the 2012 Ageing Report, only half of the increase is retained.

that this cap on unemployment rates is a crucial assumption for some countries which currently register high levels. Higher long-term unemployment than assumed here would, through weaker employment growth, lead to lower potential output growth. ([37])

Table I.2.17:   **Unemployment rate assumptions (ages 15-64, in percentage)**

	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	
BE	8.4	8.2	7.9	7.5	7.4	7.4	7.4	7.4	7.4	7.4	7.4	BE
BG	10.3	12.5	11.9	9.9	9.1	8.2	7.5	7.5	7.5	7.5	7.5	BG
CZ	7.4	6.6	6.3	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	CZ
DK	7.6	6.6	5.5	5.0	4.9	4.9	4.9	4.9	4.9	4.9	4.9	DK
DE	7.2	5.1	4.7	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	DE
EE	17.1	7.5	7.8	8.3	8.0	7.7	7.5	7.5	7.5	7.5	7.5	EE
IE	14.1	10.2	10.2	9.0	8.2	7.4	6.8	6.8	6.8	6.8	6.8	IE
EL	12.9	24.0	22.1	17.2	13.7	10.3	7.5	7.5	7.5	7.5	7.5	EL
ES	20.0	24.0	19.5	15.0	12.3	9.6	7.5	7.5	7.5	7.5	7.5	ES
FR	9.3	10.2	9.6	9.4	8.7	8.0	7.5	7.5	7.5	7.5	7.5	FR
HR	12.1	18.0	13.5	11.9	10.3	8.7	7.5	7.5	7.5	7.5	7.5	HR
IT	8.5	12.5	10.6	9.2	8.6	8.0	7.5	7.5	7.5	7.5	7.5	IT
CY	6.5	18.4	16.6	12.3	10.1	7.8	6.1	6.1	6.1	6.1	6.1	CY
LV	19.8	9.6	12.4	11.8	10.3	8.7	7.5	7.5	7.5	7.5	7.5	LV
LT	18.1	9.7	10.8	10.7	9.6	8.4	7.5	7.5	7.5	7.5	7.5	LT
LU	4.4	5.5	5.1	4.3	4.3	4.3	4.2	4.2	4.2	4.2	4.2	LU
HU	11.2	8.9	8.6	7.6	7.6	7.5	7.5	7.5	7.5	7.5	7.5	HU
MT	6.9	6.5	6.6	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	MT
NL	4.5	7.3	5.9	4.4	4.2	4.1	3.9	3.9	3.9	3.9	3.9	NL
AT	4.5	4.7	4.2	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	AT
PL	9.7	9.5	8.7	9.1	8.5	7.9	7.5	7.5	7.5	7.5	7.5	PL
PT	11.4	14.8	12.6	8.9	8.4	7.9	7.5	7.5	7.5	7.5	7.5	PT
RO	7.6	7.1	7.1	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	RO
SI	7.4	9.8	9.1	6.9	6.7	6.5	6.4	6.4	6.4	6.4	6.4	SI
SK	14.4	12.9	12.8	12.7	10.8	9.0	7.5	7.5	7.5	7.5	7.5	SK
FI	8.5	8.4	7.3	7.1	7.0	6.9	6.9	6.9	6.9	6.9	6.9	FI
SE	8.8	7.2	6.4	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	SE
UK	7.9	6.3	6.5	6.5	6.4	6.2	6.1	6.1	6.1	6.1	6.1	UK
NO	3.6	3.9	3.3	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	NO
EA	10.2	11.4	10.0	8.9	8.1	7.3	6.6	6.6	6.6	6.7	6.7	EA
EU	9.7	10.2	9.2	8.4	7.7	7.1	6.6	6.6	6.6	6.6	6.6	EU

Source: Commission services, EPC.

In order to avoid changes in total/average unemployment rates as a result of the interaction between cohort-specific structural unemployment rates and the structure of the labour force, the age-specific unemployment rates (by gender) for each projection year are calculated as follows:

$$u_{a,g}^t = \frac{u_{total}^t}{\sum_{a,g} \left\{ u_{a,g}^{2013} * l_{a,g}^t \right\}} * u_{a,g}^{2013}$$

where

$$l_{a,g}^t = \frac{LF_{a,g}^t}{LF_{total}^t}$$

2.5

([37]) Capping unemployment rates has also its own risks, because it essentially presumes the implementation of future labour market structural reforms, thereby possibly overestimating potential GDP growth.

---

where $u_{a,g}^t$ is the unemployment rate in age group a, gender g, and period t; u_{total}^t is the total unemployment rate in period t; and $l_{a,g}^t$ is the fraction in the total labour force.

This means that the unemployment rate structure (by age and gender) observed in the base year (2013) is kept unchanged throughout the projection period, thereby age/gender values are adjusted proportionally in order to satisfy a given total unemployment rate target.

Table I.2.17 presents the unemployment rate assumptions. In the EU, the unemployment rate is assumed to decline by 3.1 pp (from 9.7% in 2010 to 6.6% in 2060). In the euro area, the unemployment rate is expected to fall from 10.2% in 2010 to 6.7% in 2060.

2.8.   EMPLOYMENT PROJECTIONS

The methodology used projects employment as a residual variable. Employment is determined given Eurostat's population projections, future participation rates derived using the CSM, and finally the unemployment rate assumptions. The total employment rate (for individuals aged 20 to 64) in the EU is projected to increase from 68.4% in 2013 to 72.2% in 2023 and 75.1% in 2060. In the euro area, a similar development is expected, with the employment rate attaining 74.7% in 2060 (see Table I.2.18).

The aftermath of the 2008-2009 economic recession has complicated the task of producing comparable employment rate projections (both across countries and projection rounds). Firstly, the methodology used in general, and in particular the capping of unemployment rates, tends to generate stronger declines (rises) in unemployment (employment) rates in those Member States that have undergone the more severe increases in unemployment rates during the crisis. Secondly, in some Member States, employment rate projections are also negatively affected by the downward revision in participation rates, namely for prime-age male workers.

The employment rate of women is projected to rise from 62.6% in 2013 to 67.3% in 2023 and 71.2% in 2060. The employment rate for older workers is

expected to increase by even more, from 50.3% in 2013 to 60.9% in 2023 and 67.1% in 2060, reflecting the expected impact of recent pension reforms in many Member States aiming at increasing the retirement age.

The number of persons employed (using the LFS definition) is projected to record an annual growth rate of only 0.2% over the period 2013 to 2023 (a deceleration from 0.4% over the period 2003-2013), which is expected to revert to -0.2% over the period 2023 to 2060 (see Table I.2.19). The outcome of these opposite trends is a cumulated overall decline of about 8.7 million workers over the entire 2013-2060 period in the EU. The negative prospects for population developments, including the rapid ageing of the population, will only be partly offset by the increase in (female and older workers) participation rates and migration inflows, leading to an overall reduction in employment levels after the middle of the next decade.

Mainly as a result of the ageing process, the age structure of the working population is projected to undergo a number of significant changes. The share of older workers (aged 55 to 64) in the labour force (aged 20 to 64) is projected to rise by around one-third, rising from 13.7% in 2013 to 18.3% in 2060 in the EU (see Table I.2.23). In the euro area, it is projected to rise by slightly more, reaching 18.9% in 2060. The projected increase is above 50% in Greece, Spain, Slovakia, Italy, Portugal, Hungary, Slovenia and Cyprus.

2.9. RESULTING ECONOMIC DEPENDENCY RATIOS

The effective economic old age dependency ratio is an important indicator to assess the impact of ageing on budgetary expenditure, particularly on its pension component. This indicator is calculated as the ratio between the inactive elderly (65+) and total employment (either 20-64 or 20-74). The effective economic old age dependency ratio is projected to rise significantly from 42.3% in 2013 to 68.0% in 2060 in the EU (employed aged 20-64). In the euro area, a similar deterioration is projected from 45.3% in 2010 to 69.8% in 2060 (see Table I.2.24).

Across EU Member States, the effective economic old age dependency ratio is projected to range from a minimum of 49.2% in Denmark to a maximum of 93.0% in Slovakia in 2060. This ratio is expected to be above or equal to 80% in eight EU Member States, namely Bulgaria, Greece, Croatia, Italy, Poland, Portugal, Romania and Slovakia by 2060.

The total economic dependency ratio is calculated as the ratio between the total inactive population and employment. It gives a measure of the average number of individuals that each employed 'supports', being relevant when considering prospects for potential GDP per capita growth. It is expected to stabilise in the period up to the middle of the next decade slightly above 120% in the EU, and then to rise above 140% by 2060 (employed 20-64). A similar evolution is projected in the euro area. The projected development of this indicator reflects the strong impact of the ageing process after the middle of the next decade in most EU Member States. However, there are large cross-country differences. In Romania, Slovakia, Poland, Bulgaria, Estonia and Lithuania it is projected to increase by 35 pp or more between 2013 and 2060, while in others (France, Cyprus, Denmark, Spain and Greece) it is projected to rise by 10 pp or less.

Table I.2.18:   **Employment rate projections (Total, Women and Older Workers)**

	Total (20-64)			Women (20-64)			Older workers (55-64)			
	2013	2023	2060	2013	2023	2060	2013	2023	2060	
BE	67.2	70.3	70.6	62.1	66.5	67.8	41.6	52.2	53.5	BE
BG	63.7	68.2	70.2	60.8	64.6	65.7	47.6	52.6	56.7	BG
CZ	72.6	75.8	77.7	63.8	67.6	70.9	51.9	57.5	74.8	CZ
DK	75.7	79.0	79.5	72.5	76.8	77.8	62.0	72.9	75.4	DK
DE	77.3	78.2	80.0	72.5	74.3	77.3	63.7	68.4	71.8	DE
EE	73.4	75.5	77.9	70.1	73.3	75.6	62.6	64.3	71.0	EE
IE	65.6	68.0	69.6	60.3	63.6	65.3	51.2	58.0	61.3	IE
GR	52.6	63.9	76.0	43.0	55.8	69.9	35.5	56.7	74.6	GR
ES	58.3	69.8	79.0	53.2	67.6	78.6	43.4	63.2	77.9	ES
FR	69.6	71.7	74.4	65.6	68.2	71.0	45.8	55.8	60.2	FR
HR	56.9	60.9	65.3	53.0	58.1	62.8	37.1	41.7	48.8	HR
IT	59.7	64.1	65.5	49.8	55.4	58.5	42.8	59.8	66.7	IT
CY	66.3	72.8	80.2	61.5	68.7	76.2	49.8	63.1	74.8	CY
LV	69.9	71.0	77.5	67.7	69.0	75.1	55.0	58.6	68.5	LV
LT	69.8	69.6	74.4	68.5	68.6	72.9	53.4	55.6	61.4	LT
LU	70.7	73.0	72.9	63.4	68.3	69.3	40.2	43.5	44.9	LU
HU	63.0	73.5	73.8	56.9	69.0	69.2	38.6	69.6	73.6	HU
MT	65.0	71.3	75.6	49.8	60.1	67.0	36.5	45.2	60.8	MT
NL	76.5	79.5	81.9	71.5	76.0	79.8	60.1	67.5	74.8	NL
AT	75.5	76.9	78.4	70.7	73.2	76.6	44.8	54.5	58.3	AT
PL	65.2	68.6	70.5	58.0	61.0	64.4	40.8	49.3	60.9	PL
PT	65.4	72.8	74.7	62.3	71.3	73.9	46.8	59.3	64.5	PT
RO	63.6	65.1	63.4	55.9	56.5	54.8	41.4	47.8	47.2	RO
SI	67.4	74.7	75.3	63.2	71.8	72.9	33.1	58.4	61.0	SI
SK	65.2	66.5	71.6	57.9	59.7	63.2	44.1	50.8	67.1	SK
FI	73.2	75.1	75.1	71.9	73.6	74.3	58.4	63.6	62.1	FI
SE	79.8	82.6	83.3	77.2	79.7	80.5	73.7	74.5	76.0	SE
UK	74.8	76.9	79.6	69.3	72.4	76.1	59.9	64.7	70.6	UK
NO	79.7	80.1	80.5	77.1	78.3	79.3	71.2	69.7	69.9	NO
EA	67.7	71.8	74.7	62.0	67.3	71.3	50.1	61.6	67.3	EA
EU	68.4	72.2	75.1	62.6	67.3	71.2	50.3	60.9	67.1	EU

Source: Commission services, EPC.

Table I.2.19:   **Employment projections (20-64)**

	Persons (in thousands)			Changes (in thousands)			Changes (in %)			Annual growth rate			
	2013	2023	2060	2013-2023	2023-2060	2013-2060	2013-2023	2023-2060	2013-2060	2013-2023	2023-2060	2013-2060	
BE	4491	4909	5841	418	932	1349	9.3	19.0	30.0	0.9	0.5	0.6	BE
BG	2891	2714	1885	-177	-829	-1006	-6.1	-30.5	-34.8	-0.6	-1.0	-0.9	BG
CZ	4831	4703	4377	-128	-326	-454	-2.7	-6.9	-9.4	-0.3	-0.2	-0.2	CZ
DK	2476	2643	2779	167	136	303	6.8	5.1	12.2	0.7	0.1	0.2	DK
DE	38438	36738	28326	-1699	-8412	-10112	-4.4	-22.9	-26.3	-0.5	-0.7	-0.6	DE
EE	593	537	419	-55	-118	-174	-9.3	-22.0	-29.3	-1.0	-0.7	-0.7	EE
IE	1795	1751	1956	-44	205	161	-2.4	11.7	9.0	-0.2	0.3	0.2	IE
GR	3492	3906	3212	413	-694	-281	11.8	-17.8	-8.0	1.1	-0.5	-0.2	GR
ES	16915	18821	18787	1906	-33	1873	11.3	-0.2	11.1	1.1	0.0	0.2	ES
FR	26353	26970	29338	617	2368	2985	2.3	8.8	11.3	0.2	0.2	0.2	FR
HR	1480	1477	1247	-2	-231	-233	-0.2	-15.6	-15.8	0.0	-0.5	-0.4	HR
IT	21563	23489	22455	1926	-1034	893	8.9	-4.4	4.1	0.9	-0.1	0.1	IT
CY	366	398	474	32	75	107	8.7	18.9	29.3	0.8	0.5	0.5	CY
LV	869	731	538	-138	-193	-331	-15.9	-26.3	-38.1	-1.7	-0.8	-1.0	LV
LT	1256	995	684	-261	-311	-572	-20.8	-31.3	-45.6	-2.3	-1.0	-1.3	LT
LU	242	308	463	66	155	222	27.4	50.4	91.6	2.4	1.1	1.4	LU
HU	3905	4252	3455	347	-797	-450	8.9	-18.7	-11.5	0.9	-0.6	-0.3	HU
MT	171	183	183	12	0	13	7.3	0.3	7.6	0.7	0.0	0.2	MT
NL	7701	7890	7285	189	-605	-416	2.5	-7.7	-5.4	0.2	-0.2	-0.1	NL
AT	3956	4147	3971	191	-176	15	4.8	-4.2	0.4	0.5	-0.1	0.0	AT
PL	16277	15657	11545	-620	-4112	-4732	-3.8	-26.3	-29.1	-0.4	-0.8	-0.7	PL
PT	4134	4293	3051	159	-1241	-1082	3.8	-28.9	-26.2	0.4	-0.9	-0.6	PT
RO	7953	7489	5583	-464	-1906	-2370	-5.8	-25.4	-29.8	-0.6	-0.8	-0.7	RO
SI	881	904	777	23	-127	-104	2.6	-14.1	-11.8	0.3	-0.4	-0.3	SI
SK	2315	2219	1599	-96	-620	-716	-4.2	-27.9	-30.9	-0.4	-0.9	-0.8	SK
FI	2337	2357	2450	20	94	113	0.8	4.0	4.8	0.1	0.1	0.1	FI
SE	4442	4788	5726	346	938	1284	7.8	19.6	28.9	0.8	0.5	0.5	SE
UK	28279	29647	33294	1367	3648	5015	4.8	12.3	17.7	0.5	0.3	0.3	UK
NO	2409	2722	3544	313	822	1135	13.0	30.2	47.1	1.2	0.7	0.8	NO
EA	136611	140550	131126	3939	-9424	-5485	2.9	-6.7	-4.0	0.3	-0.2	-0.1	EA
EU	210401	214916	201702	4515	-13214	-8699	2.1	-6.1	-4.1	0.2	-0.2	-0.1	EU

Source: Commission services, EPC.

Table I.2.20:   **Employment rate projections by age group, total**

	Total 15-64		Total 20-64		Young 20-24		Prime age 25-54		Older 55-64		15-64	20-64	20-24	25-54	55-64	
	2013	2060	2013	2060	2013	2060	2013	2060	2013	2060	Changes in 2013-2060					
BE	61.8	64.2	67.2	70.6	40.9	43.6	79.1	80.1	41.6	53.5	2.4	3.3	2.7	1.0	11.9	BE
BG	59.6	64.1	63.7	70.2	35.5	43.9	73.3	78.4	47.6	56.7	4.4	6.5	8.4	5.1	9.1	BG
CZ	67.8	70.4	72.6	77.7	42.6	44.0	83.5	83.8	51.9	74.8	2.6	5.1	1.4	0.3	22.9	CZ
DK	72.6	76.5	75.7	79.5	63.1	66.2	82.0	83.1	62.0	75.4	3.9	3.9	3.0	1.0	13.4	DK
DE	73.5	75.5	77.3	80.0	64.3	64.6	83.3	85.2	63.7	71.8	2.0	2.7	0.3	1.8	8.0	DE
EE	68.6	70.7	73.4	77.9	51.3	54.4	80.4	83.5	62.6	71.0	2.1	4.5	3.1	3.1	8.4	EE
IE	60.4	63.5	65.6	69.6	49.5	57.6	71.0	73.8	51.2	61.3	3.1	4.1	8.1	2.8	10.1	IE
GR	48.7	69.8	52.6	76.0	22.5	43.5	61.3	81.5	35.5	74.6	21.1	23.4	21.1	20.2	39.1	GR
ES	54.5	73.0	58.3	79.0	28.9	51.4	65.3	83.3	43.4	77.9	18.5	20.7	22.5	18.0	34.5	ES
FR	63.9	68.1	69.6	74.4	47.6	51.8	80.7	82.7	45.8	60.2	4.1	4.8	4.2	2.0	14.4	FR
HR	52.3	60.4	56.9	65.3	25.7	42.6	68.2	74.4	37.1	48.8	8.1	8.4	16.9	6.2	11.7	HR
IT	55.5	60.3	59.7	65.5	28.9	35.8	68.4	69.4	42.8	66.7	4.8	5.8	6.9	1.0	23.9	IT
CY	60.6	73.8	66.3	80.2	39.3	56.9	75.5	85.0	49.8	74.8	13.2	13.9	17.6	9.6	25.0	CY
LV	65.3	69.9	69.9	77.5	49.2	55.4	77.9	83.0	55.0	68.5	4.7	7.6	6.2	5.2	13.5	LV
LT	63.8	66.6	69.8	74.4	43.0	49.1	79.5	81.2	53.4	61.4	2.8	4.6	6.2	1.7	8.1	LT
LU	65.3	67.0	70.7	72.9	36.2	42.5	82.9	86.5	40.2	44.9	1.7	2.2	6.3	3.6	4.7	LU
HU	58.0	67.5	63.0	73.8	35.5	39.2	75.7	79.1	38.6	73.6	9.5	10.8	3.7	3.4	35.0	HU
MT	61.0	70.3	65.0	75.6	68.9	70.8	74.2	81.0	36.5	60.8	9.3	10.6	1.8	6.8	24.4	MT
NL	74.3	79.6	76.5	81.9	71.6	75.7	82.4	85.3	60.1	74.8	5.3	5.4	4.1	2.9	14.8	NL
AT	72.3	75.0	75.5	78.4	69.0	71.7	84.9	86.3	44.8	58.3	2.7	3.0	2.7	1.4	13.5	AT
PL	60.3	64.7	65.2	70.5	41.5	45.1	76.9	77.4	40.8	60.9	4.4	5.4	3.5	0.4	20.1	PL
PT	60.6	69.6	65.4	74.7	37.8	50.2	74.5	82.3	46.8	64.5	8.9	9.3	12.4	7.8	17.7	PT
RO	59.1	58.2	63.6	63.4	35.9	36.3	74.9	73.0	41.4	47.2	-1.0	-0.2	0.5	-1.9	5.8	RO
SI	63.4	69.1	67.4	75.3	39.6	46.3	82.0	83.9	33.1	61.0	5.7	7.9	6.7	2.0	27.9	SI
SK	60.1	66.1	65.2	71.6	35.7	43.7	76.1	77.0	44.1	67.1	6.0	6.4	8.0	0.9	22.9	SK
FI	68.8	70.3	73.2	75.1	58.7	61.2	81.0	81.4	58.4	62.1	1.5	1.8	2.6	0.4	3.7	FI
SE	74.6	77.4	79.8	83.3	59.1	63.3	85.4	88.6	73.7	76.0	2.8	3.5	4.3	3.2	2.3	SE
UK	70.4	74.6	74.8	79.6	63.1	66.3	80.9	84.3	59.9	70.6	4.2	4.8	3.2	3.4	10.7	UK
NO	75.5	76.3	79.7	80.5	67.4	69.5	84.1	85.7	71.2	69.9	0.8	0.8	2.1	1.6	-1.4	NO
EA	63.5	69.4	67.7	74.7	46.8	52.5	75.8	80.6	50.1	67.3	5.9	7.0	5.7	4.7	17.2	EA
EU	64.0	69.7	68.4	75.1	48.0	53.7	76.8	80.9	50.3	67.1	5.7	6.7	5.8	4.1	16.8	EU

Source: Commission services, EPC

Table I.2.21:   **Employment rate projections by age group, men**

	Total 15-64		Total 20-64		Young 20-24		Prime age 25-54		Older 55-64		15-64	20-64	20-24	25-54	55-64	
	2013	2060	2013	2060	2013	2060	2013	2060	2013	2060	Changes in 2013-2060					
BE	66.4	66.6	72.3	73.2	43.7	46.1	84.0	83.1	47.7	55.0	0.3	0.9	2.3	-0.9	7.3	BE
BG	62.2	68.0	66.6	74.5	39.7	50.3	75.0	81.3	52.2	64.3	5.8	8.0	10.6	6.3	12.1	BG
CZ	75.8	76.3	81.1	84.3	49.6	51.2	91.2	91.5	62.8	77.1	0.6	3.1	1.5	0.3	14.3	CZ
DK	75.0	77.7	78.8	81.2	63.5	66.7	85.0	85.1	66.9	76.5	2.7	2.4	3.2	0.1	9.6	DK
DE	77.9	77.9	82.0	82.5	65.6	65.8	87.9	88.3	70.0	73.0	0.0	0.5	0.2	0.4	3.0	DE
EE	71.5	72.6	76.8	80.1	55.4	59.2	84.6	86.3	61.6	69.2	1.1	3.3	3.8	1.7	7.6	EE
IE	65.1	67.2	70.9	73.7	49.2	58.9	76.7	78.8	59.2	63.8	2.1	2.8	9.7	2.1	4.5	IE
GR	57.6	75.2	62.2	81.9	26.9	47.8	71.3	87.3	46.0	81.4	17.6	19.7	20.9	16.0	35.3	GR
ES	59.2	73.4	63.4	79.3	29.5	53.4	70.2	84.3	51.0	75.1	14.3	15.9	23.9	14.1	24.1	ES
FR	67.7	71.2	73.7	77.7	51.2	55.6	85.2	86.4	48.5	61.4	3.6	4.0	4.4	1.3	12.9	FR
HR	55.8	62.6	60.9	67.8	30.8	51.3	70.6	76.6	44.5	49.0	6.8	6.9	20.6	6.0	4.4	HR
IT	64.7	66.6	69.8	72.4	33.4	40.8	79.1	77.1	53.1	72.0	1.9	2.6	7.4	-2.0	18.8	IT
CY	65.1	77.7	71.5	84.2	40.4	60.9	80.4	88.8	61.2	79.2	12.6	12.6	20.5	8.4	17.9	CY
LV	67.2	72.0	72.2	79.7	54.6	61.6	79.8	84.7	55.6	69.9	4.8	7.5	7.0	5.0	14.2	LV
LT	64.8	67.9	71.3	75.8	47.9	55.4	79.8	81.9	56.2	61.6	3.2	4.5	7.6	2.1	5.5	LT
LU	71.8	70.3	77.6	76.4	40.0	44.7	90.0	91.5	48.3	44.1	-1.5	-1.3	4.6	1.5	-4.1	LU
HU	63.7	71.6	69.3	78.3	39.9	44.3	81.3	84.3	46.1	75.7	7.9	9.0	4.4	3.1	29.6	HU
MT	74.5	77.9	79.7	83.7	71.0	72.3	89.6	89.6	54.6	70.4	3.4	4.0	1.2	0.0	15.8	MT
NL	78.6	81.3	81.3	83.8	71.3	75.6	86.4	87.0	70.2	78.3	2.7	2.5	4.3	0.6	8.2	NL
AT	77.1	77.1	80.2	80.2	71.1	74.9	88.5	87.9	54.4	60.0	0.0	0.0	3.8	-0.7	5.5	AT
PL	66.9	70.2	72.5	76.5	48.7	52.5	82.7	83.6	51.5	65.1	3.2	4.0	3.7	0.8	13.5	PL
PT	63.4	70.3	68.6	75.4	40.0	52.0	76.9	83.0	53.5	65.1	6.8	6.8	12.0	6.1	11.6	PT
RO	66.3	65.9	71.4	71.9	41.5	41.7	81.8	81.2	51.4	57.5	-0.4	0.5	0.2	-0.5	6.1	RO
SI	67.3	71.2	71.5	77.5	43.7	50.1	84.4	86.2	41.4	62.0	3.9	6.0	6.3	1.9	20.6	SI
SK	66.7	73.6	72.3	79.7	42.6	53.1	82.3	86.0	53.4	72.3	6.9	7.4	10.5	3.6	18.9	SK
FI	69.6	70.6	74.6	75.8	56.9	59.7	83.8	83.2	56.5	60.6	0.9	1.2	2.7	-0.6	4.0	FI
SE	76.5	79.4	82.3	85.9	59.9	64.6	87.9	91.0	76.9	80.1	3.0	3.6	4.7	3.1	3.2	SE
UK	75.1	77.4	80.4	83.0	65.0	68.3	86.7	88.4	66.9	72.3	2.3	2.6	3.3	1.7	5.4	UK
NO	77.3	77.1	82.1	81.8	67.1	68.7	86.5	87.2	75.2	71.3	-0.3	-0.4	1.6	0.7	-3.9	NO
EA	68.8	72.5	73.5	78.0	49.2	55.4	81.6	84.4	57.0	69.2	3.7	4.5	6.2	2.8	12.2	EA
EU	69.3	73.1	74.2	78.8	51.0	57.0	82.5	85.1	57.6	69.4	3.8	4.5	6.0	2.6	11.8	EU

Source: Commission services, EPC.

Table I.2.22: **Employment rate projections by age group, women**

	Total 15-64		Total 20-64		Young 20-24		Prime age 25-54		Older 55-64		15-64	20-64	20-24	25-54	55-64	
	2013	2060	2013	2060	2013	2060	2013	2060	2013	2060	Changes in 2013-2060					
BE	57.2	61.7	62.1	67.8	38.0	41.1	74.0	77.0	35.6	51.9	4.6	5.7	3.1	3.0	16.3	BE
BG	57.0	59.9	60.8	65.7	31.0	37.2	71.5	75.3	43.6	49.1	3.0	4.9	6.1	3.8	5.5	BG
CZ	59.6	64.2	63.8	70.9	35.3	36.4	75.4	75.8	41.6	72.4	4.6	7.1	1.2	0.4	30.8	CZ
DK	70.1	75.2	72.5	77.8	62.8	65.6	79.0	81.0	57.1	74.3	5.1	5.3	2.8	1.9	17.2	DK
DE	69.0	73.0	72.5	77.3	62.9	63.4	78.6	81.9	57.6	70.5	4.0	4.9	0.5	3.3	12.9	DE
EE	65.8	68.8	70.1	75.6	46.9	49.3	76.1	80.6	63.4	72.8	3.0	5.5	2.4	4.5	9.4	EE
IE	55.9	59.6	60.3	65.3	49.8	56.3	65.6	68.5	43.3	58.8	3.8	5.0	6.5	2.9	15.4	IE
GR	39.9	64.2	43.0	69.9	17.8	38.9	51.3	75.4	25.8	67.8	24.2	26.9	21.2	24.1	41.9	GR
ES	49.8	72.5	53.2	78.6	28.3	49.3	60.4	82.3	36.2	80.9	22.7	25.4	21.0	21.9	44.7	ES
FR	60.3	64.8	65.6	71.0	43.9	47.8	76.2	78.7	43.3	59.0	4.5	5.4	3.8	2.5	15.8	FR
HR	48.7	58.0	53.0	62.8	20.4	33.3	65.7	72.1	30.1	48.7	9.3	9.8	13.0	6.5	18.6	HR
IT	46.4	53.8	49.8	58.5	24.3	30.6	57.8	61.5	33.2	61.4	7.4	8.7	6.4	3.7	28.2	IT
CY	56.4	69.9	61.5	76.2	38.1	52.9	71.1	81.2	38.8	70.3	13.5	14.7	14.8	10.1	31.6	CY
LV	63.4	67.8	67.7	75.1	43.4	48.8	76.0	81.2	54.6	67.2	4.3	7.4	5.4	5.2	12.7	LV
LT	62.8	65.2	68.5	72.9	37.8	42.5	79.3	80.6	51.2	61.2	2.4	4.5	4.7	1.2	10.0	LT
LU	58.6	63.6	63.4	69.3	32.2	40.2	75.4	81.2	31.9	45.8	5.0	5.9	8.0	5.8	13.9	LU
HU	52.5	63.3	56.9	69.2	30.8	33.8	70.1	73.7	32.3	71.5	10.8	12.3	3.0	3.7	39.2	HU
MT	47.0	62.4	49.8	67.0	66.7	69.2	58.0	71.8	18.4	51.0	15.3	17.2	2.5	13.8	32.6	MT
NL	69.9	77.9	71.5	79.8	71.9	75.7	78.3	83.5	50.0	71.3	8.0	8.3	3.8	5.2	21.3	NL
AT	67.6	72.8	70.7	76.6	66.9	68.4	81.2	84.7	35.7	56.5	5.3	5.9	1.5	3.4	20.8	AT
PL	53.7	59.1	58.0	64.4	34.0	37.2	71.1	70.9	31.1	56.7	5.4	6.5	3.2	-0.1	25.5	PL
PT	57.9	68.8	62.3	73.9	35.5	48.3	72.2	81.6	40.8	63.9	10.9	11.6	12.8	9.4	23.1	PT
RO	52.0	50.2	55.9	54.8	29.8	30.7	67.8	64.5	32.6	36.9	-1.7	-1.1	1.0	-3.3	4.3	RO
SI	59.4	66.9	63.2	72.9	35.3	42.3	79.4	81.5	24.7	60.0	7.5	9.8	7.0	2.1	35.3	SI
SK	53.5	58.4	57.9	63.2	28.5	33.8	69.6	67.7	35.8	61.8	4.8	5.3	5.3	-1.9	26.0	SK
FI	67.9	70.1	71.9	74.3	60.5	62.9	78.1	79.6	60.1	63.7	2.2	2.5	2.4	1.5	3.5	FI
SE	72.7	75.3	77.2	80.5	58.2	62.0	82.7	86.0	70.5	71.8	2.7	3.3	3.8	3.3	1.3	SE
UK	65.7	71.6	69.3	76.1	61.3	64.3	75.2	80.1	53.1	68.9	5.9	6.8	3.0	4.9	15.8	UK
NO	73.5	75.5	77.1	79.3	67.7	70.4	81.6	84.1	67.2	68.4	2.0	2.1	2.7	2.6	1.2	NO
EA	58.2	66.1	62.0	71.3	44.3	49.4	70.0	76.5	43.6	65.4	7.9	9.3	5.2	6.5	21.8	EA
EU	58.7	66.2	62.6	71.2	44.8	50.3	71.1	76.6	43.3	64.6	7.4	8.6	5.5	5.5	21.3	EU

Source: Commission services, EPC.

Table I.2.23: **Share of older workers aged 55 to 64 as percentage of the labour force aged 20 to 64**

	Total			Men			Women			
	2013	2023	2060	2013	2023	2060	2013	2023	2060	
BE	11.8	15.5	14.7	12.4	15.6	14.4	11.1	15.5	15.0	BE
BG	14.9	15.7	15.8	14.5	15.9	16.5	15.4	15.4	14.9	BG
CZ	14.5	14.7	17.9	15.2	15.3	17.0	13.6	13.9	19.0	CZ
DK	16.2	20.2	20.0	16.7	20.0	19.8	15.7	20.5	20.3	DK
DE	17.0	23.3	20.6	17.1	23.3	20.1	16.8	23.2	21.2	DE
EE	16.5	17.9	15.9	13.9	15.5	14.7	19.2	20.5	17.2	EE
IE	11.8	16.4	14.2	12.4	16.5	13.6	11.1	16.3	15.0	IE
GR	9.8	17.2	20.1	10.7	17.8	20.1	8.5	16.5	20.1	GR
ES	10.1	18.7	18.7	10.8	18.6	17.8	9.4	18.9	19.7	ES
FR	13.0	16.0	15.9	12.7	15.4	15.4	13.3	16.6	16.6	FR
HR	12.5	14.3	16.2	13.5	14.0	15.3	11.3	14.6	17.1	HR
IT	13.1	21.1	22.2	13.6	21.3	21.7	12.3	20.9	22.7	IT
CY	11.1	15.2	16.9	12.8	15.5	17.1	9.2	14.9	16.6	CY
LV	14.5	17.8	12.7	12.7	16.0	12.0	16.3	19.6	13.4	LV
LT	13.7	19.1	11.1	12.7	17.3	10.4	14.8	20.8	11.8	LT
LU	9.6	11.4	12.6	10.5	11.3	11.9	8.4	11.5	13.5	LU
HU	12.7	17.5	21.1	12.8	15.9	20.2	12.6	19.3	22.2	HU
MT	11.9	12.4	16.3	14.3	14.0	16.8	8.1	10.2	15.6	MT
NL	15.9	19.9	20.4	17.3	21.1	20.5	14.3	18.6	20.2	NL
AT	11.0	16.9	16.4	12.3	18.1	16.4	9.6	15.5	16.5	AT
PL	12.4	13.2	17.6	13.5	14.4	17.0	11.1	11.6	18.2	PL
PT	12.6	18.1	21.0	13.3	18.3	20.5	11.8	18.0	21.5	PT
RO	13.3	13.8	15.3	13.7	14.5	16.1	12.8	12.9	14.2	RO
SI	9.8	17.6	15.3	11.4	17.5	14.9	7.9	17.7	15.8	SI
SK	12.0	13.6	20.9	12.4	12.5	20.0	11.5	15.0	22.1	SK
FI	17.6	18.2	16.8	16.2	17.0	16.0	19.1	19.5	17.7	FI
SE	17.8	18.5	17.3	17.7	18.6	17.7	17.9	18.4	17.0	SE
UK	14.4	17.9	16.8	14.8	17.6	16.3	14.0	18.3	17.3	UK
NO	17.1	17.1	18.2	17.2	17.2	18.2	16.9	17.0	18.1	NO
EA	13.6	19.4	18.9	13.9	19.4	18.4	13.2	19.4	19.4	EA
EU	13.7	18.3	18.3	14.1	18.4	17.8	13.3	18.3	18.8	EU

Source: Commission services, EPC.

Table I.2.24: **Effective economic old age dependency ratio**

	Inactive population aged 65 and more over employment (20-64)					Inactive population aged 65 and more over employment (20-74)					
	2013	2023	2060	Change 2013-2023	Change 2023-2060	2013	2023	2060	Change 2013-2023	Change 2023-2060	
BE	43.3	47.3	61.2	4.0	13.9	43.0	46.8	60.4	3.8	13.6	BE
BG	47.0	52.5	86.6	5.5	34.0	46.3	50.5	82.3	4.2	31.8	BG
CZ	35.4	45.3	64.6	9.9	19.3	34.8	44.0	60.4	9.2	16.4	CZ
DK	38.3	41.9	49.2	3.6	7.4	37.3	40.2	45.3	2.9	5.1	DK
DE	42.4	48.7	74.9	6.3	26.2	41.5	46.6	70.8	5.1	24.2	DE
EE	36.0	46.2	72.3	10.1	26.1	34.6	44.1	68.6	9.5	24.5	EE
IE	29.2	38.1	53.8	8.9	15.8	28.5	36.5	52.0	8.0	15.5	IE
GR	62.6	58.9	80.4	-3.6	21.5	61.7	57.4	75.0	-4.4	17.6	GR
ES	48.5	48.2	68.9	-0.3	20.7	48.2	46.8	65.8	-1.4	19.0	ES
FR	43.5	52.5	61.7	9.1	9.2	43.1	51.9	60.4	8.8	8.5	FR
HR	50.9	58.3	82.6	7.4	24.3	50.1	56.5	78.7	6.4	22.2	HR
IT	57.4	57.3	80.0	-0.1	22.7	56.4	55.1	73.8	-1.4	18.7	IT
CY	29.7	35.5	55.5	5.8	20.0	29.1	34.1	51.4	5.0	17.3	CY
LV	40.4	48.6	67.0	8.2	18.4	39.1	46.2	63.5	7.1	17.3	LV
LT	41.2	53.5	66.5	12.3	12.9	40.4	52.2	64.8	11.8	12.6	LT
LU	30.7	33.1	52.7	2.4	19.6	30.4	32.8	52.1	2.4	19.3	LU
HU	43.1	47.1	74.5	4.0	27.4	42.7	46.3	71.9	3.6	25.6	HU
MT	41.9	53.6	72.4	11.8	18.8	41.2	53.0	71.2	11.8	18.3	MT
NL	35.0	41.7	56.8	6.7	15.1	34.3	39.9	53.0	5.6	13.1	NL
AT	37.4	41.0	65.1	3.6	24.2	36.8	39.7	61.8	2.9	22.1	AT
PL	32.9	44.9	87.3	12.0	42.4	32.4	43.1	81.2	10.7	38.1	PL
PT	44.9	49.3	82.6	4.4	33.3	43.0	46.7	75.1	3.7	28.4	PT
RO	36.6	47.4	84.7	10.9	37.2	34.9	45.3	80.3	10.4	35.0	RO
SI	38.9	48.7	72.8	9.8	24.2	38.3	47.5	69.8	9.2	22.3	SI
SK	30.7	43.8	93.0	13.2	49.1	30.5	43.3	86.8	12.8	43.5	SK
FI	42.1	52.2	62.7	10.2	10.4	41.2	50.5	60.5	9.3	10.0	FI
SE	38.1	41.5	50.9	3.4	9.4	36.8	40.1	48.8	3.2	8.8	SE
UK	35.9	41.0	54.0	5.1	13.0	34.8	39.8	51.1	5.0	11.4	UK
NO	29.9	34.2	49.1	4.3	15.0	28.9	32.9	47.1	4.1	14.1	NO
EA	45.3	50.2	69.8	4.9	19.6	44.6	48.6	66.4	4.0	17.8	EA
EU	42.3	48.1	68.0	5.8	19.9	41.5	46.5	64.5	5.1	18.0	EU

Source: Commission services, EPC.

Table I.2.25: **Total economic dependency ratio**

	Total inactive population over employment (20-64)					Total inactive population over employment (20-74)					
	2013	2023	2060	Change 2013-2023	Change 2023-2060	2013	2023	2060	Change 2013-2023	Change 2023-2060	
BE	135.7	135.5	151.0	-0.3	15.6	134.7	133.9	149.0	-0.8	15.0	BE
BG	132.0	132.6	173.1	0.7	40.4	130.0	127.6	164.6	-2.4	37.0	BG
CZ	105.7	115.9	136.8	10.2	21.0	103.8	112.7	128.1	8.9	15.4	CZ
DK	107.2	103.8	112.6	-3.4	8.8	104.5	99.7	103.6	-4.8	3.9	DK
DE	99.2	104.3	133.2	5.0	29.0	97.3	99.9	126.0	2.6	26.1	DE
EE	105.1	117.2	143.1	12.1	25.9	100.8	112.0	135.7	11.2	23.8	EE
IE	132.2	141.9	151.8	9.7	9.9	129.0	136.0	146.5	7.0	10.5	IE
GR	172.5	139.9	148.0	-32.6	8.1	170.1	136.1	138.0	-34.0	1.9	GR
ES	135.4	115.2	129.2	-20.2	14.0	134.4	111.7	123.3	-22.6	11.6	ES
FR	132.7	137.6	142.7	4.9	5.1	131.6	135.7	139.5	4.2	3.8	FR
HR	161.0	160.6	179.7	-0.5	19.1	158.4	155.5	171.1	-3.0	15.6	HR
IT	160.4	149.6	175.4	-10.8	25.7	157.6	143.8	161.8	-13.8	18.0	IT
CY	110.7	103.8	119.1	-6.9	15.3	108.5	99.7	110.3	-8.8	10.6	CY
LV	111.5	122.9	141.9	11.3	19.0	108.1	116.8	134.4	8.7	17.6	LV
LT	116.7	133.0	153.6	16.3	20.6	114.5	129.6	149.7	15.1	20.0	LT
LU	113.7	113.1	137.1	-0.6	24.0	112.8	112.2	135.5	-0.6	23.3	LU
HU	138.4	117.1	150.4	-21.3	33.3	137.2	115.1	145.1	-22.1	30.1	HU
MT	133.9	130.5	145.8	-3.4	15.2	131.8	128.9	143.4	-2.9	14.5	MT
NL	99.2	100.3	113.2	1.0	12.9	97.1	95.8	105.5	-1.3	9.7	NL
AT	100.7	102.9	127.9	2.2	25.0	99.1	99.8	121.5	0.7	21.7	AT
PL	120.5	126.7	169.0	6.1	42.4	118.9	121.7	157.3	2.7	35.7	PL
PT	124.7	114.5	147.2	-10.2	32.7	119.3	108.4	133.7	-10.9	25.3	PT
RO	135.2	144.3	194.5	9.1	50.2	129.2	137.8	184.4	8.6	46.6	RO
SI	117.1	118.2	147.5	1.1	29.3	115.4	115.4	141.4	0.1	26.0	SI
SK	114.1	124.0	167.1	10.0	43.1	113.5	122.5	155.9	9.0	33.4	SK
FI	115.2	125.2	137.3	10.0	12.2	112.6	120.9	132.5	8.3	11.6	FI
SE	98.0	102.4	111.7	4.4	9.4	94.7	98.8	107.1	4.1	8.4	SE
UK	107.9	112.7	121.3	4.8	8.7	104.4	109.2	114.9	4.8	5.7	UK
NO	96.2	99.5	114.4	3.3	15.0	93.1	95.9	109.6	2.8	13.7	NO
EA	125.0	123.2	143.1	-1.7	19.8	123.0	119.3	136.0	-3.7	16.7	EA
EU	122.0	122.2	141.6	0.2	19.4	119.7	118.2	134.3	-1.5	16.2	EU

Source: Commission services, EPC.

Table I.2.26: **Projections for total weekly hours worked (thousands), and their breakdown in full- and part-time work, 2013-2060 (15-74)**

	Total	Full-time	Part-time	Total	Full-time	Part-time	Total	Full-time	Part-time	Total % change			Total Avg. Annual growth			
	2013	2013	2013	2020	2020	2020	2060	2060	2060	2020-2013	2060-2020	2060-2013	2020-2013	2060-2020	2060-2013	
BE	167882	84.7%	15.3%	180132	84.5%	15.5%	219153	84.3%	15.7%	7.3	21.7	30.5	1.0	0.5	0.6	BE
BG	117525	98.8%	1.2%	114284	98.7%	1.3%	79580	98.7%	1.3%	-2.8	-30.4	-32.3	-0.4	-0.8	-0.7	BG
CZ	194395	97.0%	3.0%	192006	96.9%	3.1%	184626	96.8%	3.2%	-1.2	-3.8	-5.0	-0.2	-0.1	-0.1	CZ
DK	93436	86.2%	13.8%	98871	86.2%	13.8%	110446	86.3%	13.7%	5.8	11.7	18.2	0.8	0.3	0.4	DK
DE	1427168	86.5%	13.5%	1419334	86.4%	13.6%	1088834	86.2%	13.8%	-0.5	-23.3	-23.7	-0.1	-0.6	-0.5	DE
EE	23850	95.3%	4.7%	22594	95.3%	4.7%	17102	95.3%	4.7%	-5.3	-24.3	-28.3	-0.8	-0.6	-0.6	EE
IE	65582	87.2%	12.8%	65458	87.0%	13.0%	72855	87.2%	12.8%	-0.2	11.3	11.1	0.0	0.3	0.2	IE
EL	137525	91.7%	8.3%	150770	91.6%	8.4%	134305	91.4%	8.6%	9.6	-10.9	-2.3	1.4	-0.3	0.0	EL
ES	638049	92.3%	7.7%	699165	92.1%	7.9%	739378	92.1%	7.9%	9.6	5.8	15.9	1.4	0.1	0.3	ES
FR	967660	88.8%	11.2%	983174	88.8%	11.2%	1095452	88.9%	11.1%	1.6	11.4	13.2	0.2	0.3	0.3	FR
HR	58934	96.8%	3.2%	60364	96.8%	3.2%	51541	96.7%	3.3%	2.4	-14.6	-12.5	0.3	-0.4	-0.3	HR
IT	799605	90.0%	10.0%	860320	89.8%	10.2%	886169	89.8%	10.2%	7.6	3.0	10.8	1.1	0.1	0.2	IT
CY	14363	94.1%	5.9%	15204	94.1%	5.9%	19671	94.1%	5.9%	5.9	29.4	37.0	0.8	0.7	0.8	CY
LV	34711	95.9%	4.1%	31507	95.8%	4.2%	22074	95.9%	4.1%	-9.2	-29.9	-36.4	-1.3	-0.7	-0.8	LV
LT	49193	95.2%	4.8%	42941	95.2%	4.8%	27028	95.3%	4.7%	-12.7	-37.1	-45.1	-1.8	-0.9	-1.0	LT
LU	9313	89.2%	10.8%	11030	88.9%	11.1%	17821	88.6%	11.4%	18.4	61.6	91.3	2.6	1.5	1.9	LU
HU	151364	96.2%	3.8%	162785	96.2%	3.8%	137484	96.1%	3.9%	7.5	-15.5	-9.2	1.1	-0.4	-0.2	HU
MT	6699	92.0%	8.0%	7003	91.7%	8.3%	7122	91.3%	8.7%	4.5	1.7	6.3	0.6	0.0	0.1	MT
NL	261527	66.6%	33.4%	269226	66.2%	33.8%	258473	66.0%	34.0%	2.9	-4.0	-1.2	0.4	-0.1	0.0	NL
AT	151199	85.5%	14.5%	158263	85.4%	14.6%	156629	85.2%	14.8%	4.7	-1.0	3.6	0.7	0.0	0.1	AT
PL	653515	96.2%	3.8%	657158	96.1%	3.9%	490415	96.0%	4.0%	0.6	-25.4	-25.0	0.1	-0.6	-0.5	PL
PT	168447	95.3%	4.7%	171622	95.3%	4.7%	130923	95.1%	4.9%	1.9	-23.7	-22.3	0.3	-0.6	-0.5	PT
RO	329211	93.9%	6.1%	316801	94.0%	6.0%	233690	93.9%	6.1%	-3.8	-26.2	-29.0	-0.5	-0.7	-0.6	RO
SI	35081	95.4%	4.6%	35698	95.4%	4.6%	31809	95.3%	4.7%	1.8	-10.9	-9.3	0.3	-0.3	-0.2	SI
SK	92114	97.8%	2.2%	91228	97.8%	2.2%	67933	97.8%	2.2%	-1.0	-25.5	-26.3	-0.1	-0.6	-0.6	SK
FI	88287	92.4%	7.6%	89789	92.4%	7.6%	93960	92.4%	7.6%	1.7	4.6	6.4	0.2	0.1	0.1	FI
SE	167554	83.7%	16.3%	177351	83.7%	16.3%	218687	83.7%	16.3%	5.8	23.3	30.5	0.8	0.6	0.6	SE
UK	1074465	86.4%	13.6%	1116028	86.4%	13.6%	1293073	86.3%	13.7%	3.9	15.9	20.3	0.6	0.4	0.4	UK
NO	87867	83.4%	16.6%	95996	83.4%	16.6%	129965	83.2%	16.8%	9.3	35.4	47.9	1.3	0.9	1.0	NO
EA	5089063	88.0%	12.0%	5261514	88.0%	12.0%	5059663	88.0%	12.0%	3.4	-3.8	-0.6	0.5	-0.1	0.0	EA
EU	7978654	89.3%	10.7%	8200104	89.1%	10.9%	7886234	88.8%	11.2%	2.8	-3.8	-1.2	0.4	-0.1	0.0	EU

Source: Commission services, EPC.

2.10.   PROJECTION OF TOTAL HOURS WORKED

Total hours worked are projected to increase by 2.8% in the period 2013 to 2020 in the EU (see Table I.2.26). ([38]) However from 2020 onwards, this upward trend is expected to be reversed and total hours worked are projected to decline by 3.8% between 2020 and 2060. Over the entire projection period (i.e. 2013 to 2060), total hours worked are expected to fall by 1.2% in the EU. For the euro area, the projected decline is less marked (-0.6% between 2013 and 2060). Expressed in terms of annual average growth rates, this decline of hours worked tends towards zero over the period 2013 to 2060 in both the EU and the euro area. ([39]) These trends in hours worked largely reflect employment trends (see Section 8 of this Chapter). In addition, given women's relatively high take-up rates of part-time work, their rising participation rates are expected – through composition effects – to slightly increase the total share of part time in total hours worked from 10.7% in 2013 to 11.2% in 2060 in the EU. ([40])

There are major differences across Member States, reflecting different demographic outlooks. A reduction in total hours worked of 20% or more between 2013 and 2060 is projected for Bulgaria, Germany, Estonia, Latvia, Lithuania, Poland, Portugal, Romania, and Slovakia. In contrast, for some Member States an increase of 10% or more is projected over the same period, namely for Belgium, Denmark, Ireland, Spain, France, Italy, Cyprus, Luxembourg, Sweden, and the UK.

2.11.   COMPARING THE 2015 AND 2012 LABOUR MARKET PROJECTIONS

This section provides a summary comparison of main labour market outcomes between the current

---

([38]) The total number of hours worked is the product between employment and hours worked per person. Regarding hours worked, the following assumptions are made: i) total amount of hours worked per person (in 2013) are kept constant by gender and type of work (part-time versus full time); and ii) the part-time share of total work by gender and age groups (15-24, 25-54 and 55-74) are kept constant over the entire projection period.
For France there was a break in the LFS between 2012 and 2013, which led to a downward revision in the average weekly hours worked.

([39]) Note that given the long period between 2013 and 2060 (47 years), relatively small annual variations can cumulate into relatively large ones over the period (e.g. an annual change of 0.5% compounds to 26.4% over the period).

([40]) Part-time work varies considerably across the EU, accounting for about 2% of total hours worked in Bulgaria and Slovakia to over 30% in the Netherlands.

2015 projection exercise and the previous one of 2012. The follow-up of the effect of the 2008-2009 economic recession is clearly visible in the downward revision for 2013 of labour force, employment values and employment rates (see Tables I.2.27 to I.2.29).

Table I.2.27: **Labour force projections: 2015 round - 2012 round, 2013-2060 ('000)**

	Labour Force (20-64)		Employment (20-64)	
	2013	2060	2013	2060
BE	-38.2	996.0	-70.2	915.3
BG	-79.2	-29.6	-213.5	-31.6
CZ	28.0	415.6	-1.2	394.8
DK	-17.5	244.2	-42.7	229.8
DE	299.1	2194.7	542.5	2285.7
EE	-17.1	-30.3	8.7	-28.8
IE	31.5	-482.6	44.4	-471.7
EL	-337.1	-1007.1	-927.7	-943.9
ES	-163.6	-1913.2	-1616.2	-1838.9
FR	30.2	840.3	-230.2	723.1
IT	-420.7	286.6	-1475.0	202.7
CY	13.9	-0.2	-34.2	-8.1
LV	-153.9	-84.3	-81.2	-79.4
LT	-185.5	-327.6	-127.8	-305.7
LU	11.4	198.8	7.2	190.7
HU	21.1	452.2	16.1	415.6
MT	12.8	47.9	12.4	45.0
NL	20.1	305.5	-206.5	253.5
AT	57.9	359.5	22.2	356.8
PL	418.6	875.1	25.3	788.2
PT	-289.6	-1049.8	-448.5	-981.2
RO	-830.2	423.9	-815.0	389.5
SI	-38.4	4.3	-56.3	-2.4
SK	-11.5	-133.1	-27.7	-127.4
FI	-8.4	212.1	-36.8	193.8
SE	31.7	860.8	-15.7	848.3
UK	494.9	1617.6	497.5	1395.8
NO	25.4	834.8	21.8	802.6
EA	-1001.4	745.3	-4573.1	684.8
EU	-1119.5	5277.4	-5250.0	4809.5

Source: Commission services, EPC.

In the EU, [41] employment levels were revised downwards by 5.3 million persons for the age group 20-64 for 2013, while being revised upwards by 4.8 million persons for 2060. The latter reflects the impact of higher participation rates of older workers (55-64) by 3.9 pp in 2060 (see Table I.2.29), together with the negligible revision of unemployment rate projections for 2060.

Using a simple identity, Table I.2.30 provides a breakdown of changes in employment projections

(between rounds 2015 and 2012). [42] Although the situation varies considerably across Member States, on average in the EU, employment levels were revised upward for 2060 by 2.3% (approximately more 4.7 million persons) between the 2012 and 2015 projection exercises. This revision results from an increase of 1.2% in population projections, together with a rise in participation rates (+1.2%), and a near stabilisation in the unemployment rate (-0.1). [43]

This breakdown illustrates once again the close link between employment/labour force and population variables. In fact, there is a high cross-country correlation between revisions in employment and population projections (see Graph I.2.7).

---

[41] Croatia joined the EU on 1st July 2013, thereby did not participate in the 2012 exercise.

[42] The labour force identity: $L \equiv E + U$ can be written as: $E \equiv P * PR * [1 - UR]$.

where L is the labour force; E is employment; U is unemployment; P is population; PR is the participation rate; and UR the unemployment rate.

Taking the logarithm of the above expression, revisions in employment level projections can be approximately as:

$$\log(\frac{E_1}{E_0}) \approx \log(\frac{P_1}{P_0}) + \log(\frac{PR_1}{PR_0}) - (UR_1 - UR_0)$$

where indices 0 and 1 refer to two distinct projection exercises.

[43] Note the small errors/discrepancy involved in this approximation.

Table I.2.28:   **Labour force projections: 2015 round (2013-2060)**

	Employment rate (15-64)		Employment rate (20-64)		Employment rate (55-64)		Participation rate (15-64)		Participation rate (20-64)		Participation rate (55-64)		Unemployment rate (15-64)		
	2013	2060	2013	2060	2013	2060	2013	2060	2013	2060	2013	2060	2013	2060	
BE	61.8	64.2	67.2	70.6	41.6	53.5	67.6	69.3	73.3	76.0	44.0	56.0	8.5	7.4	BE
BG	59.6	64.1	63.7	70.2	47.6	56.7	68.6	69.2	73.0	75.7	54.4	61.0	13.0	7.5	BG
CZ	67.8	70.4	72.6	77.7	51.9	74.8	72.9	74.9	77.9	82.5	55.1	78.3	7.0	6.0	CZ
DK	72.6	76.5	75.7	79.5	62.0	75.4	78.2	80.4	81.0	83.3	65.3	78.0	7.2	4.9	DK
DE	73.5	75.5	77.3	80.0	63.7	71.8	77.7	79.8	81.6	84.4	67.6	76.1	5.4	5.4	DE
EE	68.6	70.7	73.4	77.9	62.6	71.0	75.3	76.4	80.3	84.0	66.6	74.8	8.8	7.5	EE
IE	60.4	63.5	65.6	69.6	51.2	61.3	69.7	68.2	75.2	74.5	57.3	64.6	13.3	6.8	IE
EL	48.7	69.8	52.6	76.0	35.5	74.6	67.7	75.4	72.6	82.0	42.4	78.0	28.0	7.5	EL
ES	54.5	73.0	58.3	79.0	43.4	77.9	74.2	78.9	78.7	85.2	54.2	82.5	26.5	7.5	ES
FR	63.9	68.1	69.6	74.4	45.8	60.2	71.0	73.6	76.9	80.1	49.2	63.4	10.0	7.5	FR
IT	55.5	60.3	59.7	65.5	42.8	66.7	63.4	65.2	67.8	70.6	45.4	69.0	12.4	7.5	IT
CY	60.6	73.8	66.3	80.2	49.8	74.8	72.9	78.6	79.2	85.2	57.0	78.4	16.9	6.1	CY
LV	65.3	69.9	69.9	77.5	55.0	68.5	74.3	75.6	79.3	83.6	61.5	73.1	12.1	7.5	LV
LT	63.8	66.6	69.8	74.4	53.4	61.4	72.5	72.0	79.3	80.3	60.2	65.6	12.0	7.5	LT
LU	65.3	67.0	70.7	72.9	40.2	44.9	69.4	70.0	74.9	76.0	42.2	46.5	5.9	4.2	LU
HU	58.0	67.5	63.0	73.8	38.6	73.6	64.7	73.0	70.1	79.6	41.8	77.5	10.3	7.5	HU
MT	61.0	70.3	65.0	75.6	36.5	60.8	65.3	75.4	69.0	80.4	38.7	64.8	6.5	6.7	MT
NL	74.3	79.6	76.5	81.9	60.1	74.8	79.7	82.9	81.5	85.0	64.1	77.6	6.7	3.9	NL
AT	72.3	75.0	75.5	78.4	44.8	58.3	76.1	78.0	79.2	81.3	46.4	59.7	5.0	3.8	AT
PL	60.3	64.7	65.2	70.5	40.8	60.9	67.4	70.0	72.7	76.1	44.2	64.3	10.5	7.5	PL
PT	60.6	69.6	65.4	74.7	46.8	64.5	73.1	75.2	78.3	80.5	54.3	68.6	17.0	7.5	PT
RO	59.1	58.2	63.6	63.4	41.4	47.2	63.9	62.5	68.5	67.8	43.0	48.7	7.4	6.9	RO
SI	63.4	69.1	67.4	75.3	33.1	61.0	70.7	73.8	75.1	80.4	35.6	63.4	10.2	6.4	SI
SK	60.1	66.1	65.2	71.6	44.1	67.1	70.1	71.4	75.6	77.2	49.6	70.4	14.2	7.5	SK
FI	68.8	70.3	73.2	75.1	58.4	62.1	75.1	75.5	79.2	80.0	62.7	65.7	8.4	6.9	FI
SE	74.6	77.4	79.8	83.3	73.7	76.0	81.3	82.3	85.9	87.7	77.7	78.9	8.2	5.9	SE
UK	70.4	74.6	74.8	79.6	59.9	70.6	76.3	79.4	80.2	84.0	62.9	73.3	7.8	6.1	UK
NO	75.5	76.3	79.7	80.5	71.2	69.9	78.2	79.1	82.2	83.1	72.1	70.8	3.5	3.6	NO
EA	63.5	69.4	67.7	74.7	50.1	67.3	72.2	74.3	76.8	79.8	54.8	70.7	12.1	6.7	EA
EU	64.1	69.8	68.5	75.1	50.4	67.2	72.0	74.7	76.6	80.1	54.6	70.4	11.0	6.6	EU

Source: Commission services, EPC.

Table I.2.29:   **Labour force projections: 2015 round - 2012 round (2013-2060)**

	Employment rate (15-64)		Employment rate (20-64)		Employment rate (55-64)		Participation rate (15-64)		Participation rate (20-64)		Participation rate (55-64)		Unemployment rate (15-64)		
	2013	2060	2013	2060	2013	2060	2013	2060	2013	2060	2013	2060	2013	2060	
BE	-1.6	0.7	-1.7	1.0	-0.8	6.7	-1.3	0.9	-1.2	1.2	-0.4	7.3	0.7	0.1	BE
BG	-2.9	-0.3	-3.0	-0.1	0.8	0.8	0.0	-0.2	0.1	0.0	3.7	1.2	4.3	0.2	BG
CZ	1.0	1.8	1.1	2.7	3.4	5.7	1.4	1.8	1.6	2.8	3.7	5.7	0.5	-0.1	CZ
DK	-2.3	-0.3	-1.6	0.4	1.8	4.7	-1.5	-0.2	-0.9	0.6	2.2	4.9	1.1	0.1	DK
DE	0.8	1.5	0.9	1.8	2.0	1.8	0.4	0.9	0.3	1.2	1.6	1.3	-0.6	-0.7	DE
EE	2.6	0.6	2.7	1.1	5.8	2.3	-0.2	0.8	-0.3	1.3	2.2	1.2	-3.7	0.2	EE
IE	0.6	0.3	0.5	0.6	-2.4	-0.4	-0.1	0.9	-0.1	1.3	-1.7	0.7	-0.9	0.8	IE
EL	-10.7	2.5	-11.2	2.8	-9.1	7.5	-1.9	2.9	-1.9	3.2	-5.7	8.4	13.4	0.2	EL
ES	-5.3	1.2	-5.5	1.7	-4.1	5.4	-0.6	1.4	-0.4	2.1	-1.3	6.0	6.4	0.2	ES
FR	-0.4	-1.1	-0.2	-1.1	5.5	0.1	0.3	-1.1	0.5	-1.0	6.2	0.1	0.9	0.2	FR
IT	-2.6	-1.4	-2.6	-1.2	1.8	0.6	0.2	-1.4	0.4	-1.1	2.9	0.7	4.5	0.2	IT
CY	-10.3	-0.7	-10.6	-0.3	-10.1	8.4	-2.3	0.6	-2.2	1.1	-5.5	9.6	11.1	1.6	CY
LV	1.8	-1.3	2.1	0.2	2.3	7.8	-2.2	-1.3	-2.0	0.4	0.2	8.4	-4.9	0.2	LV
LT	1.8	-1.1	2.3	0.2	1.5	-1.3	0.2	-1.0	0.7	0.4	1.7	-0.5	-2.3	0.2	LT
LU	0.0	2.4	-0.1	2.8	0.8	4.2	1.1	2.5	1.0	2.9	2.0	5.0	1.5	0.0	LU
HU	0.7	5.3	0.9	6.5	0.3	17.0	0.9	5.9	1.1	7.1	0.8	18.4	0.2	0.2	HU
MT	2.8	4.7	3.0	5.7	3.1	4.5	2.9	5.1	3.1	6.1	3.8	6.3	-0.3	0.0	MT
NL	-2.0	2.5	-1.8	2.7	2.9	14.3	0.3	3.0	0.4	3.2	4.9	15.2	2.9	0.5	NL
AT	-0.1	0.6	0.1	1.0	0.2	3.2	0.5	0.4	0.7	0.8	0.9	3.6	0.8	-0.3	AT
PL	-0.4	2.4	-0.3	3.1	4.4	16.0	1.1	2.8	1.3	3.5	5.5	16.9	2.0	0.2	PL
PT	-4.6	-1.5	-4.7	-1.7	-4.4	-1.0	-1.9	-1.5	-1.8	-1.6	-2.7	-0.8	4.1	0.2	PT
RO	-0.5	1.4	-0.2	2.4	0.3	2.2	-0.2	1.6	0.2	2.6	0.7	2.5	0.6	0.2	RO
SI	-3.0	-1.4	-2.8	-0.8	-5.0	1.1	-1.7	-1.0	-1.3	-0.2	-4.2	1.8	2.0	0.7	SI
SK	0.3	3.3	0.5	3.4	2.6	18.7	0.9	3.7	1.1	3.9	4.1	19.7	0.6	0.2	SK
FI	-1.1	-0.9	-1.3	-1.2	-0.4	-0.5	-0.1	-0.7	-0.4	-1.1	0.6	-0.1	1.3	0.3	FI
SE	-0.2	0.9	-0.1	0.8	2.6	1.3	0.9	0.5	0.8	0.3	3.3	1.1	1.2	-0.6	SE
UK	0.4	2.2	0.8	2.8	0.7	2.8	0.3	2.7	0.7	3.3	0.8	3.2	-0.1	0.5	UK
NO	-0.2	0.9	-0.2	1.0	1.5	2.5	-0.1	1.2	-0.1	1.2	1.5	2.6	0.1	0.3	NO
EA	-1.7	0.1	-1.7	0.4	1.1	2.4	0.0	0.1	0.1	0.4	2.1	2.6	2.4	0.0	EA
EU	-1.1	0.8	-1.1	1.2	1.4	3.7	0.2	0.9	0.4	1.3	2.2	3.9	1.8	0.1	EU

Source: Commission services, EPC.

Table I.2.30: **Breakdown of revisions in employment projections (2015 round - 2012 round), 2060**

	Employment	Population	Participation rate	Unemployment rate	Discrepancy
	(15-64)	(15-64)	(15-64)	(15-64)	
	(1)≈(2)+(3)-(4)	(2)	(3)	(4)	
BE	16.9%	15.7%	1.3%	-0.1%	0.0%
BG	-1.6%	-1.1%	-0.3%	-0.2%	0.0%
CZ	9.4%	6.8%	2.5%	0.1%	0.0%
DK	7.8%	8.2%	-0.2%	-0.1%	0.0%
DE	8.5%	6.5%	1.2%	0.7%	0.0%
EE	-6.5%	-7.4%	1.1%	-0.2%	0.0%
IE	-21.7%	-22.2%	1.3%	-0.8%	-0.1%
EL	-25.8%	-29.5%	3.9%	-0.2%	0.0%
ES	-9.6%	-11.3%	1.8%	-0.2%	0.0%
FR	2.4%	4.1%	-1.5%	-0.2%	0.0%
IT	0.9%	3.2%	-2.1%	-0.2%	0.0%
CY	-1.9%	-1.0%	0.8%	-1.6%	-0.1%
LV	-13.6%	-11.7%	-1.7%	-0.2%	0.0%
LT	-36.7%	-35.1%	-1.4%	-0.2%	0.0%
LU	53.4%	49.8%	3.6%	0.0%	0.0%
HU	12.9%	4.6%	8.5%	-0.2%	0.0%
MT	28.3%	21.3%	7.0%	0.0%	0.0%
NL	3.4%	0.2%	3.7%	-0.5%	0.0%
AT	9.4%	8.6%	0.5%	0.3%	0.0%
PL	6.9%	3.1%	4.0%	-0.2%	0.0%
PT	-27.9%	-25.7%	-2.0%	-0.2%	0.0%
RO	7.3%	4.9%	2.6%	-0.2%	0.0%
SI	-0.8%	1.2%	-1.3%	-0.7%	0.0%
SK	-7.8%	-12.9%	5.3%	-0.2%	0.0%
FI	8.5%	9.8%	-1.0%	-0.3%	0.0%
SE	16.3%	15.1%	0.6%	0.6%	0.0%
UK	3.8%	0.8%	3.5%	-0.5%	0.0%
NO	25.3%	24.1%	1.5%	-0.3%	0.0%
EA	0.5%	0.3%	0.2%	0.0%	0.0%
EU	2.3%	1.2%	1.2%	-0.1%	0.0%

Source: Commission services, EPC.

Graph I.2.7:   **Revisions of population and employment projections, 2015 round - 2012 round, 2060 (percentage changes)**
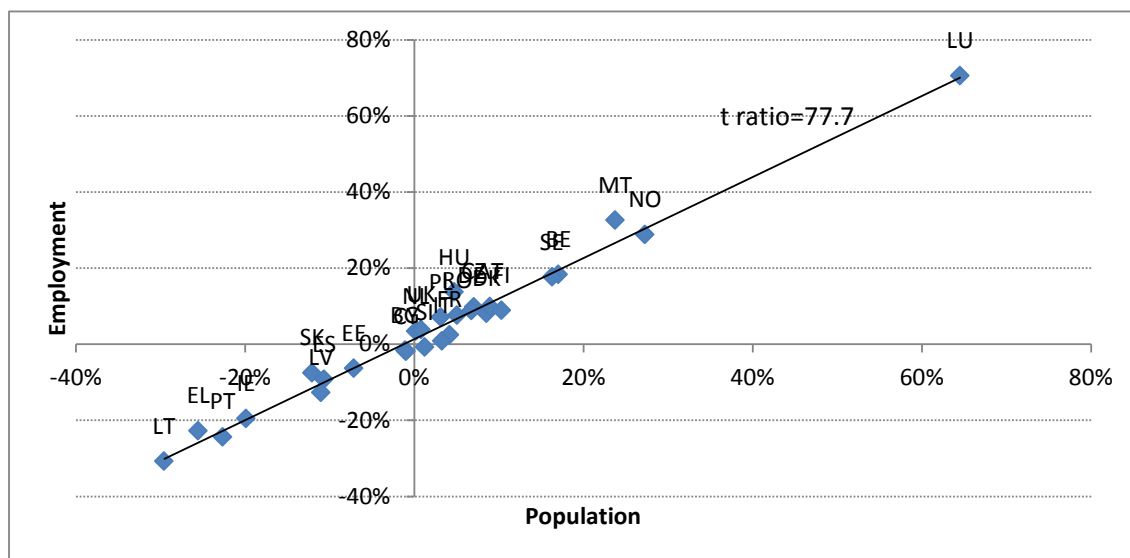
Source: Commission services, EPC.

Table I.2.31:   **Revision of participation rate projections, 2015 round - 2012 round, 2060**

	15-64	15-74	20-64	20-24	25-54	55-64	65-74	
BE	0.9	1.2	1.2	-3.1	0.0	7.3	0.1	BE
BG	-0.2	-0.2	0.0	-1.5	-0.1	1.2	0.4	BG
CZ	1.8	3.1	2.8	-0.9	2.8	5.7	4.6	CZ
DK	-0.2	2.3	0.6	-6.9	0.3	4.9	14.9	DK
DE	0.9	0.9	1.2	-0.4	1.4	1.3	0.3	DE
EE	0.8	1.2	1.3	0.5	1.5	1.2	0.2	EE
IE	0.9	1.8	1.3	-1.5	1.6	0.7	1.1	IE
EL	2.9	5.8	3.2	-0.7	2.2	8.4	19.8	EL
ES	1.4	3.2	2.1	-4.8	1.7	6.0	4.0	ES
FR	-1.1	0.3	-1.0	-1.6	-1.2	0.1	1.9	FR
IT	-1.4	-0.8	-1.1	-2.2	-1.4	0.7	0.4	IT
CY	0.6	2.8	1.1	-3.0	-1.3	9.6	10.5	CY
LV	-1.3	2.5	0.4	-3.3	-2.2	8.4	1.1	LV
LT	-1.0	2.6	0.4	1.4	-0.4	-0.5	0.2	LT
LU	2.5	3.8	2.9	-0.2	2.9	5.0	2.5	LU
HU	5.9	6.2	7.1	2.1	4.1	18.4	3.4	HU
MT	5.1	5.3	6.1	2.4	6.2	6.3	0.4	MT
NL	3.0	4.5	3.2	0.0	-0.2	15.2	12.9	NL
AT	0.4	0.7	0.8	-0.5	-0.1	3.6	2.8	AT
PL	2.8	4.5	3.5	-3.0	0.0	16.9	7.8	PL
PT	-1.5	-0.6	-1.6	-1.6	-1.6	-0.8	4.3	PT
RO	1.6	3.3	2.6	-0.4	2.8	2.5	1.1	RO
SI	-1.0	0.6	-0.2	-5.6	-0.2	1.8	1.4	SI
SK	3.7	5.2	3.9	-0.4	-0.8	19.7	13.4	SK
FI	-0.7	-0.3	-1.1	-0.7	-1.4	-0.1	0.1	FI
SE	0.5	1.2	0.3	-1.9	0.5	1.1	0.5	SE
UK	2.7	2.4	3.3	0.9	3.7	3.2	1.0	UK
NO	1.2	1.6	1.2	1.5	0.9	2.6	1.5	NO
EA	0.1	1.0	0.4	-1.9	0.0	2.6	2.7	EA
EU	0.9	1.7	1.3	-1.6	0.8	3.9	3.0	EU

Source: Commission services, EPC.

Graph I.2.8:   **Revision of participation rates of age group 25-54 in 2060 against the revision of participation rates of age group 20-24 in 2013 (2015 round - 2012 round)**
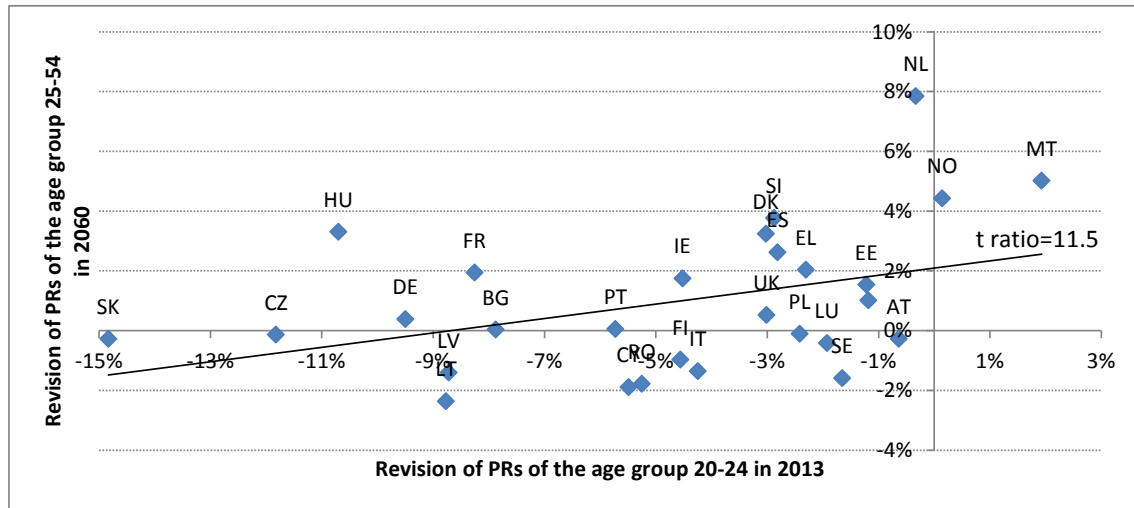
Source: Commission services, EPC.

Given the important role played by participation rate projections, Table I.2.31 and Graph I.2.8 focus on the extent of their revisions by age groups between the 2012 and 2015 exercises. Using the year 2060 for comparison, in the EU participation rates are revised downwards for young people (20-24), moderately increased for prime age workers (25-54), while being strongly revised upwards for older workers (55-64 and 65-74). The downward revision of the participation rate for young workers can largely be attributed to base year effects (i.e. the ongoing effects of the 2008-2009 economic recession). ([44]) As already mentioned in section 2.6 (Graph I.2.5), in the framework of the CSM, a present reduction in young workers' participation rate is likely to cause future reductions in the participation rate of prime age workers. Likewise, Graph I.2.8 suggests that a downward revision in participation rate projections for young workers today is likely to be associated with a downward revision in future participation rate projections for prime age workers.

Since the 2009 Ageing Report, many EU Member States have legislated additional pension reforms (see Box I.2.1), which are projected to raise further the participation rate of older workers. Graph I.2.9 clearly shows this projected upward revision for ages 55 and above. In addition, the upward revision of participation rates for women is more pronounced than that for men, indicating the

continuation of a convergence process (e.g. the convergence of women's lower statutory retirement age to that of men's). The downward revision for younger people also suggests the continuing impact of the lengthening of schooling (and possible also medium-term effects due to the 2008-2009 economic recession).

([44]) And possibly also the further lengthening of schooling.

Graph I.2.9:   **Revision of participation rate age profiles by gender, 2015 round - 2012 round, EU 2060 (percentage changes)**
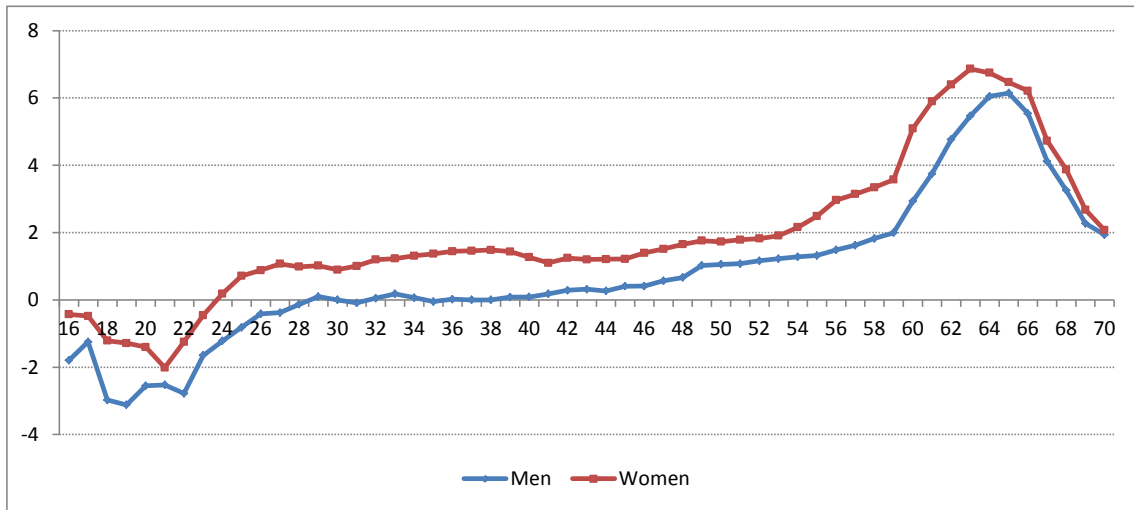
Source: Commission services, EPC.

3. LABOUR PRODUCTIVITY AND POTENTIAL GDP

3.1. BACKGROUND AND GENERAL APPROACH

3.1.1. A production function approach for the long-term projection exercise

To project GDP growth over the long-term, a production function framework is used. In this framework, demographic projections are crucial for the projection exercise of economic and budgetary developments over the long-term. Indeed, the assumptions used for the population projections have a profound impact on projections for the labour force and thus for economic growth. In addition to assumptions for the population projections, it is necessary to make some specific statistical assumptions regarding long-run developments in each of the growth components. This framework enables looking at the drivers of labour productivity growth (namely total factor productivity and the capital stock per worker) while being fully consistent with the methodology developed by the EPCs Output Gap Working Group (OGWG), and used in the work by other Council committees, notably to assess structural budgetary developments within the framework of the Stability and Growth Pact (SGP).

A novelty is the decision by the AWG and EPC to use, as a starting point, the new OGWG methodology for potential growth and its components until t+10 (2023).

In this way, the approaches by the EPCs working groups, the OGWG and the AWG, are fully aligned. Graph I.3.1 illustrates the building blocks of the production function used in the projection. The methodology is described below (see Box I.3.1. for a description of the t+10 methodology).

3.2. METHODOLOGY USED TO PROJECT POTENTIAL OUTPUT

3.2.1. Description of the production function framework

Using a standard specification of the Cobb-Douglas production with constant returns to scale, potential GDP can be expressed formally as total output represented by a combination of factor inputs multiplied with total factor productivity (TFP), which embeds the technological level.[45]

$$Y = TFP * L^{\beta} * K^{1-\beta} =$$

$$\left(TFP^{\frac{1}{\beta}} * L \right)^{\beta} * K^{1-\beta} =$$

$$(E * L)^{\beta} * K^{1-\beta}$$

where:

Y is total output (GDP);

L is the supply of labour (total hours worked);

K is the stock of capital;

E is the labour-augmenting technical progress (i.e. Harrod-neutral technical progress).

E.L is then interpretable as total labour in efficiency units. *TFP* and the labour-augmenting technical progress are linked with a simple relationship: $TFP = (E)^{\beta}$

β is the labour share, i.e. the share of labour costs in total value-added. It is set at 0.65.[46]

As a result, potential labour productivity growth comes down to the following expression (where Y, L, E and TFP denote potential output, potential labour, trend labour-augmenting technical progress and trend TFP).

---

[45] See D'Auria, F., C. Denis, K. Havik, K. Mc Morrow, C. Planas, R. Raciborski, W. Röger, A. Rossi, 'The production function methodology for calculating potential growth rates and output gaps', European Economy Economic Papers No. 420, 2010.

[46] Although there is some debate about the recent and observed decline of the labour share, most economists assume that it will remain broadly constant in a long run perspective, while allowing for a variation in the short-term. This rule is uniformly applied to all Member States in order to allow for consistent cross-country comparisons of the results. The assumption is also well-founded in economic theory. If the real wage is equal to the marginal productivity of labour, it follows that under the standard features of the production function, real wage growth is equal to labour productivity growth and real unit labour costs remain constant.

Graph I.3.1: **Overview of the production function approach**

**MEASURING POTENTIAL
OUTPUT USING A PRODUCTION FUNCTION APPROACH**
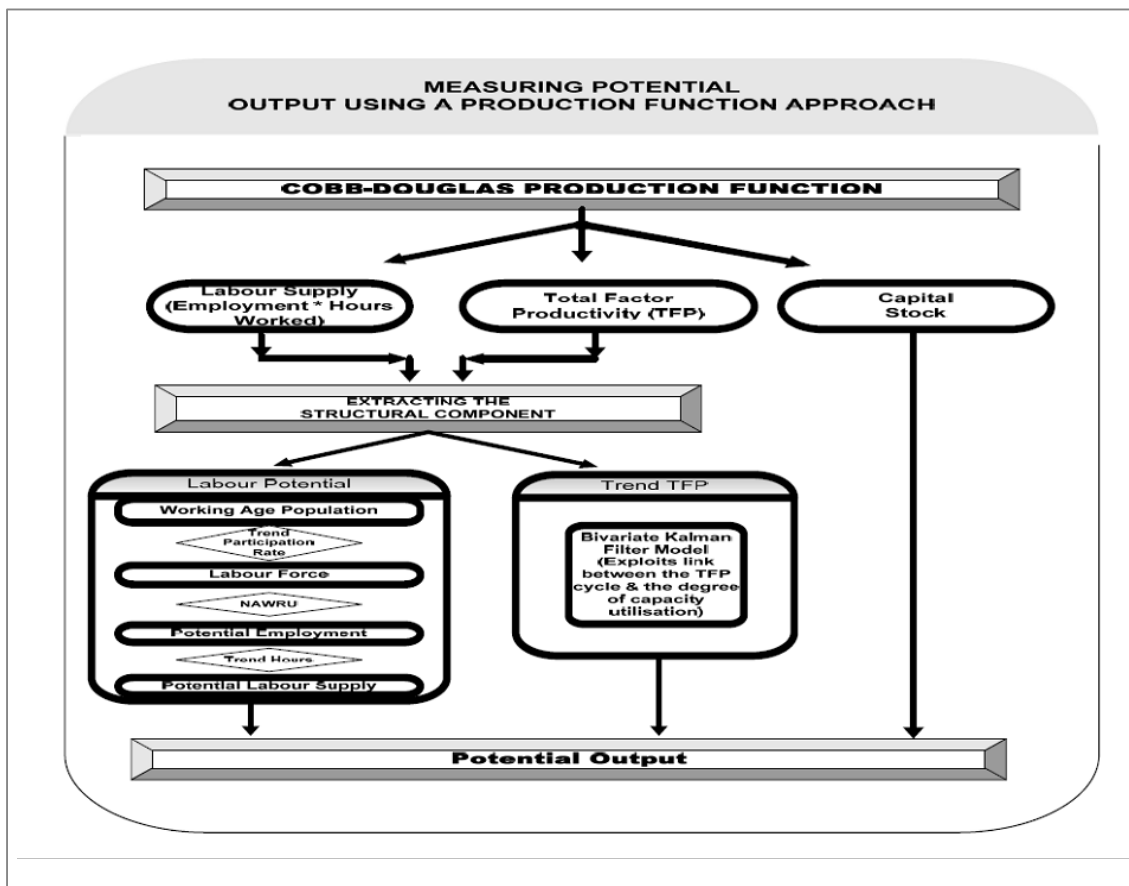
Source: Commission services.

Thus, the projection of TFP growth and the growth in capital per hour worked, so called *capital deepening*, are the key drivers of projected labour productivity over the medium run.

In the long-run, according to the neo-classical growth model (Solow model), the economy should reach its equilibrium, also called steady state or balanced growth path, where the ratio of capital stock to labour expressed in efficiency unit, K/(L.E), remains constant over time. As a result, the capital stock per hour worked grows at the same pace as labour augmenting technical progress *E*. Therefore, labour productivity growth (i.e. output per hour worked growth) coincides with TFP growth divided by the labour share:

$$\left(\frac{\dot{Y}}{L}\right) = \left(\frac{\dot{K}}{L}\right) = \dot{E} = \frac{\dot{TFP}}{\beta}$$

It should also be noted that, in the steady state, the contribution of capital deepening to output growth is a simple function of TFP[47], which becomes the single driver of labour productivity.[48]

$$contrib\left(\frac{\dot{K}}{L}\right) = (1-\beta)\left(\frac{\dot{K}}{L}\right) = \frac{(1-\beta)}{\beta}\dot{TFP}$$

---

[47] With the assumption of a long-run TFP growth rate equivalent to 1% per annum in the baseline scenario (see section 3.5), this implies a long-run contribution of capital deepening to labour productivity growth equal to 0.5% and hence a labour productivity growth rate of 1.5%.

[48] This in turn implies that, in the long run, the growth rate of the capital stock is set equal to the sum of the growth rate of labour and labour-augmenting technological progress, the so-called "capital rule".

Box I.3.1: **Improvements introduced with the t+10 methodology for medium-term potential GDP growth**

The launch of the Europe 2020 Strategy prompted the EPC to introduce a new T+10 methodology which would build on the existing T+5 approach. This T+5 approach had been used as the starting point for the 2012 Ageing Report. With this in mind, the EPC initiated a work programme for the OGWG aimed at creating an economically sensible, no policy change, baseline forecast which integrated ECFIN's short (T+2) & medium term (T+5) projections into the AWG's long term forecasting framework. This work programme was aimed at addressing the concerns of a number of countries regarding firstly the T+5 NAWRU methodology & secondly with the breaks in participation rates in T+6. The EPC now considers that sufficient progress has been made to warrant endorsement of the Spring 2014 T+10 numbers as providing a prudent and balanced set of projections which can be used as the starting point for the AWG's long term assessment of ageing populations up to 2060.

In more specific terms, relative to the T+5 methodology which was used for the 2012 Ageing report, the new EPC endorsed T+10 methodology has a number of important advantages for the quality of the analysis in the 2015 Ageing report, including :

- **More structural information**: The new T+10 approach marks a clear improvement with respect to the incorporation of additional information regarding the structural determinants of growth. This is explicitly the case with respect to the new T+10 NAWRU anchor and is implicitly driving the rationale behind the capital formation and participation rate forecasts over the period T+6 to T+10. There are a number of clear advantages from introducing more structural information into the T+10 methodology, including firstly, it makes it easier to explain why countries differ; and secondly it allows for a quantitative evaluation of structural reforms..

- **T+10 NAWRU anchor versus reversion to a pre-crisis NAWRU level**: The new T+10 NAWRU anchor represents a significant methodological improvement over the previous method by anchoring medium term NAWRU developments to a long run unemployment rate which is estimated from the main structural determinants of labour market trends. Alternative approaches that do not rely on economic information were discussed and

eventually abandoned. In particular, approaches relying on the concept of a return to the pre-crisis level for the NAWRU appeared impractical. The econometric evidence presented and discussed clearly showed that the pre-crisis NAWRU levels were not sustainable in a large number of countries. Some countries were experiencing boom type phenomena in the run-up to the crisis. Therefore, picking a given year would not be adequate to measure a sustainable pre-crisis level for the NAWRU. In addition, difficult discussions would ensue in order to pick, for each country, an acceptable year. Taking averages across a number of years for all countries would also not solve the problem given that boom type events were found to affect periods rather than particular years in the run-up to the crisis. Also, the concept of a pre-crisis level would not be convenient to track reform efforts over time and to reflect those efforts in the T+10 NAWRU forecast.

- **"Structural" approach to investment**: The debate in relation to the assumption to be used for the T+10 capital formation projections was initiated with a discussion on the relative merits of pursuing a structural model of investment. This option was not pursued however since there would be only limited gains relative to the "capital rule" approach which was finally adopted. The latter approach effectively amounts to a structural model of investment since it links investment to its fundamental long run drivers, namely labour supply and TFP.

- **A more credible evolution for the path of participation rates**: The approach adopted for projecting participation rates up to T+10 constitutes a balanced mixture of the information emanating from time series trends with the solid structural information derived from the cohort method. An important improvement is the introduction of a technical transition rule for smoothing the unacceptable breaks in participation rates which occurred in the forecasts using the t+5 and the t+10 methodologies. This break was not "data driven" (i.e. it did not result from changes in the underlying datasets, with this hypothesis tested using the new EUROPOP 2013 population projections from Eurostat & the updated Cohort Simulation Model results) but was in fact clearly "methodology driven" (i.e. it resulted from linking two very different

(Continued on the next page)

Box (continued)

participation rate forecast methodologies in T+6, namely the time series driven T+5 approach, with the more demographics driven Cohort method). The EPC has now endorsed the introduction of this transition rule in the T+10 methodology as a pragmatic way of smoothing the link between the two different methodologies.

- **Internally consistent TFP projections up to T+10**: Despite the fact that attempts to anchor the trend TFP projections using policy & structural variables (which have been identified in the literature as relevant determinants of long run TFP growth) have, for the moment, being abandoned, nevertheless the current Spring 2014, T+6 to T+10 TFP projections, are arguably superior to those used in the 2012 Ageing Report since the T+5 & T+10 estimates are now both produced with the same bivariate Kalman Filter approach & consequently are internally consistent.

For all of the above reasons, the AWG & the EPC were persuaded of the advantages of the new T+10 methodology for the 2015 Ageing Report.

As all these variables can be influenced by the business cycle in the short term, it is safer to project the potential output, i.e. the output adjusted for cyclical movements in the economy. This requires estimating the trend components for the individual production factors, except for the capital stock, which can only adjust in the long run.

Estimating potential output therefore amounts to removing the cyclical component from both TFP and labour. Trend TFP is obtained using a detrending technique. Potential labour input is the total labour obtained when the unemployment rate equals the structural unemployment rate (NAWRU). It equals *LF*(1-NAWRU)*Hours*, where *LF* stands for total labour force and *Hours* for average hours worked per worker. The potential output denoted *Yp* can be expressed in logarithm as the sum (in logarithm) of *trend TFP*, potential labour input weighted by the labour share in total value-added and the total capital stock multiplied by one minus the labour share. More formally, we get:

$Log(Yp)=Log(trendTFP)+\beta Log(LF*(1-Nawru)*Hours)+(1-\beta)logK)$

3.3. SPECIFIC ASSUMPTIONS ON THE COMPONENTS OF THE PRODUCTION FUNCTION IN THE SHORT AND MEDIUM TERM (2014-2023)

The production function approach is applied to historical (starting in the mid-1960s) and forecast data. The series have been taken from ECFIN's AMECO databank, and for the years 2014-15 the Commission services spring 2014 forecasts was used and for the years 2016-23 the medium-term potential growth estimation was used, see Box I.3.1 for further information.[49]

---

[49] The EPC decided on 22 May 2014 that the long-term projections for the 2012 Ageing Report should take as a starting point for the potential growth projections up to t+10 (2023) using the new methodology agreed upon by the OGWG and the EPC, based on the spring 2014 Commission services forecast (to 2015). For further details on the new T+10 methodology are given in the ECFIN

3.4. SPECIFIC ASSUMPTIONS ON THE COMPONENTS OF THE PRODUCTION FUNCTION IN THE LONGER RUN (2024-2060)

There is a need to ensure consistency between the medium term projection based on country-specific trends and the long-run projection based on convergence rules toward the same value of labour productivity at the end of the projection horizon. There is also an overriding constraint to ensure comparability across the EU through the use of a common methodology for all Member States.

Table I.3.1:   **Potential GDP per capita (2013)**

	GDP per capita (PPS)	in % of EU28
LU	56,5	234,4
NO	33,0	136,9
NL	31,2	129,4
AT	30,7	127,2
IE	30,5	126,4
SE	30,0	124,4
DE	29,7	123,4
DK	28,4	117,6
UK	28,2	116,8
BE	27,7	114,8
FI	26,6	110,5
EA	25,7	106,8
FR	25,7	106,5
EU	**24,1**	**100,0**
ES	23,5	97,5
IT	22,9	94,8
SI	20,8	86,4
CZ	20,4	84,6
MT	20,3	84,1
EL	19,5	81,0
CY	19,3	80,2
SK	18,5	76,9
PT	18,5	76,7
LT	16,6	68,8
EE	16,0	66,4
PL	15,7	65,3
HU	15,0	62,0
LV	13,7	57,0
HR	13,7	56,7
RO	10,5	43,4
BG	10,4	43,3

Source: Commission services.

3.5. THE KEY ASSUMPTION ON TOTAL FACTOR PRODUCTIVITY DEVELOPMENTS

The Ageing Working Group held a series of discussions in 2013-14 on the crucial assumptions on productivity growth. It was decided to retain the approach of growth rate converge, while at the same time taking account of the catching up

potential of countries with relatively low GDP per capita, see Table I.3.1.

With respect to total factor productivity growth, the AWG and EPC decided that the baseline scenario should remain as in the 2012 AR (convergence to a TFP growth rate of 1%). In addition, due visibility and prominence should also be given to the risk of lower TFP growth in the future, in light of the trend decline on TFP growth performance over the last decades. Thus, a risk scenario should be included, with a lower TFP growth rate (0.8%). This would enable both consistency with past projection exercises (baseline scenario) while at the same time recognising the risks of lower TFP growth in the future (risk scenario). In both cases, allowance for higher TFP growth for countries with below average GDP per capita is factored in for a period of time, as in the previous projection exercise, to cater for a catching-up potential.

Economic Paper "The production function methodology for calculating potential growth rates and output gaps" (2014 – Forthcoming).

Table I.3.2: **Baseline scenario TFP (1%): assumptions on speed of convergence and criteria for selection - 2015 AR**

GDP per capita (in % of EU28)	Countries	Years (from/to)	Values	Years (from/to)	Values	Years (from/to)	Values
"**Leaders**" (per capita GDP higher than the EU average)							
Above 100%	LU, NL, AT, IE, SE, DE, BE, UK, DK, FI, FR	2023 (t+10) to 2035	From value in 2023 (t+10) to 1%	2036 to 2045	1%	2046 to 2060	1%
"**Followers**" (per capita GDP lower than the EU average)							
Below 100%	IT, ES, SI, CZ, MT, CY, SK, PT, EL, EE, LT, PL, HU, HR, LV, BG, RO	2023 (t+10) to 2035	From value in 2023 (t) to $\dfrac{1.5\% * \left(1 - \frac{GDP_{p,t}}{GDP_{eu,t}}\right) + 1\% * \left(\frac{GDP_{p,t}}{GDP_{eu,t}} - 0.5\right)}{0.5}$	2036 to 2045	$\dfrac{1.5\% * \left(1 - \frac{GDP_{p,t}}{GDP_{eu,t}}\right) + 1\% * \left(\frac{GDP_{p,t}}{GDP_{eu,t}} - 0.5\right)}{0.5}$	2046 to 2060	From $\dfrac{1.5\% * \left(1 - \frac{GDP_{p,t}}{GDP_{eu,t}}\right) + 1\% * \left(\frac{GDP_{p,t}}{GDP_{eu,t}} - 0.5\right)}{0.5}$ to 1%

Source: Commission services, EPC.

3.5.1. Baseline scenario

An assumption for TFP would hence be that country-specific TFP growth rates would converge to 1% in the baseline scenario, the same rate as was assumed in the previous long-term projection round. Likewise, the speed of convergence to this long-run TFP growth rate is to be determined by the relative income position in the different Member States. Specifically, it was assumed that the lower the GDP per capita, the higher the real catching up potential. In the long-term, growth in labour productivity broadly coincides with TFP growth divided by the labour share (set at 0.65) in the long run, thus becoming 1.5%.

With regards to the transition to this long-term rate, account is taken of the relative income position (GDP per capita) in the Member States, to allow for the catching-up potential (the real convergence process) for countries with below-average per-capita GDP. Specifically, the assumptions agreed for the baseline scenario by the EPC are as follows:

- the *'leader'* is the group of countries that have a GDP per capita above the EU-28 average. For these countries, TFP growth is assumed to converge from the estimated value in 2023 to a 1% growth rate by 2035;

- the *'follower'* group of countries are those with GDP per capita below the EU-28 average. For this group of countries, a differentiation is made depending on the distance to the EU-28 average, as reported in Table I.3.2.

3.5.2. Risk scenario

An assumption for TFP would hence be that country-specific TFP growth rates would converge to 0.8% in the risk scenario. As in the baseline scenario, it is assumed that the lower the GDP per capita, the higher the real catching up potential.

Specifically, the assumptions agreed for the baseline scenario by the EPC are as follows:

- For the *'leader'* group, TFP growth is assumed to converge from the estimated value in 2015 to a 0.8% growth rate by 2035;

- For the *'follower'* group, a differentiation is made depending on the distance to the EU-28 average, as reported in Table I.3.3.

3.6. CAPITAL FORMATION

With regards to capital deepening, the AWG agreed to retain the methodology used in the previous exercises, namely to keep the capital to labour ratio in efficiency units constant in the long run (the 'capital rule').

Therefore, it is assumed in the projections that in the long-run, the capital stocks adjust to the steady state path according to the *"Capital Rule":* the growth rate of the capital stock is set equal to the sum of growth rate of labour and labour augmenting technical progress. As seen in section 3.2, this fulfils the steady state property, as the ratio of capital stock to labour expressed in efficiency unit remains constant over time. Consequently, the labour productivity growth coincides with that of labour-augmenting technical progress.

Table I.3.3: **Risk scenario TFP (0.8%): assumptions on speed of convergence and criteria for selection - 2015 AR**

GDP per capita (in % of EU28)	Countries	Years (from/to)	Values	Years (from/to)	Values	Years (from/to)	Values
"**Leaders**" (per capita GDP higher than the EU average)							
Above 100%	LU, NL, AT, IE, SE, DE, BE, UK, DK, FI, FR	2016 (t) to 2035	From value in 2016 to 0.8%	2036 to 2040	0.8%	2041 to 2060	0.8%
"**Followers**" (per capita GDP lower than the EU average)							
Below 100%	IT, ES, SI, CZ, MT, CY, SK, PT, EL, EE, LT, PL, HU, HR, LV, BG, RO	2016 (t) to 2035	From value in 2016 to $$\frac{1.3\% * \left(1 - \frac{GDP_{i,t}}{GDP_{eu,t}}\right) + 0.8\% * \left(\frac{GDP_{i,t}}{GDP_{eu,t}} - 0.5\right)}{0.5}$$	2036 to 2040	$$\frac{1.3\% * \left(1 - \frac{GDP_{i,t}}{GDP_{eu,t}}\right) + 0.8\% * \left(\frac{GDP_{i,t}}{GDP_{eu,t}} - 0.5\right)}{0.5}$$	2041 to 2060	From $$\frac{1.3\% * \left(1 - \frac{GDP_{i,t}}{GDP_{eu,t}}\right) + 0.8\% * \left(\frac{GDP_{i,t}}{GDP_{eu,t}} - 0.5\right)}{0.5}$$ to 0.8%

Source: Commission services, EPC.

Nonetheless, this would lead to very sharp shifts in investment rates for a large number of countries in the year in which the rule is introduced. For example, the introduction of the rule in 2024 would result in pessimistic productivity projections for a large number of the catching-up Member States whilst making little difference for those countries which are already close to their long run TFP growth rate.

Therefore, a transition between the investment rule and the capital rule is applied to smooth the profile of investment:

- First, the transition to the constant capital/labour (in efficiency units) ratio assumption is introduced gradually in the period 2024-2030 in a linear manner *("transition rule")*;

- Second, the capital/labour (in efficiency units) ratio is constant from 2031 onwards *("capital rule")*.

3.7. TAKING ACCOUNT OF THE CYCLICAL POSITION OF THE ECONOMY IN THE LONG-TERM PROJECTIONS

In order to bridge the current situation and the assumed longer-term prospects, there is a need to take account of the cyclical position of the economy over a short-to-medium term horizon. This is of particular importance at the current juncture, where many Member States still have large output gaps.

In relation to the need to produce actual, in addition to potential, growth rate projections, the general rule is that the output gap should be closed in three years' time after the end of the forecast horizon (spring 2014 forecast), that is, in 2018, at the latest. Graph shows the projected potential and cyclical growth over the coming decade in the EU Member States.

Graph I.3.2: **Average actual and potential growth (2013-2023)**
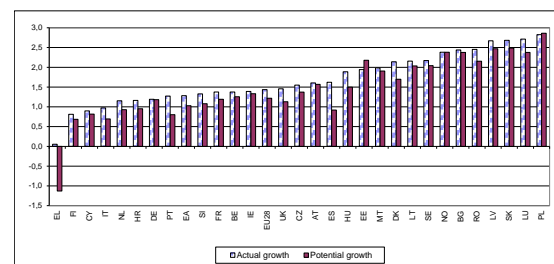
Source: Commission services, EPC.

Taking account of the negative output gaps prevailing in the EU Member States, GDP growth is assumed to be higher than the potential growth rates until the output gap is closed (in 2018, see section 3.7). For the EU as a whole and the euro area, GDP growth is assumed to be ¼ p.p. higher than the potential growth rates over the period 2013-2023. There are however significant differences across Member States (see Graph I.3.2).

3.8. MAIN RESULTS OF GDP PROJECTIONS

3.8.1. Baseline scenario

Tables I.3.4 to I.3.8 present the outcome of the projections for potential growth rates up to 2060 as well as its determinants. In the EU as a whole, the annual average potential GDP growth rate is projected to remain quite stable over the long-term (see Table I.3.4). After an average potential growth

of 1.1% up to 2020, a slight increase to 1.4-1.5% is projected for the remainder of the projection horizon. Over the whole period 2013-2060, the average output growth rate in the EU is projected to be 1.4%. Developments in the euro area are very close to that of the EU as a whole, as the former represents more than 2/3 of the EU total output growth. Notwithstanding this, the potential growth rate in the euro area is projected to be slightly lower than for the EU throughout the projection period.

Table I.3.4: **Potential GDP growth rate - Period average**

	2013-2020	2021-2030	2031-2040	2041-2050	2051-2060	2013-2060	2013-2060 (risk scenario)
BE	1,2	1,5	2,1	2,0	1,8	1,7	1,5
BG	2,4	1,7	1,3	1,0	1,0	1,5	1,2
CZ	1,3	1,8	1,7	1,6	1,6	1,6	1,4
DK	1,5	1,9	1,7	1,9	1,8	1,8	1,6
DE	1,2	0,9	0,8	1,0	0,9	1,0	0,7
EE	2,4	1,6	1,4	1,1	1,1	1,5	1,3
IE	1,3	1,5	1,7	1,5	2,5	1,7	1,5
EL	-1,8	0,8	1,8	1,0	1,0	0,7	0,4
ES	0,5	1,8	1,5	1,0	2,0	1,4	1,2
FR	1,2	1,4	1,7	1,8	1,8	1,6	1,4
HR	0,9	1,3	2,0	1,6	1,2	1,4	1,1
IT	0,5	1,2	1,5	1,5	1,6	1,3	1,0
CY	0,2	1,9	2,6	2,4	2,1	1,9	1,7
LV	2,6	1,7	1,4	1,1	1,2	1,6	1,4
LT	2,4	0,6	0,8	1,3	1,3	1,2	1,1
LU	2,1	2,8	3,0	2,5	2,0	2,5	2,3
HU	1,2	2,2	1,5	1,3	1,1	1,5	1,3
MT	1,9	1,9	1,9	1,6	1,3	1,7	1,5
NL	0,8	1,0	1,3	1,5	1,4	1,2	1,0
AT	1,5	1,5	1,6	1,5	1,3	1,5	1,3
PL	3,0	2,4	1,6	0,9	0,6	1,6	1,4
PT	0,3	1,5	1,0	0,7	0,8	0,9	0,7
RO	2,2	1,8	1,4	1,5	1,3	1,6	1,3
SI	0,7	1,6	1,3	1,3	1,5	1,3	1,1
SK	2,4	2,7	1,4	0,6	0,6	1,5	1,4
FI	0,5	1,3	1,8	1,7	1,5	1,4	1,2
SE	2,0	2,1	2,2	2,1	1,8	2,0	1,8
UK	1,1	1,3	2,0	1,9	1,8	1,7	1,4
NO	2,4	2,6	2,5	2,3	1,9	2,3	2,1
EA	0,9	1,3	1,4	1,3	1,5	1,3	1,1
EU	1,1	1,4	1,5	1,4	1,5	1,4	1,2

Source: Commission services, EPC.

Labour productivity growth is projected to increase in the period to the 2030s and remain fairly stable at around 1 ½% thereafter throughout the projection period for the EU (see Table I.3.5). The projected increase in the period up to 2030s is due to the assumption of higher productivity growth (through TFP growth) in the MSs assumed to have a catching-up potential. Eventually, in 2060, all MSs are assumed to reach the same productivity growth of 1.5%. Similar developments are expected for the euro area.

Table I.3.5: **Labour productivity per hour growth rate - Period average**

	2013-2020	2021-2030	2031-2040	2041-2050	2051-2060	2013-2060	2013-2060 (risk scenario)
BE	0,4	0,9	1,5	1,5	1,5	1,2	1,0
BG	2,5	2,4	2,3	2,2	1,8	2,2	2,0
CZ	1,4	1,9	1,8	1,7	1,6	1,7	1,5
DK	1,1	1,6	1,5	1,5	1,5	1,5	1,3
DE	1,3	1,6	1,5	1,5	1,5	1,5	1,3
EE	2,3	2,5	1,9	1,9	1,6	2,0	1,9
IE	0,6	1,5	1,6	1,5	1,5	1,4	1,2
EL	-1,2	0,2	1,9	2,0	1,7	1,0	0,7
ES	1,1	1,1	1,5	1,5	1,5	1,4	1,2
FR	0,8	1,0	1,5	1,5	1,5	1,3	1,1
HR	1,0	1,6	2,1	2,1	1,7	1,7	1,5
IT	0,1	0,7	1,6	1,7	1,6	1,2	0,9
CY	0,3	1,0	1,8	1,9	1,6	1,4	1,1
LV	3,4	3,3	2,0	1,9	1,7	2,4	2,3
LT	3,3	3,5	1,9	1,7	1,6	2,3	2,2
LU	0,1	0,9	1,5	1,5	1,5	1,2	0,9
HU	1,0	2,0	2,1	2,0	1,7	1,8	1,6
MT	0,5	1,5	1,7	1,7	1,6	1,4	1,2
NL	0,4	0,9	1,5	1,5	1,5	1,2	1,0
AT	0,8	1,3	1,5	1,5	1,5	1,4	1,2
PL	3,1	2,8	2,0	1,9	1,6	2,2	2,1
PT	0,7	1,4	1,8	1,8	1,6	1,5	1,3
RO	2,3	2,7	2,3	2,2	1,8	2,3	2,0
SI	1,2	1,7	1,8	1,7	1,6	1,6	1,4
SK	2,7	3,1	1,9	1,7	1,6	2,2	2,0
FI	0,6	1,2	1,5	1,5	1,5	1,3	1,1
SE	1,2	1,5	1,5	1,5	1,5	1,5	1,2
UK	0,3	1,0	1,5	1,5	1,5	1,2	1,0
NO	1,4	1,6	1,6	1,5	1,5	1,5	1,3
EA	0,8	1,2	1,6	1,6	1,6	1,4	1,1
EU	0,9	1,3	1,6	1,6	1,6	1,4	1,2

Source: Commission services, EPC.

Labour input – total hours worked - in the EU and in the euro area is projected to be positive up to the late 2020s. Thereafter, the projected demographic changes, with a reduction in the size of the labour force stemming from the decline in the working-age population, are projected to lead to negative labour growth for the remainder of the projection period up to 2060, see Table I.3.6. Hence, labour will act as a drag on growth in both the EU and the euro area, and most Member States, from 2030 onwards.

Table I.3.6:	Total hours worked growth rate - Period average					
	2013-2020	2021-2030	2031-2040	2041-2050	2051-2060	*2013-2060*
BE	0,8	0,6	0,6	0,5	0,3	*0,5*
BG	0,0	-0,7	-0,9	-1,2	-0,7	*-0,8*
CZ	-0,2	-0,1	-0,1	-0,2	0,0	*-0,1*
DK	0,4	0,4	0,2	0,3	0,3	*0,3*
DE	0,0	-0,7	-0,7	-0,5	-0,7	*-0,6*
EE	0,1	-0,9	-0,5	-0,8	-0,5	*-0,6*
IE	0,7	0,1	0,1	0,0	0,9	*0,3*
EL	-0,6	0,6	-0,1	-1,0	-0,6	*-0,3*
ES	-0,6	0,7	0,0	-0,5	0,4	*0,0*
FR	0,4	0,4	0,2	0,2	0,2	*0,3*
HR	-0,2	-0,3	-0,1	-0,6	-0,6	*-0,4*
IT	0,4	0,5	-0,1	-0,2	0,0	*0,1*
CY	-0,1	0,9	0,8	0,5	0,4	*0,5*
LV	-0,7	-1,6	-0,7	-0,8	-0,4	*-0,9*
LT	-0,9	-2,8	-1,1	-0,4	-0,2	*-1,1*
LU	2,0	1,9	1,5	1,0	0,5	*1,3*
HU	0,2	0,1	-0,6	-0,7	-0,6	*-0,3*
MT	1,4	0,4	0,2	-0,2	-0,3	*0,3*
NL	0,4	0,1	-0,2	-0,1	-0,1	*0,0*
AT	0,7	0,2	0,1	-0,1	-0,3	*0,1*
PL	-0,1	-0,5	-0,4	-1,0	-1,1	*-0,6*
PT	-0,4	0,1	-0,8	-1,1	-0,8	*-0,6*
RO	-0,1	-0,9	-0,9	-0,8	-0,5	*-0,7*
SI	-0,5	-0,1	-0,4	-0,5	-0,2	*-0,3*
SK	-0,2	-0,4	-0,5	-1,1	-1,0	*-0,7*
FI	-0,1	0,1	0,3	0,1	-0,1	*0,1*
SE	0,8	0,6	0,6	0,5	0,3	*0,6*
UK	0,8	0,3	0,5	0,4	0,3	*0,4*
NO	1,1	0,9	0,9	0,7	0,4	*0,8*
EA	0,1	0,1	-0,2	-0,3	-0,1	*-0,1*
EU	0,2	0,0	-0,1	-0,2	-0,1	*-0,1*

Source: Commission services, EPC.

Table I.3.7:	TFP growth rate - Period average						
	2013-2020	2021-2030	2031-2040	2041-2050	2051-2060	*2013-2060*	*2013-2060 (risk scenario)*
BE	0,3	0,6	1,0	1,0	1,0	*0,8*	*0,6*
BG	1,0	1,3	1,5	1,4	1,1	*1,3*	*1,1*
CZ	0,9	1,3	1,2	1,1	1,0	*1,1*	*1,0*
DK	0,8	1,0	1,0	1,0	1,0	*1,0*	*0,8*
DE	0,8	1,0	1,0	1,0	1,0	*1,0*	*0,8*
EE	1,1	1,4	1,3	1,2	1,1	*1,2*	*1,1*
IE	0,4	1,0	1,0	1,0	1,0	*0,9*	*0,8*
EL	-0,7	0,3	1,2	1,3	1,1	*0,7*	*0,5*
ES	0,6	0,8	1,0	1,0	1,0	*0,9*	*0,8*
FR	0,4	0,6	1,0	1,0	1,0	*0,8*	*0,7*
HR	0,4	0,9	1,4	1,4	1,1	*1,1*	*0,9*
IT	0,1	0,5	1,1	1,1	1,0	*0,8*	*0,6*
CY	-0,1	0,4	1,2	1,2	1,1	*0,8*	*0,6*
LV	1,4	1,8	1,3	1,2	1,1	*1,4*	*1,3*
LT	1,7	1,9	1,2	1,1	1,0	*1,4*	*1,3*
LU	-0,2	0,5	1,0	1,0	1,0	*0,7*	*0,6*
HU	0,5	1,4	1,4	1,3	1,1	*1,2*	*1,0*
MT	0,4	0,8	1,1	1,1	1,0	*0,9*	*0,8*
NL	0,2	0,6	1,0	1,0	1,0	*0,8*	*0,6*
AT	0,5	0,8	1,0	1,0	1,0	*0,9*	*0,7*
PL	1,6	1,7	1,3	1,2	1,1	*1,4*	*1,2*
PT	0,6	1,0	1,2	1,2	1,1	*1,0*	*0,9*
RO	1,2	1,6	1,5	1,5	1,2	*1,4*	*1,2*
SI	0,7	1,1	1,1	1,1	1,0	*1,0*	*0,9*
SK	2,4	2,2	1,2	1,1	1,0	*1,6*	*1,5*
FI	0,2	0,8	1,0	1,0	1,0	*0,8*	*0,7*
SE	0,8	1,0	1,0	1,0	1,0	*1,0*	*0,8*
UK	0,1	0,6	1,0	1,0	1,0	*0,8*	*0,6*
NO	0,9	1,1	1,0	1,0	1,0	*1,0*	*0,9*
EA	0,5	0,8	1,0	1,0	1,0	*0,9*	*0,7*
EU	0,5	0,9	1,0	1,1	1,0	*0,9*	*0,8*

Source: Commission services, EPC.

Table I.3.7 and Table I.3.8 show the contribution of the main determinants of labour productivity (per hour worked), i.e. TFP growth and capital deepening. Trends in TFP growth explains most of productivity growth per hour worked. The increase in TFP growth in the EU as a whole follows from the assumption that countries with a catching up potential are assumed to experience a period of higher TFP growth during the projection period, primarily between 2030 to 2040. This is because in the long-run, the capital deepening contribution follows TFP growth (times the labour share). By assumption, TFP growth converges toward the rate of 1% by 2060 for all Member States. Given the use of the "capital rule", this implies a labour productivity growth rate of 1 ½% for all Member States in 2060 in the baseline scenario.

For the countries with a relatively low GDP per capita, the capital deepening contribution is very high in the first part of the projection period, reflecting the assumed catching-up process of converging economies. Then, the contribution gradually declines to the steady state value of 0.5 %, as the growth in the capital stock adjusts to growth in hours worked.

Table I.3.8:	Capital deepening contribution - period average					
	2013-2020	2021-2030	2031-2040	2041-2050	2051-2060	*2013-2060*
BE	0,1	0,3	0,5	0,5	0,5	*0,4*
BG	1,5	1,1	0,8	0,8	0,6	*0,9*
CZ	0,5	0,6	0,6	0,6	0,6	*0,6*
DK	0,3	0,6	0,5	0,5	0,5	*0,5*
DE	0,4	0,7	0,5	0,5	0,5	*0,5*
EE	1,2	1,1	0,7	0,7	0,6	*0,8*
IE	0,2	0,5	0,5	0,5	0,5	*0,5*
EL	-0,5	-0,1	0,7	0,7	0,6	*0,3*
ES	0,4	0,3	0,5	0,5	0,5	*0,5*
FR	0,4	0,4	0,5	0,5	0,5	*0,5*
HR	0,7	0,6	0,7	0,7	0,6	*0,7*
IT	0,0	0,2	0,6	0,6	0,6	*0,4*
CY	0,4	0,6	0,6	0,6	0,6	*0,6*
LV	1,9	1,5	0,7	0,7	0,6	*1,0*
LT	1,7	1,6	0,7	0,6	0,6	*1,0*
LU	0,3	0,3	0,5	0,5	0,5	*0,4*
HU	0,5	0,6	0,7	0,7	0,6	*0,6*
MT	0,0	0,7	0,6	0,6	0,6	*0,5*
NL	0,2	0,4	0,5	0,5	0,5	*0,4*
AT	0,3	0,5	0,5	0,5	0,5	*0,5*
PL	1,5	1,1	0,7	0,7	0,6	*0,9*
PT	0,1	0,5	0,6	0,6	0,6	*0,5*
RO	1,1	1,0	0,8	0,8	0,6	*0,9*
SI	0,6	0,6	0,6	0,6	0,6	*0,6*
SK	0,3	0,9	0,7	0,6	0,6	*0,6*
FI	0,4	0,4	0,5	0,5	0,5	*0,5*
SE	0,4	0,5	0,5	0,5	0,5	*0,5*
UK	0,3	0,4	0,5	0,5	0,5	*0,5*
NO	0,5	0,6	0,5	0,5	0,5	*0,5*
EA	0,3	0,4	0,5	0,6	0,6	*0,5*
EU	0,4	0,5	0,6	0,6	0,6	*0,5*

Source: Commission services, EPC.

3.8.2. Risk scenario

As mentioned above, it was decided to conduct both a baseline scenario and a risk scenario reflecting different assumptions regarding the growth rate of TFP. This would enable both consistency with past projection exercises (baseline scenario) while at the same time recognising the risks of lower TFP growth in the future (risk scenario), in light of the trend decline on TFP growth performance over the last decades.

The risk scenario essentially reveals that GDP growth could be much lower in the event that future TFP growth rates developed less dynamically than in the baseline scenario. In overall potential GDP terms, it would grow by 1.2% on average up to 2060, as opposed to 1.4% in the baseline scenario, see Table I.3.4.

3.9. CROSS-COUNTRY DIFFERENCES

While almost all EU Member States are projected to experience a more or less marked slowdown in

their potential growth rates in the future, owing to the adverse impact of demographic developments, growth rates differ substantially from country to country, as shown in Table I.3.4. In the first half of the projection period, productivity growth is the main source of discrepancy across countries, reflecting different productivity growth rates at the outset of the projection and the assumed differentiated paths of productivity growth, reflecting the catching-up potential. In the latter part of the projection period, developments in labour input have a more dominant role, primarily due to different demographic developments and the assumptions made on productivity growth rate convergence.

3.10. SOURCES OF GROWTH

The sources of GDP growth will alter dramatically. Labour will make a positive contribution to growth in both the EU and the euro area up to the 2020s, but turn negative thereafter (see Table I.3.6). Over time, labour productivity will become the dominant source of growth.

In order to assess the relative contribution to GDP growth of its two main components, labour productivity and labour utilisation, the standard growth accounting framework is shown in Table I.3.9. For the EU and for the euro area, a slight increase in the size of the total population over the entire projection period and an assumed increase on employment rates make a positive contribution to average potential GDP growth. However, this is more than offset by a decline in the share of the working-age population, which is a negative drag on growth (by an annual average of -0.2 percentage points). As a result, labour input contributes negatively to output growth on average over the projection period (by 0.1p.p., in the EU and in the euro area). Hence, labour productivity growth becomes the sole source for potential output growth in both the EU and the euro area over the entire projection period.

3.11. COMPARISON WITH THE 2012 LONG-TERM BUDGETARY PROJECTION EXERCISE

Following the largest economic crisis in many decades, potential GDP growth was revised downwards in 2009 and in subsequent years,

Graph I.3.3:   **Potential GDP growth compared**

Potential GDP growth - European Union
% change

Legend:
- 2012 AR
- 2015 AR
- 2015 AR - TFP risk scenario
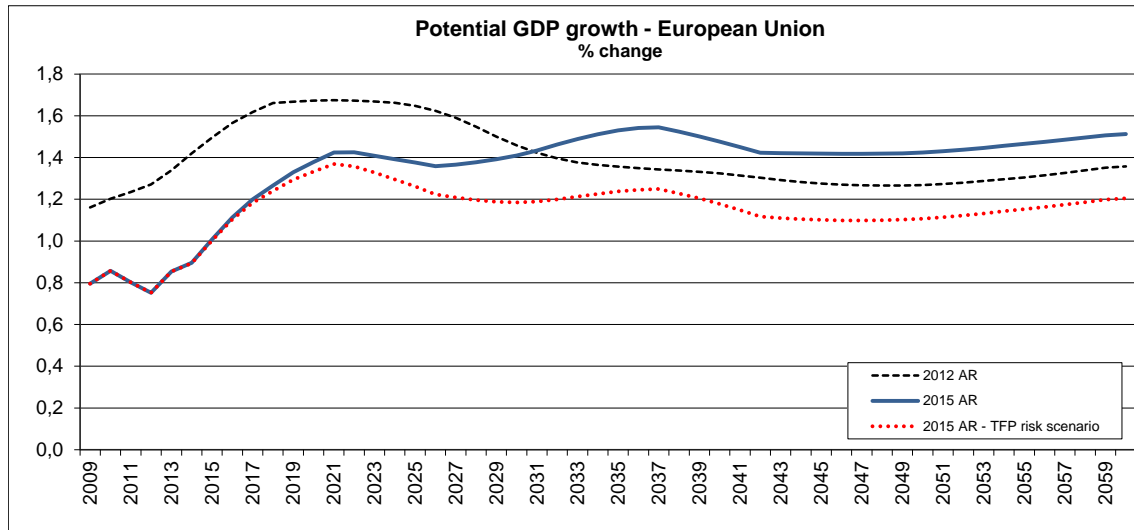
Source: Commission services, EPC.

compared with the baseline projection in the 2012 Ageing Report (see Graph I.3.3). The current projections indicate that potential growth in the EU as a whole should only gradually approach the growth rates projected in the 2012 Ageing Report. Due to more favourable labour developments from 2030 onwards in the baseline scenario, growth rates are projected to be somewhat higher from that point on. By contrast, in the risk scenario where a lower growth rate of TFP (of 0.8% vs. 1% in the baseline) is assumed, a lower growth performance would materialise throughout the projection horizon.

Table I.3.10 shows a comparison between the current baseline projection of potential GDP growth and its components and the projection in the 2012 exercise. Annual average potential GDP growth over the period 2013-2060 in the EU is projected to be 1.4%, the same as in the 2012 Ageing Report. A similar picture emerges for the euro area, although it would be slightly lower (by 0.1 pp.).

If TFP growth were to be less dynamic as depicted in the TFP risk scenario, annual average potential GDP growth over the period 2013-2060 in the EU is projected to be 1.1% (see Table I.3.11). Table I.3.12 shows a comparison between the current risk scenario projection of potential GDP growth and its components and the projection in the 2012 exercise. For the EU, potential GDP would on

average be 0.3 pp. lower than in the 2012 Ageing Report. A similar picture emerges for the euro area.

Table I.3.9: **Decomposition of potential GDP growth, baseline scenario, 2013-2060**

Country	GDP growth in 2013-2060	Labour prod. (GDP per hour worked)	TFP	Capital deepening	Labour input	Total population	Employment rate	Share of working age population	change in average hours worked	GDP per capita growth in 2013-2060
	1=2+5	2=3+4	3	4	5=6+7+8+9	6	7	8	9	10=1-6
BE	1,7	1,2	0,8	0,4	0,5	0,7	0,0	-0,1	0,0	1,1
BG	1,5	2,2	1,3	0,9	-0,8	-0,6	0,1	-0,3	0,0	2,1
CZ	1,6	1,7	1,1	0,6	-0,1	0,1	0,1	-0,3	0,0	1,5
DK	1,8	1,5	1,0	0,5	0,3	0,3	0,1	-0,2	0,0	1,4
DE	1,0	1,5	1,0	0,5	-0,6	-0,3	0,1	-0,3	0,0	1,3
EE	1,5	2,0	1,2	0,8	-0,6	-0,4	0,1	-0,3	0,0	1,9
IE	1,7	1,4	0,9	0,5	0,3	0,3	0,2	-0,2	0,1	1,4
EL	0,7	1,0	0,7	0,3	-0,3	-0,5	0,5	-0,3	0,0	1,2
ES	1,4	1,4	0,9	0,5	0,0	0,0	0,3	-0,3	0,0	1,4
FR	1,6	1,3	0,8	0,5	0,3	0,3	0,1	-0,1	0,0	1,3
HR	1,4	1,7	1,1	0,7	-0,4	-0,3	0,2	-0,2	0,0	1,7
IT	1,3	1,2	0,8	0,4	0,1	0,2	0,1	-0,2	0,0	1,1
CY	1,9	1,4	0,8	0,6	0,5	0,5	0,2	-0,2	0,0	1,3
LV	1,6	2,4	1,4	1,0	-0,9	-0,8	0,2	-0,3	0,0	2,3
LT	1,2	2,3	1,4	1,0	-1,1	-1,0	0,2	-0,3	0,0	2,3
LU	2,5	1,2	0,7	0,4	1,4	1,6	-0,1	-0,1	-0,1	0,9
HU	1,5	1,8	1,2	0,6	-0,3	-0,2	0,1	-0,3	0,0	1,6
MT	1,7	1,4	0,9	0,5	0,3	0,3	0,3	-0,3	0,0	1,5
NL	1,2	1,2	0,8	0,4	0,0	0,0	0,1	-0,2	0,0	1,2
AT	1,5	1,4	0,9	0,5	0,1	0,3	0,1	-0,2	0,0	1,2
PL	1,6	2,2	1,4	0,9	-0,6	-0,3	0,0	-0,3	0,0	1,9
PT	0,9	1,5	1,0	0,5	-0,6	-0,5	0,2	-0,3	0,0	1,4
RO	1,6	2,3	1,4	0,9	-0,7	-0,3	-0,1	-0,3	0,0	1,9
SI	1,3	1,6	1,0	0,6	-0,3	0,0	0,0	-0,3	0,0	1,3
SK	1,5	2,2	1,6	0,6	-0,7	-0,4	0,0	-0,3	0,0	1,9
FI	1,4	1,3	0,8	0,5	0,1	0,3	0,0	-0,2	0,0	1,1
SE	2,0	1,5	1,0	0,5	0,6	0,7	0,0	-0,2	0,0	1,4
UK	1,7	1,2	0,8	0,5	0,4	0,5	0,1	-0,2	0,0	1,2
NO	2,3	1,5	1,0	0,5	0,8	1,0	-0,1	-0,1	0,0	1,3
EA	1,3	1,4	0,9	0,5	-0,1	0,0	0,1	-0,2	0,0	1,3
EU	1,4	1,4	0,9	0,5	-0,1	0,1	0,1	-0,2	0,0	1,3

Source: Commission services, EPC.

Table I.3.10: **2015 baseline and 2012 baseline scenarios compared, 2013-2060 (% points)**

Country	GDP growth in 2013-2060	Labour prod. (GDP per hour worked)	TFP	Capital deepening	Labour input	Total population	Employment rate	Share of working age population	change in average hours worked	GDP per capita growth in 2013-2060
	1=2+5	2=3+4	3	4	5=6+7+8+9	6	7	8	9	10=1-6
BE	0,1	-0,3	-0,1	-0,1	0,4	0,3	0,1	0,0	0,0	-0,2
BG	0,2	0,0	-0,1	0,1	0,2	0,0	0,2	0,0	0,0	0,2
CZ	0,1	-0,2	-0,1	-0,1	0,2	0,1	0,1	0,0	0,0	-0,1
DK	0,3	0,0	0,0	0,0	0,3	0,1	0,1	0,0	0,0	0,1
DE	0,2	0,0	0,0	0,0	0,1	0,1	0,1	0,0	0,0	0,0
EE	-0,1	0,0	-0,1	0,0	-0,1	-0,1	0,1	0,0	0,0	0,0
IE	-0,6	-0,2	-0,1	-0,1	-0,4	-0,5	0,1	-0,1	0,1	-0,1
EL	-0,4	-0,2	-0,1	-0,1	-0,2	-0,5	0,3	0,0	0,0	0,1
ES	-0,3	0,0	0,1	-0,1	-0,3	-0,3	0,0	0,0	0,0	0,0
FR	-0,1	-0,2	-0,1	-0,1	0,1	0,1	0,1	0,0	0,0	-0,1
HR	:	:	:	:	:	:	:	:	:	:
IT	-0,1	-0,2	-0,1	-0,1	0,1	0,1	0,0	0,0	0,0	-0,2
CY	0,0	-0,1	-0,1	0,0	0,1	-0,1	0,3	0,0	0,0	0,2
LV	0,3	0,3	0,1	0,2	0,0	-0,2	0,1	0,0	0,0	0,5
LT	-0,1	0,4	0,2	0,2	-0,5	-0,6	0,1	-0,1	0,0	0,5
LU	0,6	-0,4	-0,3	-0,1	1,0	0,9	0,1	0,0	0,0	-0,3
HU	0,3	0,1	0,1	0,0	0,2	0,1	0,1	0,0	0,0	0,2
MT	0,3	-0,3	-0,2	-0,1	0,6	0,4	0,2	0,0	0,0	-0,1
NL	-0,1	-0,3	-0,2	-0,1	0,2	0,0	0,2	0,0	0,0	-0,1
AT	0,1	-0,2	-0,1	0,0	0,2	0,2	0,1	0,0	0,0	-0,1
PL	0,3	0,1	0,0	0,1	0,1	0,0	0,1	0,0	0,0	0,2
PT	-0,4	0,0	0,0	0,0	-0,4	-0,4	0,1	0,0	0,0	0,0
RO	0,6	0,2	0,1	0,1	0,4	0,2	0,2	0,0	0,0	0,4
SI	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
SK	0,0	0,0	0,2	-0,2	0,0	-0,2	0,2	0,0	0,0	0,2
FI	-0,1	-0,3	-0,3	-0,1	0,2	0,2	0,0	0,0	0,0	-0,3
SE	0,3	-0,1	0,0	0,0	0,4	0,3	0,1	0,0	0,0	0,0
UK	-0,2	-0,4	-0,3	-0,1	0,1	0,0	0,1	0,0	0,0	-0,2
NO	0,4	0,0	0,0	0,0	0,5	0,4	0,0	0,0	0,0	0,0
EA	-0,1	-0,1	-0,1	0,0	0,0	0,0	0,1	0,0	0,0	-0,1
EU	0,0	-0,1	-0,1	-0,1	0,1	0,0	0,1	0,0	0,0	-0,1

Source: Commission services, EPC.

Table I.3.11: **Decomposition of potential GDP growth, risk scenario, 2013-2060**

Country	GDP growth in 2013-2060	Labour prod. (GDP per hour worked)	TFP	Capital deepening	Labour input	Total population	Employment rate	Share of working age population	change in average hours worked	GDP per capita growth in 2013-2060
	1=2+5	2=3+4	3	4	5=6+7+8+9	6	7	8	9	10=1-6
BE	1,5	1,0	0,6	0,3	0,5	0,7	0,0	-0,1	0,0	0,8
BG	1,2	2,0	1,1	0,9	-0,8	-0,6	0,1	-0,3	0,0	1,8
CZ	1,4	1,5	1,0	0,5	-0,1	0,1	0,1	-0,3	0,0	1,3
DK	1,5	1,3	0,8	0,4	0,3	0,3	0,1	-0,2	0,0	1,2
DE	0,7	1,3	0,8	0,5	-0,6	-0,3	0,1	-0,3	0,0	1,0
EE	1,3	1,9	1,1	0,8	-0,6	-0,4	0,1	-0,3	0,0	1,7
IE	1,5	1,2	0,8	0,4	0,3	0,3	0,2	-0,2	0,1	1,2
EL	0,4	0,7	0,5	0,2	-0,3	-0,5	0,5	-0,3	0,0	0,9
ES	1,2	1,2	0,8	0,4	0,0	0,0	0,3	-0,3	0,0	1,2
FR	1,4	1,1	0,7	0,4	0,3	0,3	0,1	-0,1	0,0	1,1
HR	1,1	1,5	0,9	0,6	-0,4	-0,3	0,2	-0,2	0,0	1,4
IT	1,0	0,9	0,6	0,3	0,1	0,2	0,1	-0,2	0,0	0,8
CY	1,7	1,1	0,6	0,5	0,5	0,5	0,2	-0,2	0,0	1,1
LV	1,4	2,3	1,3	1,0	-0,9	-0,8	0,2	-0,3	0,0	2,2
LT	1,1	2,2	1,3	0,9	-1,1	-1,0	0,2	-0,3	0,0	2,1
LU	2,3	0,9	0,6	0,4	1,4	1,6	-0,1	-0,1	-0,1	0,7
HU	1,3	1,6	1,0	0,6	-0,3	-0,2	0,1	-0,3	0,0	1,4
MT	1,5	1,2	0,8	0,5	0,3	0,3	0,3	-0,3	0,0	1,2
NL	1,0	1,0	0,6	0,4	0,0	0,0	0,1	-0,2	0,0	0,9
AT	1,3	1,2	0,7	0,4	0,1	0,3	0,1	-0,2	0,0	1,0
PL	1,4	2,1	1,2	0,8	-0,6	-0,3	0,0	-0,3	0,0	1,8
PT	0,7	1,3	0,9	0,4	-0,6	-0,5	0,2	-0,3	0,0	1,2
RO	1,3	2,0	1,2	0,8	-0,7	-0,3	-0,1	-0,3	0,0	1,6
SI	1,1	1,4	0,9	0,5	-0,3	0,0	0,0	-0,3	0,0	1,1
SK	1,4	2,0	1,5	0,6	-0,7	-0,4	0,0	-0,3	0,0	1,7
FI	1,2	1,1	0,7	0,4	0,1	0,3	0,0	-0,2	0,0	0,9
SE	1,8	1,2	0,8	0,4	0,6	0,7	0,0	-0,2	0,0	1,2
UK	1,4	1,0	0,6	0,4	0,4	0,5	0,1	-0,2	0,0	1,0
NO	2,1	1,3	0,9	0,5	0,8	1,0	-0,1	-0,1	0,0	1,1
EA	1,1	1,1	0,7	0,4	-0,1	0,0	0,1	-0,2	0,0	1,0
EU	1,2	1,2	0,8	0,4	-0,1	0,1	0,1	-0,2	0,0	1,1

Source: Commission services, EPC.

Table I.3.12: **2015 risk scenario and 2012 baseline scenarios compared, 2013-2060 (% points)**

Country	GDP growth in 2013-2060	Labour prod. (GDP per hour worked)	TFP	Capital deepening	Labour input	Total population	Employment rate	Share of working age population	change in average hours worked	GDP per capita growth in 2013-2060
	1=2+5	2=3+4	3	4	5=6+7+8+9	6	7	8	9	10=1-6
BE	-0,1	-0,5	-0,3	-0,2	0,4	0,3	0,1	0,0	0,0	-0,4
BG	-0,1	-0,3	-0,3	0,0	0,2	0,0	0,2	0,0	0,0	-0,1
CZ	-0,2	-0,4	-0,2	-0,2	0,2	0,1	0,1	0,0	0,0	-0,3
DK	0,0	-0,2	-0,1	-0,1	0,3	0,1	0,1	0,0	0,0	-0,1
DE	-0,1	-0,2	-0,1	-0,1	0,1	0,1	0,1	0,0	0,0	-0,2
EE	-0,3	-0,2	-0,2	0,0	-0,1	-0,1	0,1	0,0	0,0	-0,2
IE	-0,8	-0,5	-0,3	-0,2	-0,4	-0,5	0,1	-0,1	0,1	-0,3
EL	-0,7	-0,5	-0,3	-0,2	-0,2	-0,5	0,3	0,0	0,0	-0,2
ES	-0,5	-0,2	-0,1	-0,1	-0,3	-0,3	0,0	0,0	0,0	-0,2
FR	-0,3	-0,4	-0,3	-0,1	0,1	0,1	0,1	0,0	0,0	-0,4
HR	:	:	:	:	:	:	:	:	:	:
IT	-0,3	-0,4	-0,3	-0,2	0,1	0,1	0,0	0,0	0,0	-0,4
CY	-0,2	-0,3	-0,3	0,0	0,1	-0,1	0,3	0,0	0,0	-0,1
LV	0,1	0,2	0,0	0,2	0,0	-0,2	0,1	0,0	0,0	0,3
LT	-0,2	0,3	0,1	0,2	-0,5	-0,6	0,1	-0,1	0,0	0,4
LU	0,4	-0,6	-0,4	-0,2	1,0	0,9	0,1	0,0	0,0	-0,5
HU	0,0	-0,1	0,0	-0,1	0,2	0,1	0,1	0,0	0,0	-0,1
MT	0,1	-0,5	-0,3	-0,2	0,6	0,4	0,2	0,0	0,0	-0,3
NL	-0,3	-0,5	-0,4	-0,2	0,2	0,0	0,2	0,0	0,0	-0,3
AT	-0,1	-0,4	-0,3	-0,1	0,2	0,2	0,1	0,0	0,0	-0,3
PL	0,1	0,0	-0,1	0,0	0,1	0,0	0,1	0,0	0,0	0,1
PT	-0,6	-0,2	-0,1	-0,1	-0,4	-0,4	0,1	0,0	0,0	-0,2
RO	0,3	-0,1	-0,1	0,0	0,4	0,2	0,2	0,0	0,0	0,1
SI	-0,2	-0,2	-0,1	-0,1	0,0	0,0	0,0	0,0	0,0	-0,2
SK	-0,2	-0,2	0,1	-0,2	0,0	-0,2	0,2	0,0	0,0	0,0
FI	-0,4	-0,6	-0,4	-0,2	0,2	0,2	0,0	0,0	0,0	-0,5
SE	0,1	-0,3	-0,2	-0,1	0,4	0,3	0,1	0,0	0,0	-0,2
UK	-0,5	-0,6	-0,4	-0,2	0,1	0,0	0,1	0,0	0,0	-0,5
NO	0,2	-0,3	-0,2	-0,1	0,5	0,4	0,0	0,0	0,0	-0,2
EA	-0,3	-0,3	-0,2	-0,1	0,0	0,0	0,1	0,0	0,0	-0,3
EU	-0,3	-0,3	-0,2	-0,1	0,1	0,0	0,1	0,0	0,0	-0,3

Source: Commission services, EPC.

4. INTEREST RATES

4.1. BACKGROUND

For the purpose of the long-term projections, the AWG agreed that the real rate of return on funded pensions should be equal to the real long-term interest rate for all Member States. In the current pension projection exercise, private pension projections are voluntary. For those Member States that project taxes on pensions, it was agreed that they should specify the assumptions underlying those projections. In some cases, this may require a projection of the evolution of private funded pensions, where the assumed rate of return is an important determinant.

4.2. ASSUMPTIONS ON INTEREST RATES TO BE USED IN THE 2015 PROJECTION OF AGE-RELATED EXPENDITURE

A constant long-term real interest rate of 3% was assumed in the 2012 Ageing Report. In the period since the 1970s, real long-term interest rates have ranged around that value, see Table I.4.1. In order to provide consistency with the previous projection exercises, the same real long-term interest rate of 3% is used, corresponding to 5% nominal long-term interest rate with the inflation (GDP deflator) assumption remaining at 2%.

Table I.4.1: **Average real long-term interest rates (1971-2013)**

BE	DK	DE	IE	FR	IT
3.5	4.3	3.5	2.9	2.9	2.0
NL	AT	FI	SE	UK	US
3.1	3.2	2.8	2.7	2.3	2.9

(1) DE: Data for Western Germany until 1991
(2) interest rates deflated with the GDP deflator.
Source: AMECO.

As was the case in the 2012 Ageing Report projections, a period of convergence to the long-term interest rate is assumed. This convergence period entails taking due account of country specific situations in the short run, while still maintaining the assumption of a common long-term real interest rate in the long run.

Specifically, the AWG decided to set the real long-term interest rate to 3% in ten years' time, converging from current country-specific levels. Inflation is assumed to reach 2% from current country-specific levels by 2018, when the output gap is assumed to be closed. This entails that nominal long-term interest rates should converge to 5% over the long-term. The rate of return on pension fund assets is therefore set to converge to 3% real and 5% nominal.

5. SENSITIVITY TESTS

5.1. BACKGROUND

The 2015 age-related expenditure projection exercise is carried out on the basis of commonly agreed and relatively simple assumptions in order to ensure comparability and clarity. Therefore, the baseline projections cannot capture all the direct and indirect channels through which ageing can influence economic and budgetary developments. In addition, the assumptions used for the long-run projections are surrounded with uncertainty. Therefore it is necessary to carry out a number of sensitivity tests in order to quantify the responsiveness of projection results to changes in key underlying assumptions.

A change or shock to a single underlying assumption/parameter in the projection framework is introduced by the sensitivity tests. For each sensitivity test, a uniform shock is applied to all Member States. In order to provide a clear picture of the key factors driving the projection results and the potential sources of risk to future public expenditure developments, the presentation and assessment of the impact of ageing populations on particular age-related expenditure items should be made with reference to all scenarios (baseline plus sensitivity tests).

The sensitivity tests provide useful information on the robustness of the projections to changes in the key underlying assumptions. The relative impact can also be read as an 'elasticity' parameter. Thus, the sensitivity tests enable an assessment of the impact of any possible policy changes with an effect on key assumption variables.

For communication purposes, the sensitivity tests have been calibrated to deliver results of equivalent magnitude to the extent possible.([50])

In addition, following the mandate of the EPC, a policy change scenario has been introduced, in order to assess the impact of automatic rules adapting the legal retirement age to changes in life expectancy over time.

This is why in addition to running a baseline projection based on the assumptions outlined in the chapters 1 to 4 of this report, the European Commission and the EPC have also agreed to run a series of sensitivity tests and a policy change scenario. An overview of these can be seen in Table I.5.1.

5.2. MACRO-ECONOMIC ASSUMPTIONS UNDER THE DIFFERENT SENSITIVITY SCENARIOS

The macroeconomic assumptions under the different sensitivity scenarios are given in Table I.5.2 through Table I.5.8. The assumption under the policy scenario are described in the following section and summarised in Table I.5.9.

To produce the overall set of assumptions, a bottom-up approach was followed, i.e. from population projections through labour input and to GDP growth projections. Therefore, each sensitivity test may involve the recalculation of all assumptions and the re-running of the labour force and productivity function-based models, in order to keep a consistent macroeconomic framework.

The policy scenario: linking retirement ages with increases in life expectancy

This scenario considers the adoption of an automatic mechanism, starting from the base year, that revises retirement age requirements in line with the evolution of life expectancy at retirement age. Therefore, both early and statutory retirement ages are shifted year-over-year in line with change in life expectancy at current statutory retirement age in the Cohort Simulation Model. To take into account the already legislated changes in retirement age reflected in the baseline scenario, the highest effective retirement age outcome between the one reported in the 2015 Ageing Report baseline projection and the one in the "linking age to life expectancy" simulation scenario is assumed at every point in time over the projection horizon.

([50]) For the EU as a whole, the impact of varying the underlying assumptions on the projected change in pension expenditure (2010-2060) was as follows in the 2012 Ageing Report: higher employment rate of older workers (+5 p.p.): -0.2163 p.p. of GDP; higher total employment rate (+1 p.p.): -0.1777 p.p. of GDP; positive labour productivity shock (+0.1 p.p.): -0.2159 p.p. of GDP; higher life expectancy (1 extra year): +0.2319 p.p. of GDP; lower migration (-10 p.p.): +0.0675 p.p. of GDP.

Table I.5.1:   **Overview of the sensitivity tests**

Population		Labour force		Productivity	
High life expectancy	**Lower migration**	**Higher employment rate**	**Higher employment rate older workers**	**Higher/lower labour productivity**	**Lower TFP (risk scenario)**
A scenario with an increase of life expectancy at birth of two years by 2060 compared with the baseline projection.	A scenario with 20% less migration compared with the baseline projection.	A scenario with the employment rate being 2 p.p. higher compared with the baseline projection for the age-group 20-64. The increase is introduced linearly over the period 2016-2025 and remains 2 p.p. higher thereafter. The higher employment rate is assumed to be achieved by lowering the rate of structural unemployment (the NAWRU).	A scenario with the employment rate of older workers (55-74) being 10 p.p. higher compared with the baseline projection. The increase is introduced linearly over the period 2016-2025 and remains 10 p.p. higher thereafter. The higher employment rate of this group of workers is assumed to be achieved through a reduction of the inactive population.	A scenario with labour productivity growth being assumed to converge, to a productivity growth rate which is 0.25 percentage points higher/lower than in the baseline scenario. The increase is introduced linearly during the period 2016-2025, and remains 0.25 p.p. above/below the baseline thereafter.	TFP growth would converge to 0.8%, with convergence to the target rate in 2035 from the latest outturn year, i.e. 2013, and the period of fast convergence limited to 5 years, i.e. until 2040.

Source: Commission services, EPC.

This means that, from the year when the "effective retirement age" outcome is higher under the "linking age to life expectancy" scenario, the exit probabilities distribution as projected under the baseline scenario is progressively shifted in line with gains in life expectancy at retirement from that year (combined simulation).

Indeed, especially in the short- and medium-run and even in the long-run for women, legal retirement ages might increase faster under current legislation than under the simulated scenario referred above as "linking age to life expectancy".

Therefore, by selecting the higher effective retirement age outcome between the 2015 Ageing Report baseline projection and the "shift" simulation scenario, the already legislated reforms are explicitly taken into account in the analysis. The combined labour force projection is finally used to produce the new set of macroeconomic assumptions needed for running each Member State's national pension models in order to simulate the impact of the "dynamic retirement age" assumption on pension expenditure.[51]

For countries where, under current legislation, the increase in retirement age is higher than the increases related to gains in life expectancy at retirement, no deviations are expected in term of labour force, GDP and pension expenditure over GDP in comparison with the baseline (Italy, Greece).

Finally, in order to cater for the potential negative effect of retirement age increase on the labour market for older workers, the potential increase in labour supply due to the automatic mechanism is reduced by 25%, and this is simulated by increasing the number of older unemployed persons in a proportional manner.

Under this projection methodology, the effective retirement age is supposed to follow closely the changes in the statutory retirement age under the sensitivity scenario. This is because the exit probabilities distribution is progressively shifted to higher ages so that the exit probabilities at each single age are moved in line with gains in life expectancy. Consequently, the country specific gaps between early and statutory retirement ages as observed in the base year 2013 remain unchanged.[52] This also implies that changes in life expectancy are spent in good health since exit

---

[51] For a more detailed description of the methodology see Schwan, A. and Sail, E., 2013: 'Assessing the economic and budgetary impact of linking retirement ages and pension benefits to increases in longevity', European Economy, Economic Papers 512.

[52] This assumption implicitly assumes also that all legal and institutional settings (e.g. contributory period) will move in line with changes in life expectancy.

Table I.5.2: **Sensitivity tests: higher life expectancy**

	GDP growth in 2013-2060	Productivity (GDP per hour worked)	TFP	Capital deepening	Labour input	Total population	Employment rate	Share of working age population	Change in average hours worked	GDP per capita growth in 2013-2060
Country	1=2+5	2=3+4	3	4	5=6+7+8+9	6	7	8	9	10=1-6
BE	1.8	1.2	0.8	0.4	0.6	0.7	0.0	-0.1	0.0	1.1
BG	1.5	2.2	1.3	0.9	-0.7	-0.6	0.1	-0.3	0.0	2.1
CZ	1.6	1.7	1.1	0.6	-0.1	0.1	0.1	-0.3	0.0	1.5
DK	1.8	1.5	1.0	0.5	0.3	0.3	0.2	-0.1	0.0	1.5
DE	1.0	1.5	1.0	0.5	-0.5	-0.3	0.1	-0.3	0.0	1.3
EE	1.5	2.0	1.2	0.8	-0.5	-0.4	0.1	-0.2	0.0	1.9
IE	1.7	1.4	0.9	0.5	0.3	0.3	0.2	-0.2	0.1	1.4
EL	0.7	1.0	0.7	0.3	-0.3	-0.5	0.4	-0.3	0.1	1.2
ES	1.4	1.4	0.9	0.5	0.0	0.0	0.3	-0.3	0.0	1.4
FR	1.6	1.3	0.8	0.5	0.3	0.3	0.1	-0.1	0.0	1.3
HR	1.4	1.7	1.1	0.7	-0.4	-0.3	0.2	-0.2	0.0	1.7
IT	1.3	1.2	0.8	0.4	0.1	0.2	0.1	-0.2	0.0	1.1
CY	1.9	1.4	0.8	0.6	0.5	0.5	0.2	-0.2	0.0	1.3
LV	1.6	2.4	1.4	1.0	-0.8	-0.8	0.2	-0.3	0.0	2.4
LT	1.3	2.3	1.4	1.0	-1.1	-1.0	0.1	-0.3	0.0	2.3
LU	2.5	1.2	0.7	0.4	1.4	1.6	-0.1	-0.1	-0.1	0.9
HU	1.5	1.8	1.2	0.6	-0.3	-0.2	0.1	-0.3	0.0	1.6
MT	1.7	1.4	0.9	0.5	0.3	0.3	0.3	-0.3	0.0	1.5
NL	1.2	1.2	0.8	0.4	0.0	0.0	0.1	-0.2	0.0	1.2
AT	1.5	1.4	0.9	0.5	0.1	0.3	0.1	-0.2	0.0	1.2
PL	1.6	2.2	1.4	0.9	-0.6	-0.3	0.0	-0.3	0.0	1.9
PT	0.9	1.5	1.0	0.5	-0.6	-0.5	0.2	-0.3	0.0	1.4
RO	1.6	2.3	1.4	0.9	-0.6	-0.3	-0.1	-0.3	0.0	1.9
SI	1.3	1.6	1.0	0.6	-0.3	0.0	0.0	-0.3	0.0	1.3
SK	1.6	2.2	1.6	0.6	-0.6	-0.4	0.1	-0.3	0.0	2.0
FI	1.4	1.3	0.8	0.5	0.1	0.3	0.0	-0.2	0.0	1.1
SE	2.0	1.5	1.0	0.5	0.6	0.7	0.0	-0.1	0.0	1.4
UK	1.7	1.2	0.8	0.5	0.4	0.5	0.1	-0.2	0.0	1.2
NO	2.3	1.5	1.0	0.5	0.8	1.0	-0.1	-0.1	0.0	1.3
EA	1.3	1.4	0.9	0.5	-0.1	0.0	0.1	-0.2	0.0	1.3
EU28	1.4	1.4	0.9	0.5	0.0	0.1	0.1	-0.2	0.0	1.3

Source: Commission services, EPC.

probabilities are not adjusted to incorporate higher exits due to disability.([53])

([53]) It is thus assumed that the probability of entry into disability pensions in the base year stays constant. If the probability was rising with higher ages when linking statutory retirement ages with gains in life expectancy, disability pension expenditures would probably increase in case pension accrual for disability pensions was linked to income and pension contributions. A counterbalancing effect would however be achieved due to a lower number of (potentially higher) old-age pensions.

Table I.5.3: **Sensitivity tests: Lower migration**

	GDP growth in 2013-2060	Productivity (GDP per hour worked)	TFP	Capital deepening	Labour input	Due to growth in: Total population	Employment rate	Share of working age population	Change in average hours worked	GDP per capita growth in 2013-2060
Country	1=2+5	2=3+4	3	4	5=6+7+8+9	6	7	8	9	10=1-6
BE	1.6	1.2	0.8	0.4	0.4	0.7	0.0	-0.3	0.0	0.9
BG	1.5	2.2	1.3	0.9	-0.8	-0.6	0.1	-0.3	0.0	2.1
CZ	1.5	1.7	1.1	0.6	-0.2	0.1	0.1	-0.4	0.0	1.4
DK	1.7	1.5	1.0	0.5	0.2	0.3	0.1	-0.2	0.0	1.3
DE	0.9	1.5	1.0	0.6	-0.6	-0.3	0.1	-0.4	-0.1	1.2
EE	1.5	2.0	1.2	0.8	-0.5	-0.4	0.1	-0.2	0.0	1.9
IE	1.7	1.4	0.9	0.5	0.4	0.3	0.2	-0.2	0.1	1.5
EL	0.7	1.0	0.7	0.3	-0.3	-0.5	0.4	-0.3	0.1	1.2
ES	1.3	1.4	0.9	0.5	-0.1	0.0	0.3	-0.4	0.0	1.3
FR	1.5	1.3	0.8	0.5	0.2	0.3	0.1	-0.2	0.0	1.2
HR	1.3	1.7	1.1	0.7	-0.4	-0.3	0.2	-0.3	0.0	1.6
IT	1.1	1.2	0.8	0.4	0.0	0.2	0.1	-0.4	0.0	0.9
CY	1.8	1.4	0.8	0.6	0.4	0.5	0.2	-0.4	0.0	1.2
LV	1.6	2.4	1.4	1.0	-0.8	-0.8	0.2	-0.2	0.0	2.4
LT	1.4	2.3	1.4	1.0	-0.9	-1.0	0.1	-0.1	0.1	2.4
LU	2.2	1.2	0.7	0.5	1.0	1.6	0.0	-0.4	-0.1	0.6
HU	1.4	1.8	1.2	0.6	-0.4	-0.2	0.1	-0.3	0.0	1.6
MT	1.6	1.5	0.9	0.5	0.1	0.3	0.3	-0.4	0.0	1.3
NL	1.2	1.2	0.8	0.4	-0.1	0.0	0.1	-0.2	0.0	1.1
AT	1.3	1.4	0.9	0.5	-0.1	0.3	0.1	-0.4	-0.1	1.0
PL	1.6	2.2	1.4	0.9	-0.7	-0.3	0.0	-0.3	0.0	1.9
PT	0.9	1.5	1.0	0.5	-0.7	-0.5	0.1	-0.3	0.0	1.4
RO	1.6	2.3	1.4	0.9	-0.7	-0.3	-0.1	-0.3	0.0	1.9
SI	1.2	1.6	1.0	0.6	-0.4	0.0	0.0	-0.4	-0.1	1.2
SK	1.5	2.2	1.6	0.6	-0.7	-0.4	0.0	-0.3	0.0	1.9
FI	1.3	1.3	0.8	0.5	0.0	0.3	0.0	-0.3	0.0	1.0
SE	1.9	1.5	1.0	0.5	0.4	0.7	0.0	-0.3	0.0	1.2
UK	1.6	1.2	0.8	0.5	0.3	0.5	0.1	-0.2	0.0	1.1
NO	2.1	1.5	1.0	0.5	0.6	1.0	-0.1	-0.3	0.0	1.1
EA	1.2	1.4	0.9	0.5	-0.2	0.0	0.1	-0.3	0.0	1.2
EU28	1.3	1.4	0.9	0.5	-0.1	0.1	0.1	-0.3	0.0	1.2

Source: Commission services, EPC.

Table I.5.4: **Sensitivity tests: higher employment rate**

	GDP growth in 2013-2060	Productivity (GDP per hour worked)	TFP	Capital deepening	Labour input	Due to growth in: Total population	Employment rate	Share of working age population	Change in average hours worked	GDP per capita growth in 2013-2060
Country	1=2+5	2=3+4	3	4	5=6+7+8+9	6	7	8	9	10=1-6
BE	1.8	1.2	0.8	0.4	0.6	0.7	0.0	-0.1	0.1	1.1
BG	1.5	2.2	1.3	0.9	-0.7	-0.6	0.2	-0.3	0.1	2.1
CZ	1.6	1.7	1.1	0.6	-0.1	0.1	0.1	-0.3	0.0	1.5
DK	1.8	1.5	1.0	0.5	0.3	0.3	0.1	-0.2	0.0	1.5
DE	1.0	1.5	1.0	0.5	-0.5	-0.3	0.1	-0.3	0.0	1.3
EE	1.5	2.0	1.2	0.8	-0.5	-0.4	0.1	-0.3	0.0	1.9
IE	1.8	1.4	0.9	0.5	0.4	0.3	0.2	-0.2	0.1	1.5
EL	0.7	1.0	0.7	0.3	-0.3	-0.5	0.5	-0.3	0.1	1.3
ES	1.4	1.4	0.9	0.5	0.1	0.0	0.3	-0.3	0.1	1.5
FR	1.6	1.3	0.8	0.5	0.3	0.3	0.1	-0.1	0.0	1.3
HR	1.4	1.7	1.1	0.7	-0.3	-0.3	0.2	-0.2	0.1	1.7
IT	1.3	1.2	0.8	0.4	0.2	0.2	0.1	-0.2	0.0	1.1
CY	1.9	1.4	0.8	0.6	0.6	0.5	0.2	-0.2	0.0	1.4
LV	1.6	2.4	1.4	1.0	-0.8	-0.8	0.2	-0.3	0.1	2.4
LT	1.3	2.3	1.4	1.0	-1.1	-1.0	0.2	-0.3	0.1	2.3
LU	2.5	1.1	0.7	0.4	1.4	1.6	0.0	-0.1	0.0	0.9
HU	1.5	1.8	1.1	0.6	-0.3	-0.2	0.1	-0.3	0.0	1.7
MT	1.8	1.4	0.9	0.5	0.3	0.3	0.3	-0.3	0.0	1.5
NL	1.2	1.2	0.8	0.4	0.0	0.0	0.1	-0.2	0.1	1.2
AT	1.5	1.4	0.9	0.5	0.1	0.3	0.1	-0.2	0.0	1.2
PL	1.7	2.2	1.4	0.9	-0.6	-0.3	0.0	-0.3	0.0	2.0
PT	0.9	1.5	1.0	0.5	-0.6	-0.5	0.2	-0.3	0.1	1.5
RO	1.7	2.3	1.4	0.9	-0.6	-0.3	-0.1	-0.3	0.1	2.0
SI	1.3	1.6	1.0	0.6	-0.3	0.0	0.1	-0.3	0.0	1.4
SK	1.6	2.2	1.6	0.6	-0.6	-0.4	0.0	-0.3	0.0	1.9
FI	1.4	1.3	0.8	0.5	0.1	0.3	0.0	-0.2	0.0	1.1
SE	2.1	1.5	1.0	0.5	0.6	0.7	0.0	-0.2	0.1	1.4
UK	1.7	1.2	0.8	0.5	0.5	0.5	0.1	-0.2	0.1	1.2
NO	2.4	1.5	1.0	0.5	0.8	1.0	-0.1	-0.1	0.0	1.3
EA	1.3	1.4	0.9	0.5	0.0	0.0	0.1	-0.2	0.0	1.3
EU28	1.4	1.4	0.9	0.5	0.0	0.1	0.1	-0.2	0.0	1.4

Source: Commission services, EPC.

Table I.5.5: **Sensitivity tests: higher employment rate of older workers**

Country	GDP growth in 2013-2060	Productivity (GDP per hour worked)	TFP	Capital deepening	Labour input	Total population	Employment rate	Share of working age population	Change in average hours worked	GDP per capita growth in 2013-2060
	1=2+5	2=3+4	3	4	5=6+7+8+9	6	7	8	9	10=1-6
BE	1.9	1.2	0.8	0.4	0.7	0.7	0.0	-0.1	0.1	1.2
BG	1.6	2.2	1.3	0.9	-0.6	-0.6	0.2	-0.3	0.1	2.2
CZ	1.7	1.7	1.1	0.6	0.0	0.1	0.1	-0.3	0.1	1.6
DK	1.9	1.5	1.0	0.5	0.4	0.3	0.2	-0.2	0.1	1.5
DE	1.1	1.5	1.0	0.5	-0.4	-0.3	0.1	-0.3	0.0	1.4
EE	1.6	2.0	1.2	0.8	-0.5	-0.4	0.1	-0.3	0.1	2.0
IE	1.8	1.4	0.9	0.5	0.4	0.3	0.2	-0.2	0.1	1.5
EL	0.8	1.0	0.7	0.3	-0.2	-0.5	0.5	-0.3	0.2	1.3
ES	1.5	1.4	0.9	0.5	0.1	0.0	0.3	-0.3	0.1	1.5
FR	1.7	1.3	0.8	0.5	0.4	0.3	0.1	-0.1	0.1	1.4
HR	1.5	1.7	1.1	0.7	-0.2	-0.3	0.2	-0.2	0.1	1.8
IT	1.4	1.2	0.8	0.4	0.3	0.2	0.1	-0.2	0.1	1.2
CY	2.0	1.4	0.8	0.6	0.6	0.5	0.2	-0.2	0.1	1.4
LV	1.6	2.4	1.4	1.0	-0.8	-0.8	0.2	-0.3	0.1	2.4
LT	1.3	2.3	1.4	1.0	-1.0	-1.0	0.1	-0.3	0.2	2.3
LU	2.6	1.1	0.7	0.4	1.5	1.6	0.0	-0.1	0.0	1.0
HU	1.6	1.8	1.2	0.6	-0.2	-0.2	0.2	-0.3	0.1	1.8
MT	1.8	1.4	0.9	0.5	0.4	0.3	0.3	-0.3	0.1	1.6
NL	1.3	1.2	0.8	0.4	0.1	0.0	0.1	-0.2	0.1	1.3
AT	1.6	1.4	0.9	0.5	0.2	0.3	0.1	-0.2	0.0	1.3
PL	1.7	2.2	1.4	0.9	-0.5	-0.3	0.1	-0.3	0.0	2.0
PT	1.0	1.5	1.0	0.5	-0.5	-0.5	0.2	-0.3	0.1	1.5
RO	1.7	2.3	1.4	0.9	-0.5	-0.3	-0.1	-0.3	0.1	2.0
SI	1.4	1.6	1.0	0.6	-0.2	0.0	0.1	-0.3	0.0	1.4
SK	1.7	2.2	1.6	0.6	-0.5	-0.4	0.1	-0.3	0.1	2.0
FI	1.5	1.3	0.8	0.5	0.2	0.3	0.0	-0.2	0.1	1.2
SE	2.1	1.5	1.0	0.5	0.7	0.7	0.1	-0.2	0.1	1.5
UK	1.8	1.2	0.8	0.5	0.5	0.5	0.1	-0.2	0.1	1.3
NO	2.4	1.5	1.0	0.5	0.9	1.0	-0.1	-0.1	0.1	1.4
EA	1.4	1.3	0.9	0.5	0.1	0.0	0.1	-0.2	0.1	1.4
EU28	1.5	1.4	0.9	0.5	0.1	0.1	0.1	-0.2	0.1	1.4

Source: Commission services, EPC.

Table I.5.6: **Sensitivity tests: higher productivity growth**

Country	GDP growth in 2013-2060	Productivity (GDP per hour worked)	TFP	Capital deepening	Labour input	Total population	Employment rate	Share of working age population	Change in average hours worked	GDP per capita growth in 2013-2060
	1=2+5	2=3+4	3	4	5=6+7+8+9	6	7	8	9	10=1-6
BE	2.0	1.4	1.0	0.4	0.5	0.7	0.0	-0.1	0.0	1.3
BG	1.7	2.4	1.5	0.9	-0.8	-0.6	0.1	-0.3	0.0	2.3
CZ	1.8	1.9	1.3	0.6	-0.1	0.1	0.1	-0.3	0.0	1.7
DK	2.0	1.7	1.2	0.5	0.3	0.3	0.1	-0.2	0.0	1.7
DE	1.2	1.7	1.2	0.5	-0.6	-0.3	0.1	-0.3	0.0	1.5
EE	1.7	2.2	1.4	0.8	-0.6	-0.4	0.1	-0.3	0.0	2.1
IE	1.9	1.6	1.1	0.5	0.3	0.3	0.2	-0.2	0.1	1.6
EL	0.9	1.2	0.9	0.3	-0.3	-0.5	0.5	-0.3	0.0	1.4
ES	1.6	1.6	1.1	0.5	0.0	0.0	0.3	-0.3	0.0	1.6
FR	1.8	1.5	1.0	0.5	0.3	0.3	0.1	-0.1	0.0	1.5
HR	1.6	2.0	1.3	0.7	-0.4	-0.3	0.2	-0.2	0.0	1.9
IT	1.5	1.4	1.0	0.4	0.1	0.2	0.1	-0.2	0.0	1.3
CY	2.1	1.6	1.0	0.6	0.5	0.5	0.2	-0.2	0.0	1.6
LV	1.8	2.6	1.6	1.0	-0.9	-0.8	0.2	-0.3	0.0	2.6
LT	1.5	2.6	1.6	1.0	-1.1	-1.0	0.2	-0.3	0.0	2.5
LU	2.7	1.4	0.9	0.4	1.4	1.6	-0.1	-0.1	-0.1	1.1
HU	1.7	2.0	1.4	0.6	-0.3	-0.2	0.1	-0.3	0.0	1.9
MT	1.9	1.7	1.1	0.5	0.3	0.3	0.3	-0.3	0.0	1.7
NL	1.4	1.4	1.0	0.4	0.0	0.0	0.1	-0.2	0.0	1.4
AT	1.7	1.6	1.1	0.5	0.1	0.3	0.1	-0.2	0.0	1.4
PL	1.8	2.5	1.6	0.9	-0.6	-0.3	0.0	-0.3	0.0	2.1
PT	1.1	1.7	1.2	0.5	-0.6	-0.5	0.2	-0.3	0.0	1.6
RO	1.8	2.5	1.6	0.9	-0.7	-0.3	-0.1	-0.3	0.0	2.1
SI	1.5	1.8	1.2	0.6	-0.3	0.0	0.0	-0.3	0.0	1.5
SK	1.7	2.4	1.8	0.6	-0.7	-0.4	0.0	-0.3	0.0	2.1
FI	1.6	1.5	1.0	0.5	0.1	0.3	0.0	-0.2	0.0	1.3
SE	2.2	1.7	1.2	0.5	0.6	0.7	0.0	-0.2	0.0	1.6
UK	1.9	1.4	1.0	0.5	0.4	0.5	0.1	-0.2	0.0	1.4
NO	2.5	1.7	1.2	0.5	0.8	1.0	-0.1	-0.1	0.0	1.5
EA	1.5	1.6	1.1	0.5	-0.1	0.0	0.1	-0.2	0.0	1.5
EU28	1.6	1.6	1.1	0.5	-0.1	0.1	0.1	-0.2	0.0	1.5

Source: Commission services, EPC.

Table I.5.7: **Sensitivity tests: lower productivity growth**

	GDP growth in 2013-2060	Productivity (GDP per hour worked)	TFP	Capital deepening	Labour input	Due to growth in: Total population	Employment rate	Share of working age population	Change in average hours worked	GDP per capita growth in 2013-2060
Country	1=2+5	2=3+4	3	4	5=6+7+8+9	6	7	8	9	10=1-6
BE	1.5	1.0	0.6	0.4	0.5	0.7	0.0	-0.1	0.0	0.9
BG	1.2	2.0	1.1	0.9	-0.8	-0.6	0.1	-0.3	0.0	1.9
CZ	1.4	1.5	0.9	0.6	-0.1	0.1	0.1	-0.3	0.0	1.3
DK	1.6	1.3	0.8	0.5	0.3	0.3	0.1	-0.2	0.0	1.2
DE	0.8	1.3	0.8	0.5	-0.6	-0.3	0.1	-0.3	0.0	1.1
EE	1.3	1.8	1.0	0.8	-0.6	-0.4	0.1	-0.3	0.0	1.7
IE	1.5	1.2	0.7	0.5	0.3	0.3	0.2	-0.2	0.1	1.2
EL	0.5	0.8	0.5	0.3	-0.3	-0.5	0.5	-0.3	0.0	1.0
ES	1.2	1.2	0.7	0.5	0.0	0.0	0.3	-0.3	0.0	1.2
FR	1.4	1.1	0.6	0.5	0.3	0.3	0.1	-0.1	0.0	1.1
HR	1.2	1.5	0.9	0.7	-0.4	-0.3	0.2	-0.2	0.0	1.5
IT	1.1	1.0	0.6	0.4	0.1	0.2	0.1	-0.2	0.0	0.9
CY	1.7	1.1	0.6	0.6	0.5	0.5	0.2	-0.2	0.0	1.1
LV	1.3	2.2	1.2	1.0	-0.9	-0.8	0.2	-0.3	0.0	2.1
LT	1.0	2.1	1.2	1.0	-1.1	-1.0	0.2	-0.3	0.0	2.0
LU	2.3	0.9	0.5	0.4	1.4	1.6	-0.1	-0.1	-0.1	0.7
HU	1.3	1.6	0.9	0.6	-0.3	-0.2	0.1	-0.3	0.0	1.4
MT	1.5	1.2	0.7	0.5	0.3	0.3	0.3	-0.3	0.0	1.2
NL	1.0	1.0	0.6	0.4	0.0	0.0	0.1	-0.2	0.0	0.9
AT	1.3	1.2	0.7	0.5	0.1	0.3	0.1	-0.2	0.0	1.0
PL	1.4	2.0	1.1	0.9	-0.6	-0.3	0.0	-0.3	0.0	1.7
PT	0.7	1.3	0.8	0.5	-0.6	-0.5	0.2	-0.3	0.0	1.2
RO	1.4	2.1	1.2	0.9	-0.7	-0.3	-0.1	-0.3	0.0	1.7
SI	1.1	1.4	0.8	0.6	-0.3	0.0	0.0	-0.3	0.0	1.1
SK	1.3	2.0	1.3	0.6	-0.7	-0.4	0.0	-0.3	0.0	1.7
FI	1.2	1.1	0.6	0.5	0.1	0.3	0.0	-0.2	0.0	0.9
SE	1.8	1.2	0.8	0.5	0.6	0.7	0.0	-0.2	0.0	1.2
UK	1.5	1.0	0.6	0.5	0.4	0.5	0.1	-0.2	0.0	1.0
NO	2.1	1.3	0.8	0.5	0.8	1.0	-0.1	-0.1	0.0	1.1
EA	1.1	1.1	0.7	0.5	-0.1	0.0	0.1	-0.2	0.0	1.0
EU28	1.2	1.2	0.7	0.5	-0.1	0.1	0.1	-0.2	0.0	1.1

Source: Commission services, EPC.

Table I.5.8: **Sensitivity tests: lower TFP (risk scenario)**

	GDP growth in 2013-2060	Productivity (GDP per hour worked)	TFP	Capital deepening	Labour input	Due to growth in: Total population	Employment rate	Share of working age population	Change in average hours worked	GDP per capita growth in 2013-2060
Country	1=2+5	2=3+4	3	4	5=6+7+8+9	6	7	8	9	10=1-6
BE	1.5	1.0	0.6	0.3	0.5	0.7	0.0	-0.1	0.0	0.8
BG	1.2	2.0	1.1	0.9	-0.8	-0.6	0.1	-0.3	0.0	1.8
CZ	1.4	1.5	1.0	0.5	-0.1	0.1	0.1	-0.3	0.0	1.3
DK	1.5	1.3	0.8	0.4	0.3	0.3	0.1	-0.2	0.0	1.2
DE	0.7	1.3	0.8	0.5	-0.6	-0.3	0.1	-0.3	0.0	1.0
EE	1.3	1.9	1.1	0.8	-0.6	-0.4	0.1	-0.3	0.0	1.7
IE	1.5	1.2	0.8	0.4	0.3	0.3	0.2	-0.2	0.1	1.2
EL	0.4	0.7	0.5	0.2	-0.3	-0.5	0.5	-0.3	0.0	0.9
ES	1.2	1.2	0.8	0.4	0.0	0.0	0.3	-0.3	0.0	1.2
FR	1.4	1.1	0.7	0.4	0.3	0.3	0.1	-0.1	0.0	1.1
HR	1.1	1.5	0.9	0.6	-0.4	-0.3	0.2	-0.2	0.0	1.4
IT	1.0	0.9	0.6	0.3	0.1	0.2	0.1	-0.2	0.0	0.8
CY	1.7	1.1	0.6	0.5	0.5	0.5	0.2	-0.2	0.0	1.1
LV	1.4	2.3	1.3	1.0	-0.9	-0.8	0.2	-0.3	0.0	2.2
LT	1.1	2.2	1.3	0.9	-1.1	-1.0	0.2	-0.3	0.0	2.1
LU	2.3	0.9	0.6	0.4	1.4	1.6	-0.1	-0.1	-0.1	0.7
HU	1.3	1.6	1.0	0.6	-0.3	-0.2	0.1	-0.3	0.0	1.4
MT	1.5	1.2	0.8	0.5	0.3	0.3	0.3	-0.3	0.0	1.2
NL	1.0	1.0	0.6	0.4	0.0	0.0	0.1	-0.2	0.0	0.9
AT	1.3	1.2	0.7	0.4	0.1	0.3	0.1	-0.2	0.0	1.0
PL	1.4	2.1	1.2	0.8	-0.6	-0.3	0.0	-0.3	0.0	1.8
PT	0.7	1.3	0.9	0.4	-0.6	-0.5	0.2	-0.3	0.0	1.2
RO	1.3	2.0	1.2	0.8	-0.7	-0.3	-0.1	-0.3	0.0	1.6
SI	1.1	1.4	0.9	0.5	-0.3	0.0	0.0	-0.3	0.0	1.1
SK	1.4	2.0	1.5	0.6	-0.7	-0.4	0.0	-0.3	0.0	1.7
FI	1.2	1.1	0.7	0.4	0.1	0.3	0.0	-0.2	0.0	0.9
SE	1.8	1.2	0.8	0.4	0.6	0.7	0.0	-0.2	0.0	1.2
UK	1.4	1.0	0.6	0.4	0.4	0.5	0.1	-0.2	0.0	1.0
NO	2.1	1.3	0.9	0.5	0.8	1.0	-0.1	-0.1	0.0	1.1
EA	1.1	1.1	0.7	0.4	-0.1	0.0	0.1	-0.2	0.0	1.0
EU28	1.2	1.2	0.8	0.4	-0.1	0.1	0.1	-0.2	0.0	1.1

Source: Commission services, EPC.

Table I.5.9: **Alternative policy scenario: linking retirement age to life expectancy**

Country	GDP growth in 2013-2060	Productivity (GDP per hour worked)	TFP	Capital deepening	Labour input	Due to growth in: Total population	Employment rate	Share of working age population	Change in average hours worked	GDP per capita growth in 2013-2060
	1=2+5	2=3+4	3	4	5=6+7+8+9	6	7	8	9	10=1-6
BE	1.9	1.2	0.8	0.4	0.7	0.7	0.1	-0.1	0.0	1.2
BG	1.6	2.2	1.3	0.9	-0.6	-0.6	0.3	-0.3	0.0	2.2
CZ	1.7	1.7	1.1	0.6	0.0	0.1	0.2	-0.3	0.0	1.6
DK	1.8	1.5	1.0	0.5	0.3	0.3	0.1	-0.2	0.0	1.4
DE	1.1	1.5	1.0	0.5	-0.5	-0.3	0.2	-0.3	-0.1	1.4
EE	1.6	2.0	1.2	0.8	-0.4	-0.4	0.3	-0.3	0.0	2.0
IE	1.8	1.4	0.9	0.5	0.4	0.3	0.2	-0.2	0.1	1.5
EL	0.7	1.0	0.7	0.3	-0.3	-0.5	0.5	-0.3	0.0	1.2
ES	1.4	1.4	0.9	0.5	0.0	0.0	0.3	-0.3	0.0	1.4
FR	1.6	1.3	0.8	0.5	0.3	0.3	0.2	-0.1	0.0	1.3
HR	1.5	1.7	1.1	0.7	-0.2	-0.3	0.3	-0.2	0.0	1.8
IT	1.3	1.2	0.8	0.4	0.1	0.2	0.1	-0.2	0.0	1.1
CY	1.9	1.4	0.8	0.6	0.5	0.5	0.2	-0.2	0.0	1.4
LV	1.7	2.4	1.4	1.0	-0.7	-0.8	0.3	-0.3	0.0	2.5
LT	1.4	2.3	1.4	1.0	-1.0	-1.0	0.3	-0.3	0.1	2.4
LU	2.6	1.1	0.7	0.4	1.5	1.6	0.1	-0.1	-0.1	1.0
HU	1.5	1.8	1.2	0.6	-0.2	-0.2	0.2	-0.3	0.0	1.7
MT	1.8	1.4	0.9	0.5	0.4	0.3	0.4	-0.3	0.0	1.5
NL	1.2	1.2	0.8	0.4	0.0	0.0	0.2	-0.2	0.0	1.2
AT	1.5	1.4	0.9	0.5	0.2	0.3	0.1	-0.2	0.0	1.2
PL	1.7	2.2	1.4	0.9	-0.6	-0.3	0.1	-0.3	0.0	2.0
PT	0.9	1.5	1.0	0.5	-0.6	-0.5	0.2	-0.3	0.0	1.5
RO	1.8	2.3	1.4	0.9	-0.5	-0.3	0.0	-0.3	0.1	2.1
SI	1.3	1.6	1.0	0.6	-0.3	0.0	0.1	-0.3	0.0	1.4
SK	1.7	2.2	1.6	0.6	-0.5	-0.4	0.2	-0.3	0.0	2.0
FI	1.5	1.3	0.8	0.5	0.2	0.3	0.1	-0.2	0.0	1.2
SE	2.1	1.5	1.0	0.5	0.7	0.7	0.1	-0.2	0.0	1.5
UK	1.8	1.2	0.8	0.5	0.6	0.5	0.2	-0.2	0.1	1.3
NO	2.4	1.5	1.0	0.5	0.9	1.0	0.0	-0.1	0.0	1.4
EA	1.3	1.4	0.9	0.5	0.0	0.0	0.2	-0.2	0.0	1.3
EU28	1.4	1.4	0.9	0.5	0.0	0.1	0.2	-0.2	0.0	1.4

Source: Commission services, EPC.

ANNEX 1

Projecting labour force developments using the cohort simulation model (CSM)

Overall approach of the CSM

The CSM calculates entry and exit rates in the labour market by gender and cohort. The methodology was initially developed at the OECD, ([54]) but its implementation in the Ageing Report follows Carone (2005), namely the use of single ages instead of the average of 5 year age groups.

The dynamic cohort approach is based on the estimates of exit and entry rates in the labour market of a "synthetic" generation/cohort. The cohort is "synthetic" because, due to lack of individual longitudinal data on labour market transitions, the same individual cannot be followed over time. Instead, it is assumed that those individuals aged x+1 at year t+1 are representative of the same generation observed in the previous year (aged x at time t). Due to the lack of specific information on each individual's behaviour, this assumption neglects inflows and outflows from the labour market that cancel out. ([55])

Participation rate projections are produced by applying the average entry and exit rates observed over the period 2004-2013 by gender and single age to the period 2014-2060. Specifically, average entry rates for the period 2004-2013 are kept constant over the entire projection period. For example, average entry rates for persons aged x, calculated for the period 2004 to 2013 (with x varying between 15 and 74 years of age), are applied to persons aged X over the projection horizon of 2014 to 2060 in order to calculate future participation rates. In this way, the CSM captures "cohort effects", namely those resulting from the stronger attachment of younger women of more recent cohorts to the labour market.

The CSM is also able to incorporate a broad typology of pension reforms, inter alia, increases

in the statutory retirement age, the convergence of women's lower statutory retirement age to that of men's, the linking of the statutory retirement age to changes in life expectancy, the tightening of conditions for early retirement, and changes in (price) incentives affecting the retirement decision. The likely impact of pension reforms is incorporated in the labour force projections by appropriately changing average labour market exit probabilities calculated for the period 2004 to 2013.

The calculation of entry rates

Entry rates from inactivity to the labour market are calculated as follows.

The calculation of the number of persons that enter the labour market (coming from inactivity) takes into account the size of each gender/age group. It can be expressed as:

$$NLF_x^{t+1} = (Pop \max_{wa} - LF_x^t) - (Pop \max_{wa} - LF_{x+1}^{t+1})$$

where $LF_x^t + NLF_{x+1}^{t+1} \leq Pop \max_{wa}$

where NLF is the number of people expected to become active between ages x and x+1; $Pop \max_{wa}$ is the maximum population in working age that can potentially enter the labour force (which is usually slightly lower than the overall civilian population in working age, due for example to illness/inability) and LF is the number of active persons (in labour force) aged x in year t and aged x+1 in year t+1.

Multiplying and dividing by the population aged x at time t (which is supposed to remain the same as the population aged x+1 at time t+1), the following equation is obtained:

$$NLF_x^{t+1} = \left[(Pr_{max} - Pr_x^t) - (Pr_{max} - Pr_{x+1}^{t+1}) \right] * Pop_x^t$$

where Pr_{max} is the upper limit to the participation rate (we assume 0.99 for both men and women). ([56]) Thus, we can calculate the rate of entry, *Ren* by dividing the number of people

---

([54]) See Burniaux et al. (2003), and Sherer (2002), which developed a dynamic version of Latulippe (1996) methodology.

([55]) For example, this means that if in year t there are 100 persons aged x in the labour force and next year (when aged x+1) these same individuals leave the labour force (for whatever reason, such as discouragement, having died or emigrated), but they are replaced by other 100 individuals aged x+1, previously out of the labour force, we do not observe any change in the size of our "synthetic" cohort. As a consequence, our calculated net rates of exit and entry are equal to zero, while the actual (gross) value is 100 per cent.

([56]) Burniaux et al (2003) used as maximum value for participation rate (*PRmax*) 0.99 for men and 0.95 for women.

expected to become active by the number of people inactive at time t, that is:

$$\mathrm{Re}\,n = \frac{NLF_x^{t+1}}{Pop_{\max_{wa}} - LF_x^t} = \left[(\mathrm{Pr}_{\max} - \mathrm{Pr}_x^t) - (\mathrm{Pr}_{\max} - \mathrm{Pr}_{x+1}^{t+1}) \right] * \frac{Pop_x^t}{Pop_{\max_{wa}} - LF_x^t}$$

which, taking into account that $PR_x^t = \dfrac{Pop_x^t}{LF_x^t}$ and $\mathrm{Prmax} = \dfrac{Pop\max_{wax}^t}{Pop_x^t}$ can be reformulated as:

$$\mathrm{Ren}_{x+1} = \left[(\mathrm{Pr}_{\max} - \mathrm{Pr}_x^t) - (\mathrm{Pr}_{\max} - \mathrm{Pr}_{x+1}^{t+1}) \right] * \frac{1}{(\mathrm{Pr}_{\max} - \mathrm{Pr}_x^t)}$$

or

$$\mathrm{Ren}_{x+1} = \left[1 - \frac{(\mathrm{Pr}_{\max} - \mathrm{Pr}_{x+1}^{t+1})}{(\mathrm{Pr}_{\max} - \mathrm{Pr}_x^t)} \right] \geq 0$$

or

$$\mathrm{Ren}_{x+1} = \frac{(\mathrm{Pr}_{x+1}^{t+1} - \mathrm{Pr}_x^t)}{(1 - \mathrm{Pr}_x^t)} \,] \geq 0 \quad \text{when } \mathrm{Pr}_{\max} = 1$$

After re-arranging, we obtain the analytical formulation used for projecting participation rates. Thus, projections of participation rates based on these entry rates are:

$$PR_{x+1}^{t+1} = \mathrm{Re}\,n_{x+1} * (PR\max - PR_x^t) + PR_x^t$$

Thus, projections of participation rates for each single-year cohort (x+1) can be calculated by applying the entry rates observed in a given year or period over the period of projections (t=2014-2060). In practical terms, the entry rates for each age have been calculated on the basis of the average of the participation rates observed over the period 2004-2013.

The calculation of exit rates

In the same way, when participation rates for two adjacent single-year age groups are falling, we calculate an exit rate (that is the net reduction in the labour force relative to the number of people who were initially in the labour force in the same cohort the year before) as follows.

The number of persons that leave the labour market at time t+1 is equivalent to:

$$OP_x^{t+1} = LF_x^t - LF_{x+1}^{t+1}$$

where OP are the number of individuals expected to become inactive between age x and x+1, and LF is the number of active persons (in the labour force) aged x in year t and aged x+1 in year t+1.

Multiplying and dividing by the population aged x at time t, which is supposed to remain the same as the population aged x+1 at time t+1, we get:

$$OP_x^{t+1} = \left(PR_x^t - PR_{x+1}^{t+1} \right) * Pop_x^t$$

where PR are the participation rates.

Thus, we can calculate the (conditional) rate of exit, *Rex* by dividing the number of people that become inactive at time t+1 by the number of people active at time t, that is

$$\mathrm{Re}\,x = \frac{OP_x^{t+1}}{LF_x^t} = \left[PR_x^t - PR_{x+1}^{t+1} \right] * \frac{Pop_x^t}{LF_x^t}$$

which can also be re-arranged as:

$$\mathrm{Re}\,x = \frac{OP_x^{t+1}}{LF_x^t} = 1 - \frac{PR_{x+1}^{t+1}}{PR_x^t}$$

Thus, we can use this *Rex* to project participation rates of older workers as:

$$PR_{x+1}^{t+1} = (1 - \mathrm{Re}\,x_{x+1}) * PR_x^t$$

and

$$PR_{x+n}^{t+n} = (1 - \mathrm{Re}\,x_{x+1}) * (1 - \mathrm{Re}\,x_{x+2}) * .. * (1 - \mathrm{Re}\,x_{x+n-1}) * PR_x^t$$

ANNEX 2

Estimation of the average exit age from the labour market

Average exit age from the labour force ([57])

In order to estimate the "average exit age" (or the effective retirement age) from the labour force, the CSM is used, which is basically a probabilistic model using gender/single year participation rates. The "average exit age" was included in the list of the structural indicators to monitor progress towards Lisbon and Barcelona targets (specifically: "*the progressive increase of about five years in the effective average age at which people stop working in the European Union by 2010*"), and originally applied to five-year age cohort. The methodology is based on the comparison of labour force participation rates over time.

However and as indicated in the main text of Chapter 2, this indicator will soon be discontinued, being replaced by a new indicator called "*duration of working life*".

The conditional probability for each person to stay in the labour force at age a in year t, (conditional upon staying in the labour force in year t-1), can be calculated using the observed activity rates (Pr) as follows:

Probability to stay

$$cProb_{a,t}^{stay} = \frac{Pr_a^t}{Pr_{a-1}^{t-1}}$$

where $0 \le c\,Pr\,ob_{a,t}^{stay} \le 1$

Thus, at time t, the conditional probability for each person to exit at age a (cProb^{ex} a, t) is simply equal to:

Probability of exit

$$cProb_{a,t}^{ex} = 1 - \frac{Pr_a^t}{Pr_{a-1}^{t-1}} = 1 - cProb_{a,t}^{stay}$$

where $0 \le cProb_{a,t}^{ex} \le 1$

Assuming that nobody retires before the minimum age m (e.g. before m=60), the (unconditional) probability that any person will still be in the labour force (that is the probability of not retiring before a given age a can be calculated as the product of all the conditional probabilities to stay in the labour force from age m to age a-1):

Probability of not retiring before

$$Prob_{a,t}^{notret} = \prod_{i=m}^{a-1} cProb_i^{stay}$$

Thus, the probability of retiring at age a can be calculated as the product of the unconditional probability of not retiring from age m to a and the (conditional) probability of exit, that is:

Probability of retiring

$$Prob_{a,t}^{ret} = Prob_{a,t}^{notret} cProb_{a,t}^{ex}$$

By assuming that everybody will be retired at a given age M (e.g. $M= 75$), the sum of the probability of retiring between the minimum age m and the maximum age M is equal to 1:

$$\sum_{a=m}^{M} Pr\,ob_a^{ret} = 1$$

The "*average exit age*" or effective age of retirement from the labour market is then calculated as the weighted sum of the retirement ages (between the minimum and the maximum age of retirement , say 60-74), where the weights are the probability of retiring at each age a, as follows:

Average exit age

$$Aea = \sum_{a=m}^{M} Pr\,ob_a^{ret} * a$$

([57]) See Carone (2005).

Part II

Age-related expenditure items: coverage, projection methodologies and data sources

1. PENSIONS

1.1. MAIN FEATURES OF PENSION PROJECTIONS

Common projection models are used to carry out long-term projections on health-care, long-term care, education and unemployment benefit expenditures, as developed by the Commission services (DG ECFIN) in cooperation with the AWG (see Chapters 2 through 5 for detailed descriptions). For pension projections, since the beginning of the activity of the AWG, the EPC decided upon a different approach: projections of pension expenditure were to be carried out by the Member States using national models. This decision was based on the fact that the existing diversified manifold of pension systems would prove difficult to capture in one centralised framework.

National models, run on the basis of the commonly agreed underlying assumptions described in Part I of this report, reflecting in more detail the institutional features of the pension systems in individual countries, highlighting those that should have relevant bearing on the future budgetary outcomes.

This approach was chosen by the Commission and EPC because pension systems and arrangements are very diverse in the EU Member States, making it extremely difficult to reliably project pension expenditure on the basis of one common model, to be used for all the 28 EU Member States.

Using different, country-specific projection models, may nevertheless introduce an element of non-comparability of the projection results. Therefore in order to ensure high quality and comparability of the pension projection results, an in-depth peer review is being carried out by the AWG members and the Commission. The projected figures are discussed and validated with regard to adherence to the agreed methodology and macroeconomic assumptions and interpretation of the legislation in force in each Member State. When deemed necessary, the peer group can ask the Member State for a revision of the projection.

1.2. COVERAGE OF PENSION PROJECTIONS

The government expenditure on pensions for *both the private and public sectors* is the core of the pension projection exercise as it was in the 2012 projection exercise. In line with previous exercises, the members of the AWG agreed to provide pension projections for the following items:

- Gross pension expenditure;

- Benefit ratio and gross average replacement rates;

- Number of pensions/pensioners;

- Revenues from contributions and the number of contributors;

- Decomposition of new pension expenditure (earnings related).

According to the principle of not changing the modality of the variables that were classified as voluntary in the previous exercise, the issues above are projected on a voluntary basis when related to private occupational and private individual pension schemes. Moreover, the breakdown by age of the total number of pensions and the total number of pensioners and the net pension expenditure are classified as voluntary.

The Commission and the AWG agreed that, for the 2015 pension projection exercise, Member States do not have to provide figures on:

- Assets of pension funds and reserves

Moreover, it is confirmed that, considering that figures on net pension can be provided, the AWG Member States do not project the following item:

- Taxes on pension

Finally, the members of the AWG agreed that, for the 2015 exercise, projections also have to be made on the following item:

- Public earning-related pension expenditure for new pensions

MSs and the Commission agreed that it constitutes an improvement to have the decomposition of new pension expenditure projected also by gender. Moreover, in order to tackle countries' specificities, in the case of pension point systems (CY, DE, HR, RO, SK and partially FR) the structure of the module of new pension expenditure has been bilaterally agreed by the MS and the Commission.

Therefore, the part of the reporting sheet that is common to all pension schemes (see Annex 1, Table II.A.1.1) consists of 140 variables to be projected; 56 are to be provided on a voluntary basis and 5 are input data provided by the Commission. A complete list of items covered by the 2015 pension projection exercise, including the blocks for new pension decomposition, is presented in Annex 1.

1.2.1. Building on and extending the 2012 reporting framework

In the previous pension projection exercise (2012), several improvements were introduced that form a solid point of departure for the current round of projections. Still, a few changes in the 2015 pension reporting framework are introduced. All of the amendments were duly discussed by AWG delegates and Commission services (DG-ECFIN), and reflect the need to better understand recent developments and the expected changes over the projection period with regards to the main features of the pension systems in the Member States.

The amendments to the reporting framework mainly stem from the following considerations:

- The willingness to improve the information disclosure of the reporting framework and to enhance the transparency and the reliability of the projections by allowing for consistency and internal coherence checks. Enhanced data availability can have an impact on the effectiveness of the peer review process by facilitating information exchange, highlighting best practices, as far as projection methodologies are concerned, and facilitating benchmarking of Member States when it comes to judging the viability of projection results. Moreover, it will enrich the contents of the forthcoming 2015 Ageing and Sustainability reports.

- In order to shed light on the future levels of pensions – which are also relevant for the policy debate on the adequacy of pensions in the future – the evolution of the average replacement rate at retirement (RRR; first pension over the last economy-wide average wage) by generation was included already in the 2012 reporting framework. In addition, the gross average replacement rate is also an important indicator to assess the consistency of projections. In order to insure the consistency of the projected RRR, the series on the economy-wide average wage at retirement is included in the reporting framework.

- The disaggregation of the projected annual flow of earnings-related pensions to new pensions in their main drivers contributes to the understanding of the future functioning of pension systems and is a value added to the peer review and the transparency of the projection exercise. The entire block on new pension expenditure decomposition is focused on old-age and early-age earnings-related pension. The AWG agreed to introduce some flexibility in the reporting of the breakdown of the expenditure drivers for new pensions and coverage rates to cater for country specificities in the case of points systems (see previous section).

- Furthermore, it is proposed that the decomposition for new pension expenditure is also split by gender. This would improve the transparency of projections even further as gender inequalities in the labour market and different pension rules may result in quite different dynamics of pension entitlements among men and women.

- The reporting sheet has been modified in order to have earnings-related benefit (old age and early pension, disability, survivor and other) clearly separated from the non-earnings-related ones. This would help to disentangle those benefits that are financed through contributions from those that are not, in order to have social assistance policies separated from pension policies. This will also help to improve the consistency between labour force projections and flows into retirement.

- Disentangling contributions into employer's, employee's and State contributions would provide a clear picture of the financing of the pension system. Thus, by separating contributions (employer and employee) from taxes (State), allows to better grasp future public finance pressures caused by demographic change. Moreover it improves the transparency and reliability of the projections by allowing for a comparison with reported contribution rates.

To sum up, the 2015 reporting sheet is organised in 8 broad groups of information to be provided:

- Pension expenditure

- Benefit ratio

- Gross average replacement rates (at retirement)

- Number of pensions

- Number of pensioners

- Contributions

- Number of contributors to pension schemes

- Decomposition of new public pensions (earnings-related pensions)

1.3.   DEFINITIONS OF THE VARIABLES

1.3.1. Reporting norms and input data

Member States will run projections for the period from 2013 up to 2060. The data to be provided is annual data for each year of the projections. Both the statistical information for the years 2000-2012 and the projections for years 2013-2060 have to be presented in current prices. The base year of the projections is 2013.

The GDP projections for each country over the period 2013-2060 are those generated by the Commission services (DG-ECFIN) using the production function model on the basis of the agreed assumptions.

The change **in total gross wage** is projected for each country in accordance with labour productivity growth and changes in the hours worked.(^{58})

The average wages are calculated as the ratio of total gross wages from national account data and employed persons (both employees and self-employed) of age 15 to 74. The average wage is projected to increase in line with the labour productivity growth rate.

All Member States agreed to report figures on the economy-wide average wage at retirement. The assumptions used when projecting this variable should be reported separately and will also be subject to peer review.

All countries report monetary values in millions of Euros. For countries which are not part of the euro area, the conversion should be made on the basis of the average exchange rate for 2013, except for the ERM II countries for which the conversion is based on the central rates.

The level of pension expenditure should be adjusted to the official level of national accounts expenditure for the base year 2013.

Member States should report, in the country fiche accompanying the pension projection data, outturn data back to 2000 and also comment on actual developments since 2000 to clarify the reasons behind specific changes and the overall evolution of pension spending in the past and their implications for the projections.

The pension projections include the impact of the most recent pension reforms that will have entered into legislation before the cut-off date for the submission of the pension projections by delegates. To this end, Member States will provide detailed descriptions of the projections, including recently introduced reforms, their implementation and their impact on the projection outcome in their updated country fiches.

(^{58}) In line with the assumption of constant labour share. Gross wages includes employers' social security contributions.

1.3.2. Variables definitions and clarifications

Pension expenditure

Definition: Pension expenditure should cover pensions and equivalent cash benefits granted for a long period (over one year) for old-age, early retirement, disability, survivors (widows and orphans) and other specific purposes which should be considered as equivalents or substitutes for above-mentioned types of pensions, i.e. pensions due to reduced capacity to work or due to labour market reasons.

Clarification: Pensions should include earnings-related pensions, flat-rate, means-tested benefits that aim to provide a social minimum pension and supplements which are a part of the pension and are granted for an indefinite period on the basis of certain criteria but which are not directly linked to the remuneration of costs (i.e. supplements aimed at supporting the purchase of home or health care services). Pensions and benefits can be paid out from specific schemes or directly from government budgets. In particular, social assistance should be included if it is equivalent to minimum pension (as for non-earning-related minimum pension). Instead, housing subsidies should be excluded from pensions and considered as other means-tested social transfers.

Short-term disability benefits should be considered as sickness benefits, while prolonged unemployment benefits for older workers should be considered within unemployment benefits.

Pensions should not include (additional) benefits in the form of reimbursements for certain costs to beneficiaries or directly provided goods and services for the specific needs of beneficiaries. Also, they should not include social security contributions paid by pension schemes on behalf of their pensioners to other social protection schemes, notably to health schemes.

Pension expenditure by age

Many countries have introduced pension reforms that will increase the retirement age. To better understand the impact of these reforms, pension expenditure disaggregated by 5 year age groups -

54 and 75 ([59]) will be provided by the MSs with regards to public pensions and all pensions. This break-down will increase transparency and consistency between population, labour force and pensioners projections. The sum of (public or total) pension expenditures for all age groups should be equal to the overall projected values for (public or total) pension expenditures.

New pension expenditure

With the issue of targeting reforms and increasing transparency, MSs will provide annual projections on new pension expenditure for each of the pension schemes. New pension expenditures for old age and early earnings-related pensions should match with decomposed new pension expenditure results as described in the pension questionnaire (see Table II.A.1.2 – Table II.A.1.5 in Annex 1).

Gross pension expenditure

Pensions should be recorded as gross pension expenditure, i.e. without a deduction by beneficiaries of tax and compulsory social security contributions paid on benefits. In those countries where pensions are non-taxable income, gross pensions are equal to net pensions.

Net pension expenditure

Pensions should be recorded as net pensions, once deducting tax on pensions and compulsory social security contributions paid by beneficiaries from gross expenditure. Projections should be made for overall net public pension expenditure as well as the absolute share of non-earnings related pensions including minimum pensions and minimum income guarantees.

Taxes on pensions

In the 2015 projection round, taxes on public, private occupational, private individual and total pensions are to be reported in case countries provide net pension expenditure projections. Results for taxes on pensions should also undergo the peer review process during the pension projection exercise.

([59]) The age groups younger than 54 and older than 75 should also be reported separately.

Countries that provide figures for taxes on private occupational and private individual pensions are asked to provide all other data on private occupational and private individual pensions on a mandatory basis (otherwise voluntary for all other countries) as well as a decomposition of new pension expenditures for private occupational and private individual pensions in order to increase the transparency and check the consistency of private pension taxation.

Categories of pension expenditure

Many MSs have a multiplicity of pension schemes in place (e.g. for employees in different sectors). The parameters across systems might differ and the share of population covered by each system might change over time. To address these issues, MSs should fill the questionnaire for each scheme separately, in addition to the combined overall information.

Public schemes and other non-occupational public pensions

Definition: Public schemes and other public pensions are the schemes that are statutory and that the general government sector administers.([60])

Clarification: The aim is to cover those pension schemes that affect public finances, in other words schemes that are considered to belong to the general government sector in the national account system. Usually, there is a specific or general social security contribution to the scheme, which is defined as part of total taxes in the national accounting system. However, the scheme can also be financed, either partially or fully, by general taxes. Thus, ultimately, the government bears the financial cost and risk attached to the scheme. The pensions provided by the social security schemes can be either earnings-related, flat-rate or means-tested. In addition, this category should cover pensions that are paid directly from the state or other public sector entity budget without forming a specific scheme such as special pensions to public sector and armed force's employees. Cash benefits equivalent to pensions, notably social assistance to older persons (people aged over statutory retirement age, usually 65 years), should be included in this category.

Regarding the borderlines between public and occupational pensions as well as the identification of pension schemes within these categories, see Table 6.3 "Coverage and specification of pension schemes in the 2012 projections".

The statutory funded part of old-age pension schemes that are attached to notional defined contribution schemes in some countries should be excluded from social security schemes and included in the private sector schemes in accordance with the Eurostat decision([61]).

Occupational private pensions

Definition: Pensions provided by occupational schemes are those that, rather than being statutory by law, are linked to an employment relationship with the scheme provider. They are based on contractual agreements between employers and employees, either at the company level or their organisations at the union level. The schemes are run by private sector pension funds, insurance companies or the sponsoring companies

---

([60]) In line with Eurostat (2004) "If a government unit is responsible for the management of a defined-contribution funded scheme for which no government guarantee exists for the risks of defaulting payments covering the majority of the participants, the scheme is not treated in the national accounts as a social security scheme in the government sector. In such schemes, the schemes are not financed by the government nor does the government define the level of pensions to be paid (the members have a say in how much they contribute and how their contributions are invested). Thus, the contributions and payments in respect of such schemes have no impact on the EDP deficit, as they are stripped out of general government revenue and general government expenditure, respectively". Moreover the same source, with regards to funded schemes underlines that "In recent years, some countries have set up defined-contributions funded pension schemes (or identifiable as such – see below) where a government imposes or encourages participation, collects contributions from employers and pays pension benefits to households, fixes the level of contributions and maybe change the rules, but where it is explicitly stated that pension benefits will predominantly depend on accumulated assets. Under these conditions, it seems that all ESA95 criteria for classifying such schemes as social security schemes are not fulfilled, as government is not fixing the level of the pension benefit and it is difficult to consider that it is "financing" the scheme. Further information can be find in Eurostat (2004). "Classification of funded pension schemes and impact on

government finance", Economy and finance Collection: Methodologies and working papers, Luxemburg.

([61]) Classification of funded pension schemes in case of government responsibility and guarantee, Eurostat 30/2004, 2 March 2004.

themselves (in balance sheets). Some countries, such as the United Kingdom, have occupational pension schemes where the employer happens to be the government. ([62])

Clarification: These schemes can be quasi-mandatory in the sense that, on the basis of a nation- or industry-wide bargaining agreement, the employers are obliged to provide an occupational pension scheme to their employees. On the contrary, participation of an individual remains voluntary. Occupational schemes can be equivalent to statutory earnings-related pension schemes or complementary to them. In particular, it is important to include in the projections the schemes that play a role equivalent to social security schemes in the pension provision. The AWG agreed that, for the projection of private pensions, the real rate of return on private funded pensions should be equal to the real interest rate (3%).

Private individual pensions

For the most part, private individual pension schemes are non-mandatory but they can be also mandatory.([63]) The insured persons have the ownership of pension assets. This means that the owner enjoys the rewards and bears the risks regarding the value of the assets. The insurance contract specifies a schedule of contribution in exchange of which benefits will be paid when the members reach a specific retirement age. The scheme provider administers the scheme by managing the pension assets through a separate account on behalf of its members. The access to such a scheme does not require an employment relationship, even though in some cases the contribution may be set on the basis of the wage. The AWG agreed that, for the projection of private pensions, the real rate of return on private funded pensions should be equal to the real interest rate (3%).

Mandatory private individual pensions

Definition: Mandatory private pension schemes are similar to public schemes. Transactions occur

between the individual and the insurance provider. Transactions are not recorded as government revenues or government expenditure and, therefore, do not have an impact on government surplus or deficit. Pension expenditure projections should cover the individual schemes that switch at least in part, either voluntarily or statutorily (especially to new entrants to the labour market), from the current social security scheme to private funds. Such schemes have an increasing relevance in a number of countries.

Clarification: In some cases, there are government guarantees to these pension schemes. Nevertheless, such a guarantee is a contingent liability by nature and these liabilities are not considered as economic transactions until they materialise. Thus, the Eurostat decision further specifies that a government guarantee is not an adequate condition to classify such schemes as social security schemes.

Non-mandatory individual private pensions

Definition: Non-mandatory private pensions are based on individual insurance contracts between the individual and the private pension scheme provider, usually an insurance company or a pension fund. The category of individual schemes includes pension schemes for which membership is not required by law and is independent of any employment link (even if members are mostly employed people). However, employers or the State may in some cases contribute to the plan. Such schemes may also be adhered to through membership in an association.

Clarification: The main difficulty in analysing individual provision stems from the fact that it is difficult to distinguish among different types of savings those that are clearly for retirement purposes. Part of the savings that are not specifically labelled as pension savings may be used for retirement purposes, whereas part of the savings collected by retirement schemes may – depending on national rules – in fact be used for other purposes than providing periodic retirement income (one-off lump sum benefits, early withdrawal options). The extent to which these schemes are used for retirement savings depends notably on the conditions attached to them, e.g. tax incentives linked to the condition that the bulk of such savings must be used for a regular income

---

([62]) The UK firmly considers these to be occupational pension schemes, relating to conditions of employment, which do not form part of the social security system – regardless of whether or not they happen to be statutory.

([63]) See definitions of mandatory and non-mandatory pension funds below.

(annuity) rather than for paying out a lump sum or the minimum age at which a person can access such retirement savings. In some cases, pension instruments are rather used as investment vehicles with noticeable tax advantages, for instance when a number of years are requested for the plan participation in order to benefit from the lower tax rate.

Breakdown of public pensions

Earnings-related and non-earnings-related pensions

The main differentiation among public pensions is related to the need to keep separated earnings-related pensions and non-earnings-related ones. Earnings-related pensions reflect all those pensions for which entitlements are dependent on personal earnings/contributions to the old-age and early pension scheme. Non-earnings-related pensions are often social assistance benefit financed with taxes that matches the definition of pension expenditure. Indeed social assistance benefits, if equivalent to minimum pension and targeted to people aged over 55, must be included in the projections.

Nevertheless, the adopted classification is effective in representing pension expenditure in those countries where the qualifying condition to be entitled to a pension are based on residency (i.e. DK, IE, NL).

The general classification of pension schemes based on the specific risk assessed: old-age and early pension, disability, survivor and other, is adopted both for earnings-related and non-earnings-related pensions.

Old-age and early pensions

Old-age and early pensions should be considered as a single category of pensions due to the fact that in many countries a proper distinction between these two components cannot be made, either because the early retirement is built-in in the old-age pension system, or because the standard retirement age varies between gender and will increase or become more flexible with time. Early pensions should include – in addition to genuine (actuarial) early retirement schemes – other early pensions schemes that are granted, primarily on the

basis of reduced work capacity or labour market reasons, to a specified (age) group at an age below the statutory retirement age (different from disability pensions to be reported separately).

Non-earnings-related minimum pensions/minimum income guarantee for persons at or over statutory retirement age should be included in the reporting framework but projected separately as the non-earnings-related component of the old-age and early pension expenditure.

Disability pensions

Expenditures related with disability should consider both earnings-related pensions and flat-rate or means-tested minimum pensions of this type. In the 2015 framework these two categories of pensions have to be projected separately so to have a more precise overview of pension treatments and social assistance ones. Some countries for instance consider disability pensions (benefits) as part of their sickness insurance scheme while in others they belong to the pension scheme. While, in some countries, the pension retains the same classification from the time when it is first granted until payments end, in most countries, an early disability pension is transformed into an old-age pension when the beneficiary reaches the standard old-age retirement age.

These issues that are key to understand the evolution of disability pension expenditure, together with assumptions on disability rates, should be made clear and subject to peer review. Take-up ratios of disability pensions are supposed to stay broadly constant over time in the case of no reforms affecting retirement ages though a small decreasing variation may occur due to cohort effect.

In line with the agreement regarding long-term care and health care projection methodologies (see chapter 8), care allowances (benefit paid to disabled people who need frequent or constant assistance to help them meet the extra costs of attendance) and economic integration of the handicapped (allowances paid to disabled people when they undertake work adapted to their condition, normally in a sheltered workshop, or when they undergo vocational training) have to be considered as long-term care expenditure and,

hence, should not be included when calculating disability pensions.

Survivors

Survivors' pensions, without any age limit, must be included in the projections. These should include both earnings-related pensions and flat-rate or similar means-tested minimum pensions. As for all the other categories of pension, in order to have pension benefits separated from social assistance ones, MSs have to project separately survivor pensions that are earnings related and those that are means-tested.

A detailed description of the assumptions behind the projection of survivor pension expenditure in terms of household composition, joint probability to survive, etc. should be contained in the country fiche.

Other

The category other is meant to be residual with regard possible pension or social assistance treatment that cannot be easily targeted according to the adopted classification.

1.3.3. Benefit ratio and replacement rate at retirement

For a better understanding of projected expenditure, the following components of the reporting framework are key.

Benefit ratio

Definition: The benefit ratio is the average pension benefit divided by an economy-wide average wage, as calculated by the Commission.

Clarification: the evolution of the benefit ratio is crucial to analyse and understand the projection results as it reflects the features of the legal framework of pension systems as far as the calculation and indexation rules are concerned.

The benefit ratio captures several features at the same time. Firstly, it reflects the assumed increases in average pensions due to indexation rules, the maturation of the pension system and longer contribution periods. Secondly, it reflects the changes in average wages driven by the

assumptions on labour productivity growth rates. Thirdly, it also captures the changes in the structure of the respective population groups, in particular the share of pensioners and wage earners in each year of the projection exercise.

Gross average replacement rate (at retirement)

Definition: The gross average replacement rate at retirement is the ratio of the first pension of those who retire in a given year over the average wage at retirement. The (economy-wide) average wage of old people at their retirement usually differs from the overall economy-wide average wage, unless a flat wage profile over the entire working career is assumed in the projection exercise. As already underlined in section 1.2.1, in order to insure the consistency of the projected replacement at retirement, the series on the economy-wide average wage at retirement is included in the reporting framework. This wage series is the one to be taken into account when projecting the replacement rate and the adopted assumptions will be part of the peer review of the projection exercise.

Clarification: In case of social security pension schemes, the gross average replacement rate (at retirement) reflects only earnings related pensions.

Gross average replacement rates (at retirement) are provided for all schemes, if possible.

1.3.4. Decomposition into stock and flows of pension expenditure

New public earnings-related pensions

Definition: New pensions expenditure is to be calculated separately for those who retire in the considered year.

New pensions expenditures can be decomposed as follows:

$$P_{new} = \overline{C}_{new} \, \overline{A}_{new} \, \overline{PE}_{new} \, N_{new} \qquad [1.1]$$

where P_{new} is the overall spending on new pensions, $\overline{C}_{new}$ is the average contributory period

or the average years of service of the new pensions, $\overline{A}_{new}$ is the average accrual rate of the new pensions, $\overline{PE}_{new}$ is the average pensionable earning over the contributory period related to the new pensions and N_{new} is the number of new pensions (pensioners).

Changes in the flows of pensions and pension expenditure over time should properly reflect the impact of recently legislated reforms in the functioning of pension systems and would provide useful insights on their impact.

Clarification: Publicly provided earnings-related pension schemes can be classified in the following three broad schemes: *defined benefit* (DB), *notional defined contribution* (NDC) and *points system* (PS). According to Table II.1.1, 19 out of 28 MSs have broadly public DB schemes, 6 of them have NDC and 5 are based on a PS.([64])

Table II.1.1:   **Pensions schemes across Member States**

Country	Type	Country	Type
BE	DB	LU	DB
BG	DB	HU	DB
CZ	DB	MT	Flat rate + DB
DK	DB	NL	DB
DE	PS	AT	DB
EE	DB	PL	NDC
IE	Flat rate + DB	PT	DB
EL[(1)]	Flat rate + DB + NDC	RO	PS
ES	DB	SI	DB
FR[(2)]	DB + PS	SK	PS
HR	PS	FI	DB
IT	NDC	SE	NDC
CY	PS	UK	DB
LV	NDC	NO	NDC
LT	DB		

(1) The NDC is an auxiliary mandatory pension scheme.
(2) PS refers to the complementary schemes AGIRC and ARRCO
Source: Commission services

In order to accommodate every single different scheme into the agreed reporting a simple and stylized version of these schemes can be used:([65])

For every single person who retires, a simple defined-benefit plan pays an average accrual rate, *a*, for each year of service. The accrual rate is calculated on (lifetime) average re-valued earnings. The pension benefit can therefore be written as:

Defined benefit

$$P = \sum_{t=0}^{T} w_t (1+v_t)^{T-t} a_t$$

[1.2]

here *w* are individual earnings (or contribution bases) in year *t*, *T* is the year of retirement and *v* is the factor by which earlier years' earnings are re-valued.([66])

Notional defined contribution schemes In notional defined contribution schemes, the financing inflow over the contribution period is given by wages multiplied by the contribution rate (*c*). This notional capital is increased each year by the notional interest rate, *β*. At retirement, the accumulated notional capital is divided by a notional annuity factor, *A*. The pension benefit for a single person can be written as:

$$P = \frac{\sum_{t=0}^{T} w_t c_t (1+\beta_t)^{T-t}}{A_T}$$

[1.3]

Points Systems

In a points system, pension points (*w/k*) are calculated by dividing earnings (*w*) by the cost of the pension point (*k*). The pension benefit then depends on the value of a point (*v*) at the time of retirement. This last variable is upgraded over time according with the parameter *δ* in the following equation. Thus, the pension benefit can be written as:

$$P = \sum_{t=0}^{T} \frac{w_t v_t}{k_t} (1+\delta_t)^{T-t}$$

[1.4]

([64]) Counting twice France, once into DB group and once in the PS group, and Greece, once in the DB group and once in the NDC one..

([65]) The approach is largely based on Whitehouse (2010), "Decomposing National Defined-Contribution Pensions:

Experience of OECD Countries' Reforms", *OECD Social, Employment and Migration Working Paper*, n. 109, OECD.

([66]) In most MSs this is the growth of economy-wide average earnings.

If the rule for indexing earlier years' earnings in DB systems is the same as for notional interest rate and for the upgrading procedure for the pension point (i.e., $v = \beta = \delta$), then the structure of the three equations is similar. If this is the case, the accrual rate (a) under a generic defined-benefit scheme is equivalent to the ratio of the pension-point value to its cost (v/k) and to the ratio of the notional-accounts contribution rate to the annuity factor (c/A). So, for $v = \beta = \delta$, then:

$$a = \frac{v}{k} = \frac{c}{A} \qquad [1.5]$$

Moreover, pensionable earnings in the three schemes are calculated as the sum over the contributory period (years of service) of the valorised wages. Finally T is the contributory period.

As underlined by Whitehouse (2010), this approach has two implications for the comparison of these three different types of earnings-related pension scheme:

it allows to calculate effective accrual rate for pension-point schemes and notional-accounts schemes;

the valorisation procedure in defined-benefit plans, the upgrading policy for the pension-point value and the setting of the notional interest rate are to be seen as similar policies.

To deal with the three different schemes the block collecting data on *Decomposition of new public pension expenditure – earning related* is divided into three subgroups related to DB, PS and NDC schemes (see Annex 6.1 Table II.A.1.2 – Table.II A.1.5). MSs will provide information on their own system in accordance with the structure of the specific subgroup. In particular, for those who adopt a NDC system, the components of the average accrual rate are to be provided: *notional accounts contribution rate (c)* and *annuity factor (A).*

Building up on the experience of the 2012 Ageing Report the decomposition of new pension expenditure for PS systems has been adapted for each MSs in order to match its country specificities. This could introduce an element of

heterogeneity in the reporting framework but it allows for a better picture of the forces driving the evolution of pension expenditure in those countries. The bilaterally agreed blocks for PS systems new pension decomposition, is presented in Annex 6.1 (See Table II.A.1.2).

To assure the sustainability of their pension systems, several MSs introduced automatic balancing mechanisms that we referred to as "sustainability/adjustment factors". The way these factors operate has to be taken into account when dealing with new pension expenditure projections, according to their specific rules. MSs will also provide information about the evolution of the adjustment factors when reporting new pensions expenditures.

As not all the new pensioners will retire on the first of January, the simple formula proposed refers to the average monthly new pension. To be consistent with the data on the total expenditure on new pensions (line 15 in the reporting sheet – Annex 6.1 Table II.A.1.1), and to allow for a check of the reported data, MSs are asked to provide the average number of months of pension paid the first year. If there is no specific constraint due to legislation, the new pensioners are spread over the year according to some distribution. If a symmetrical distribution over the year is assumed (or empirically fitted the data), the average number of months of pension paid the first year turns out to be 6. If the distribution is asymmetrical, the average should be calculated according with the distribution considered. If there is a single retirement date fixed by law, the average number of months of pension paid the first year turns out to be the difference with the end of the year. If more than one retirement date is fixed by law, the average number of months of pension paid the first year should be calculated as an average of the remaining months (difference from 12 and the month of retirement), weighted by the number of people that retire on each specific date (if available, or assuming a distribution of new retired among the dates).

An alternative use of the data on new public earning-related pension is that of analysing the development and internal consistency of the stock of old pensions (those already existing at the beginning of the year to be calculated as the difference between the total and the "new"

pensions in the reporting sheet). At every point in time *t*, the projection of average pension expenditure related to "old pensions" must be close to the value of the average pension expenditure at the year *t-1* indexed by the rule applied in each country and scheme, and thus:

$$\frac{(P_{t-1}/N_{t-1})(1+\varepsilon)}{P_t^{old}/N_t^{old}} \approx 1$$

[1.6]

where:

P_{t-1} is the projection of total public earning-related pensions expenditure at time *t-1* (line 14);

N_{t-1} is the number of pensioners entitled to a public earning-related pension at time *t-1* (line 88);

$(1+\varepsilon)$ is the pension indexation rule applied in each country and scheme;

P_t^{old} is the projection of the "old" pensions expenditure at time *t* [total public earning-related pensions expenditure (line 14) minus the expenditure related to "new" public earning-related pensions (line 15)].

N_t^{old} is the number of old pensioners at time *t*. This is to be calculated as the difference between total pensioners entitled to a public earning-related pension (line 88) minus the new pensioners in the same typology of pension as reported in the last block of the reporting sheet.

Such an indicator is expected to take value close to 1 if projections are internally consistent and the distribution of the retired people has not been selected by mortality.([67])

([67]) If the assumption of orthogonally between mortality and pension distribution is removed, we are left with the empirical evidence that mortality rates are higher for older people, and that these people receive, on average, smaller pensions. This will results in P_t^{old}/N_t^{old} being larger than P_{t-1}/N_{t-1}. In terms of the proposed indicator a value smaller than 1 (but still close to) is to be expected.

Furthermore, as mentioned in section 1.2.1, it is agreed that the new pension expenditure by men and women should also be projected according to the proposed decompositions (as described in Eq. 1.1 till Eq. 1.4). This, as already underlined, improves the transparency of projections as gender inequalities in the labour market and different pension rules may result in quite different dynamics of pension entitlements among men and women.

1.3.5. Additional information on number of pensioners, contributors and contributions to pension schemes

The number of pensions

The number of pensions reflects the number of cases in which a pension is paid off to an individual. Each type of pension should be considered separately.

The number of all pensions and public pensions has to be reported by age groups. This break-down, whose provision is mandatory with regard to the public scheme, will increase transparency and consistency between population, labour force and pension projections.

The number of pensioners

The number of pensioners for each type of pension should be considered separately, allowing for the fact that the same person may be a recipient of several types of pensions, for instance, a recipient of a social security pension and a private mandatory pension. Thus, the detailed lines should reflect the number of the recipients of the specific pension but the figures on summary lines, in particular the number of all pensioners, are not likely to match the summing up of the subtotals. Ideally, the number of all pensioners (line 113) should be the number of persons who receive pension benefits but calculated only once in case of a receipt of multiple pensions. If an exact figure is not available, an estimate is preferred to the mere summing up. If such a rule is applied, a minimum requirement of the projections is that the number of pensioners should be smaller than the number of pensions.

When projecting, the ratio between pensions and pensioners should be held constant if there is no

reform affecting the pension take-up ratio or any process of merging/closing of pension schemes. Any departure from this hypothesis should be documented and will be part of the peer review process.

The overall number of pensioners by age group should be consistent with agreed figures on labour force. The share of pensioners in each age group should be below but very close to the number of inactive population in the same group.

A break-down of pensioners by age and sex will be provided by MSs with regards to public pensions and all pensions. This break-down is needed to increase transparency and consistency between population, labour force and pensioners projections. In particular, it will allow for a consistency check between gender-specific labour force participation rates and gender-specific pensioners. Some form of correlation should be evident, once mortality rates have been taken into account, between today's participation rates and pensioners groups projected 30/40 years in the future. This data should be particularly interesting when analysing the effects of reforms with regards to the effective retirement age. Also, the overall number of the pensioners can be compared with the number of inactive population, for different age-groups so as to gain further insights.

The availability of data on pensioners (or pensions as a second best) is particularly relevant when decomposing pension expenditure on GDP. In particular they allow for the calculations of the coverage ratio.

The coverage ratio effect is defined as the number of pensioners of all ages to population over 65 years or any other defined age threshold. The analysis of the coverage ratio provides information about how the developments of the effective exit age and the percentage of population covered impact on pension spending. The coverage ratio should also be disentangled by age groups and be calculated in relation to inactive population (to check the consistency with labour force projections).

Contributions to pension schemes

Contributions to pension schemes paid both by employers and employees as well as self-employed persons provide information on whether or not there is a potential future financial gap in the pension system. If the pension contribution is part of a broader social security contribution rate, an estimate should be provided, if possible, for the share of the pension contribution, e.g. on the basis of the most recent expenditure structure. In case that the pension is financed by general tax revenues, this should be considered as State contribution (line 129). The share of pension contribution or implicit contribution rate paid by the employers and employees is assumed to stay constant over the projection horizon. Any alternative assumption should be duly documented and will be assessed during the peer review process.

When dealing with State contribution it should be made clear whether an obligation exists for the State to cover any possible future financing gap of the system or whether a buffer fund exists in order to take into account the effects of employment fluctuations. The effects of the framework in place should be duly reflected in the evolution of State contribution.

Estimates of pension contributions to public and private mandatory schemes, notably concerning the category of old-age and early pensions are relevant. With regards to other pensions, such as disability and survivors' pensions, contributions should be reported voluntarily and separately only if these pensions are managed by separate specific schemes by mean of the additional information space considered in the reporting sheet. In the case where they are part of the old-age pension scheme, no separation of contributions between different types of pensions is requested but the total contribution should be presented in the context of old-age and early pensions.

Number of contributors

As is the case with the number of pensioners, the number of contributors to each type of pension should be considered separately, allowing for the fact that the same person may be a contributor to several schemes. This is the case, for instance, for pension systems in which a part from a public scheme is switched to a private (mandatory) pension scheme. However, the line of total pensions contributors should count contributors only once in case where the person contributes to

more than one scheme at the same time. Thus, the number of contributors should be close to the number of employed persons or active-age population as projected by the Commission services and AWG.

As for contributions, it would be important to provide estimates of the numbers of contributors to social security and private mandatory schemes, notably concerning the category of old-age and early pensions. The number of contributors to other schemes should be presented only in case of separate schemes for these purposes.

The number of contributors should correspond to an estimate of the number of persons covered by pension schemes without regard to the amount of the contribution. Thus, a contributor in a short-term contract should count as a contributor in a permanent (full-time) contract. However, in practice, a contributor in a short-term contract may appear as a contributor several times during a year and it may not be possible to separate the number of contributors during a year from the number of contribution periods. Therefore, a better proxy for the number of persons covered by pension schemes should be the number of contributors at a given point of time, e.g. at the end of the year.

2. HEALTH CARE

2.1. INTRODUCTION

This chapter presents the methodology to project public expenditure on health care in the 28 Member States of the EU and Norway up to 2060. Health care services represent a high and growing share of government spending and of total age-related expenditure. The ageing of the EU population may entail additional government expenditure. This puts public spending on health care at the centre of the debates on the long-term sustainability of public finances.

The projections for public expenditure on health care are based on the baseline assumptions on population projections provided by Eurostat (EUROPOP2013) and assumptions on labour force, labour productivity, GDP and interest rates agreed by the EPC. These are outlined in the chapters 1 to 4 of this report. The sensitivity tests described in chapter 5 are also reflected in the projections of public expenditure on health care. The general methodology and the various scenarios are explained below.

2.2. GENERAL METHODOLOGY TO PROJECT PUBLIC EXPENDITURE ON HEALTH CARE

The methodology used in the 2015 Ageing Report largely matches the methodology used in the previous report. As in 2012, the European Commission (EC) DG ECFIN macro-simulation model will be used to project health expenditure. In addition, the non-demographic determinants scenario uses econometric analysis. Refinements are proposed to two of the 2012 scenarios: "death-related costs" and the "non-demographic determinants" scenario. This approach ensures comparability of the results over time, while allowing for some innovation.

This is the same procedure used in previous projection exercises conducted jointly with the Ageing Working Group (AWG) of the Economic Policy Committee. The most recent projection exercise is described in the 2012 EPC-EC Ageing

report. [68] These macro-simulation models assume that the whole population is divided into groups which are assigned certain characteristics (e.g. age, gender, per capita expenditure, health status…). Changes in these groups lead to expenditure changes overtime. These types of models are widely used when running long-term expenditure projections, especially when the precise micro information on the individuals and their transition rates from one health status to another is missing or not reliable.

The choice of methodology and various scenarios is constrained by the availability, accessibility and quality of health care data. Therefore, the models may not include all the relevant factors identified as affecting health care spending.

It has been decided in past exercises that in general long-term budgetary projections and certainly the base-case scenario should illustrate the policy-neutral situation. This is the situation where future possible changes in government policy are not considered. In other words, any potential future institutional or legal changes to the financing and organisation of health care systems are not reflected in the methodology used for projecting expenditure. These institutional and legal changes would include for example changes in the degree of regulation of markets for pharmaceuticals or the introduction of referral systems. Instead, the only changes modelled in these projections are those deemed automatic and adequate responses to new needs resulting directly from changes in population structure, health status or income. Therefore, the determinants of expenditure considered in the projections can be seen as mostly independent of government activity or public policy.

The general methodology used to project public expenditure on health care is articulated as follows (See Graph II.2.1):

- STEP 1: take baseline population projection (i.e. number of individuals) by age and gender provided by Eurostat for each year up to 2060;

- STEP 2: take age/gender specific public expenditure per capita on health care i.e. the so

---

(68) The report can be found at http://ec.europa.eu/economy_finance/publications/europea n_economy/2012/2012-ageing-report_en.htm

called age/gender specific expenditure profiles provided by Member States;

- STEP 3: calculate age/gender expenditure profiles for each projection year up to 2060 on the basis of various assumptions i.e. the projection scenarios;

- STEP 4: for each projection year, multiply the projected number of people in each age/gender group by the respective age/gender expenditure profiles;

- STEP 5: for each projection year, sum all the groups' expenditure to obtain total projected public expenditure on health care.

There are three important aspects of the projection exercise to be stressed.

Firstly, the analysis assumes that the determinants of public expenditure on health care, such as government health policy and actions by any individual participant in the health market are assumed to stay constant. This means that changes in the way health systems are financed and organised are not modelled([69]). The adjustments observed relate solely to health care provision adjusting automatically to needs resulting from changes in population structure and health status, and changes in income. It is assumed that such changes force an automatic change in the amount of goods and services provided to the population by the government. As such, most scenarios should be considered as "no-policy change" scenarios.

Secondly, many of the determinants of expenditure described in the previous section, notably supply side determinants of spending are either not quantifiable or depend on ad hoc policy decisions. This is why the methodology used in the previous 2012 EPC-EC Ageing Report([70]) to project public health care expenditure and used again here reflected mainly demand-side factors such as demographic structure, income and health status of the population. Nevertheless, a regression analysis attempts to quantify the impact of non-demographic factors such as technology and

institutional settings, while controlling for income and the demographic structure of the population. It is proposed to use a similar strategy in the current exercise.

Thirdly, the analysis tries to identify the impact of each quantifiable determinant separately on the basis of hypothetical assumptions (estimated guess or a "what if" scenario). Therefore, the results of the projections should not be interpreted as forecasts of expenditure.

The proposed methodology for the coming projection exercise should build on the 2012 EPC-EC projections exercise. Therefore, it is proposed to maintain the existing scenarios and sensitivity tests while attempting to improve their specifications. The schematic methodology to project health care expenditure is presented in Graph II.2.1 below, based on the 2012 EPC-EC Ageing Report.

As in 2012, the projections on health care need to be viewed in the context of the overall projection exercise. Consequently, the common elements of all scenarios will be the population projections provided by Eurostat (EUROPOP2013) and the baseline assumptions on labour force and macroeconomic variables agreed by the EC and the AWG-EPC. The age and gender-specific per capita public expenditure (on health care) profiles are provided by Member States. They are applied to the demographic projections provided by Eurostat to calculate nominal spending on health care. However, in the 2015 projections exercise, some adjustments will have to be made to these profiles.

Indeed, the age profiles applied to the population structure must add up to total expenditure on health care in the specific year of reference, especially if the figures are produced by the same entity. However, previous projections exercises (2006, 2009 and 2012) showed that this was not the case in most of the countries that provided the detailed figures on health care expenditure. In most of them, total expenditure exceeded the figures resulting from the combination of age profiles with underlying population. While total expenditure is calculated from aggregate budgetary perspective, cost per capita is in many countries estimated on the basis of hospital in-patient data, in most countries based on the diagnosis-related groups.

([69]) Although, as in the 2012 projections, we will attempt to adjust for some policy reforms.

([70]) The 2012 Ageing Report Economic and budgetary projections for the 27 EU Member States (2010-2060), European Economy, no. 2/2012.

Graph II.2.1:   **Schematic presentation of the projection methodology**
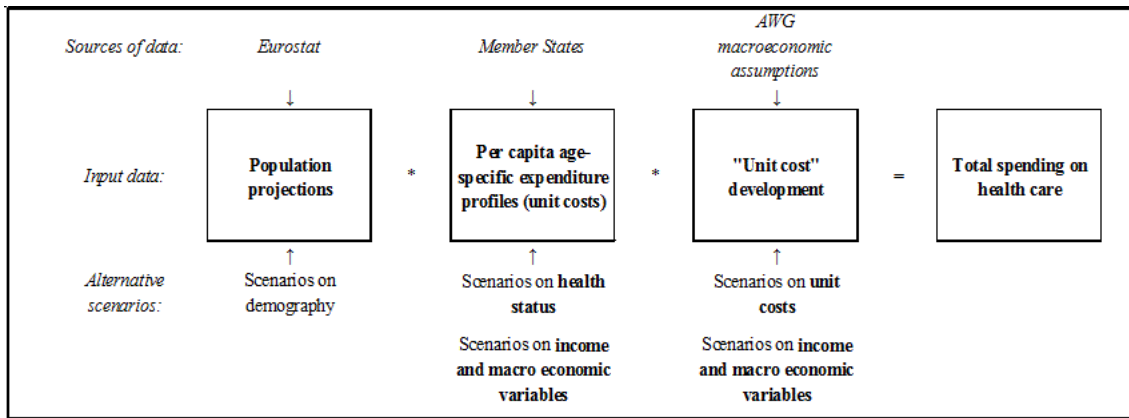
Source: European Commission.

Such differences in the computation of expenditure naturally lead to discrepancies between the two measures.

In this context, we should keep in mind the central objective of the projections, i.e. to measure the budgetary impact of a series of demographic and non-demographic factors. It was agreed for the previous exercise that the total expenditure figures should "predominate" and therefore the age profiles must be adjusted to it. This could be done by keeping the proportions in per capital spending between each age cohort while adjusting the total (calculated as sum of per capita weighted by population in each cohort) to correspond to the aggregate figure. Therefore, it has been agreed to adjust the age profiles of per capita expenditure on health care to match total expenditure on health care as reported to the international databases (and confirmed by the delegates in the health care questionnaire). This adjustment (shift of the profile) would be made keeping the base year proportions between specific age cohorts constant.

To reflect the effects of the different determinants on public expenditure on health care, changes are made to three main inputs: 1) the demographic/population projections, 2) the age-related expenditure profiles (capturing unit costs) and 3) assumptions regarding the development of unit costs over time driven by the macroeconomic variables or assumptions on health status for example. As in the 2012 projections exercise, the list of determinants to be modelled is not exhaustive. The different scenarios are summarized in Table II.2.1.

Finally, country specific information regarding any relevant recent reforms legislated and/or implemented that could have an impact on health care and long-term care expenditure (e.g. wage freezes, etc.) will be taken into account in the current projections, according to technical feasibility.

Table II.2.1: **Overview of scenarios to project health care expenditure**

	Demographic scenario	High life expectancy scenario	Constant health scenario	Death-related costs scenario	Income elasticity scenario	EU28 cost convergence scenario	Labour intensity scenario	Sector-specific composite indexation scenario	Non-demographic determinants scenario
	I	II	III	IV	V	VI	VII	VIII	IX
Population projection	EUROPOP2013	Alternative higher life expectancy scenario (+1 year)	EUROPOP2013	EUROPOP2013	EUROPOP2013	EUROPOP2013	EUROPOP2013	EUROPOP2013	EUROPOP2013
Age-related expenditure profiles	2012 profiles held constant over projection period	2012 profiles held constant over projection period	2012 profiles shift in line with changes in age-specific life expectancy	2012 profiles split into profiles of decedents and survivors and adjusted in line with changes in age-specific life expectancy	2012 profiles held constant over projection period	Individual EU28 profiles converging to the EU28 average profile over the projection period	2012 profiles held constant over projection period	2012 profiles held constant over projection period	2012 profiles held constant over projection period
Unit cost development	GDP per capita	GDP per capita	GDP per capita	GDP per capita	GDP per capita	GDP per capita	GDP per hours worked	Input-specific indexation	GDP per capita
Elasticity of demand	1	1	1	1	Income elasticity of 1.1 in 2010 converging to 1 by 2060	1	1	1	Cost sensitivity of 1.4 in 2013 converging to 1 by 2060

Source: Commission services, EPC.

2.3. MAIN DRIVERS OF HEALTH CARE EXPENDITURE AND PROJECTION SCENARIOS

Health care systems are defined as "improving the health of the population they serve; responding to people's expectations and providing financial protection against the costs of ill-health". [71] In the WHO report health systems are attributed four vital functions: 1) service provision i.e. the delivery of personal and non-personal health services; 2) financing i.e. the revenue collection, the pooling of funds (insurance function) and purchasing of services (the process by which pooled funds are paid to providers in order to deliver the health interventions to care users); 3) resource creation i.e. investment in equipment, buildings and people (training) and 4) stewardship or oversight of all the functions i.e. the careful and responsible management of the health system.

In this context, public expenditure on health care depends on a number of factors which affect the demand and supply of health services and goods. These include:

- the health status of the population;

- economic growth and development;

- new technologies and medical progress;

- the organisation and financing of the health care system;

- health care resource inputs, both human and capital.

Building on the 2012 EPC/EC projection exercise, we will consider in this projection exercise a certain number of variables which try to capture demand and supply-side factors, and include demographic and non-demographic variables. These are captured and explained by the proposed scenarios, as follows.

2.3.1. Demographic scenario

The aim of a *"demographic scenario"* is to estimate in isolation the effect of an ageing population on future public expenditure on health

---

([71]) World Health Organization (2000), "Health Systems: Improving Performance", The World Health Report 2000. p.8.

care. It assumes that age/gender-specific morbidity rates and provision structure of health treatments do not change over time. This, in turn, means that age/gender-specific per capita public expenditure (on health care) profiles can be considered as proxies for the morbidity rates ([72]), remain constant in real terms over the whole projection period. It also assumes a gradual increase in life expectancy on the basis of underlying population projections. An increase in life expectancy and no changes in health status as compared to today's health status mean that all the gains in life expectancy are implicitly assumed be spent in bad health. The number of years spent in good health remains constant. As such, this scenario is in line with the *expansion of morbidity* hypothesis discussed above.

To calculate future public expenditure on health care, the age/gender-specific per capita public expenditure profiles are multiplied by the respective age/gender population group in each projection year. These age/gender groups change in line with the population projections up to 2060. This scenario also assumes that "unit costs" – i.e. the health care expenditure per capita for each year of age – evolves in line with GDP per capita. Such cost development applied to the baseline age/gender-specific per capita public expenditure profiles can be considered to be neutral in macroeconomic terms – if no change in the age structure of the population occurred, the share of public expenditure on health care to GDP would remain the same over the projection period. See Annex I for the mathematical formulation.

Formal illustration

First, over time the age/gender specific public expenditure profiles (showing the average public spending on health care per capita for each year of age (from 0 to 100, according to data availability) are assumed to grow in line with GDP per capita. Therefore, the per capita cost (expenditure) in a projected year t is:

_____

([72]) Strictly speaking, age profiles of expenditure illustrate exclusively public health care spending per person of a given age cohort. As such it is not a measure of health status or morbidity. However, given the lack of a reliable and comparable data on the latter, one can plausibly assume that the shape of the profile follows the evolution of health status over the lifespan, i.e., over time, we assume that the same segments of the curve (early childhood, old age and motherhood) follow the same pattern.

$$c_{g,a,t}^{d} = c_{g,a,t-1}\Delta Ypc_{t} \qquad 2.1$$

where:

d stands for demographic scenario;

$c_{g,a,t-1}$ is the cost per capita of a person of a given gender *g* and age *a* in period *t-1*;

ΔYpc_{t} is GDP per capita growth rate in year *t*,

$$\Delta Ypc_{t} = \left(\frac{Y_{t}}{\sum p_{g,a,t}} - \frac{Y_{t-1}}{\sum p_{g,a,t-1}} \right) \Bigg/ \left(\frac{Y_{t-1}}{\sum p_{g,a,t-1}} \right) \qquad 2.2$$

With Yt representing GDP in projection year *t*;

And $p_{g,a,t}$ the projected population of a given gender *g* and age *a* in year *t*.

Hence, this "adjusted" per capita unit cost, $c_{g,a,t}^{d}$, is the cost per capita of a person of gender *g* and age *a* in year *t* of the projection period, following the adjustment to GDP per capita growth.

Second, in each year the respective unit cost is multiplied by the projected population of each age group (using the baseline population projections) to obtain the total public spending for each age/gender group:

$$S_{g,a,t}^{d} = c_{g,a,t}^{d} p_{g,a,t} \qquad 2.3$$

where:

$S_{g,a,t}^{d}$ is public spending on health care for all persons of gender *g* and age *a* in year *t*.

Next, the resulting total public spending on health care is divided by the projected GDP in order to obtain the public health care expenditure as a percentage of GDP:

$$T_{t}^{d} = \frac{\sum S_{g,a,t}^{d}}{Y_{t}} \qquad 2.4$$

where:

Graph II.2.2:   **Stylized illustration of the constant health scenario using age-profiles of health care costs**
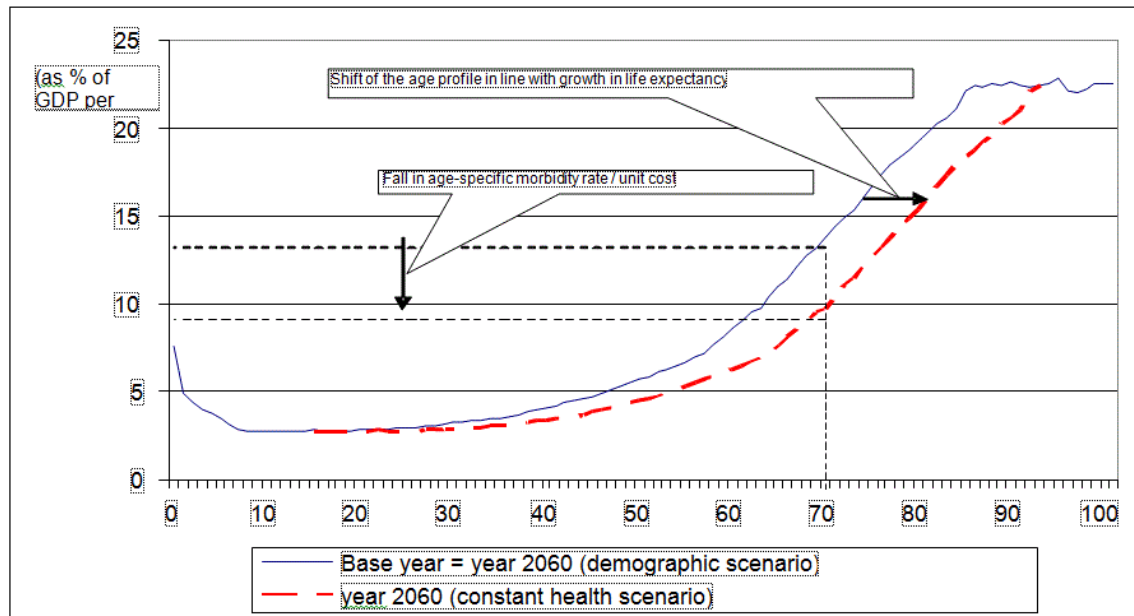
Source: Commission services.

$T^d t$ is the ratio of total public spending on health care to GDP in year t computed according to the pure demographic scenario.

2.3.2. High life expectancy scenario

A variant of the demographic scenario is the "*high life expectancy scenario*". This is a sensitivity test to measure the impact of alternative assumptions on mortality rates. This scenario assumes, as in the sensitivity tests run for pension projections, that life expectancy at birth in 2060 is higher ([73]) than the projected life expectancy used in the "*demographic scenario*". This scenario is methodologically identical to the " *demographic scenario*", but alternative demography and GDP ([74]) data are used.

Formal illustration

The mathematical formulation used in the previous scenario still applies, except that the number of individuals in each age/gender group up to 2060 is replaced by the new population and macroeconomic assumptions.

2.3.3. Constant health scenario

The "*constant health scenario*" is based on the *dynamic equilibrium* hypothesis. It mimics improving health status in line with declines in mortality rates and increasing life expectancy. It assumes that the number of years spent in bad health during a life time remains constant over the whole projection period. This means that all future gains in life expectancy are spent in good health. Consequently, the morbidity rate and therefore the age/gender-specific per capita public expenditure profiles are declining with the mortality rate.

Within this scenario, the country specific age/gender per capita expenditure profiles are progressively shifted outwards, in line with increasing life expectancy.([75]) This "outward" shift is proportional to the projected gains in life expectancy. First, for each projection year the change in life expectancy in relation to the base

---

([73]) The exact amount depends on the final calculations. In the 2012 Ageing Report, the difference was one extra year.

([74]) Since GDP data also captures the life expectancy change through the impact of the latter on the labour force projections.

([75]) The method is applied to those age/gender groups where expenditure per capita is growing. For the young and the oldest old, the reference age/gender and therefore age/gender per capita public expenditure profile remains the same over the whole projection period.

year in calculated. For example, the life expectancy of a 50-year-old man is expected to increase by 4 years from 30 years in year t to 34 years in year $t+20$ in a specific Member State. Then, the scenario assumes that in $t+20$ a 50-year-old man will have a per capita public expenditure profile of a (50-4) = 46-year old men in year t (the latter adjusted as usual with the GDP per capita growth rate over the last 20 years).

In Graph II.2.2 the dotted line illustrates the new age-specific per capita public expenditure profile that would be applied in each projection year up to the year 2060. As in the "*demographic scenario*", each age and gender group in each projection year is multiplied by the modified age and gender-specific per capita public expenditure profiles to calculate the future public expenditure on health care.

Formal illustration

The change in life expectancy of a person of gender g and age a in relation to the base year (say, 2013) for each year of the projections, using the Eurostat population projections (EUROPOP2013) ([76]) is given by:

$$\Delta LE_{g,a,t,2013} = LE_{g,a,t} - LE_{g,a,2013} \quad 2.5$$

where:

ΔLEg,a,t,2013 is the additional life expectancy of a person of gender *g* and age *a* in year *t* compared to a person of gender g and age a in 2013,

LEg,a,t is the life expectancy of a person of gender *g* and age *a* in year *t* and

LEg,a,2013 is life expectancy of an average person of gender *g* and age *a* in 2013.

Then, for each year *t*, the projected per capita cost equals:

$$c_{g,a,t}^{ch} = c_{g,a-\Delta LE_{g,a,t,2013}} \quad 2.6$$

where:

ch stands for constant health scenario

$c_{g,a,t}^{ch}$ is the cost per capita assigned to a person of gender *g* and age *a* in year *t* of the projection period and $c_{g,a-\Delta LE_{g,a,t,2013}}$ is the cost per capita assigned to a person of gender *g* and of age *a* in the base year 2013 minus the years gained in life expectancy by a person of gender *g* and *age a* between year *t* and year 2013, as defined in equation [5] and specified with a precision to a decimal part of a year in the base year 2013. ([77]) This is done only for those sections of the age-profile where the cost per capita is growing. ([78])

This cost per capita is further adjusted to reflect changes in income per capita over the years using the same indexation system as in the previous scenario i.e. cost per capita grows in line with GDP per capita growth.

$$c_{g,a,t}^{ch} = c_{g,a,t-1}^{ch} \Delta Ypc_t \quad 2.7$$

ΔYpct is GDP per capita growth rate in year *t*,

([76]) In the constant health scenario the total number of years spent in bad health during a person's life time is assumed to remain constant while life expectancy increases, so the morbidity rate must evolve in line with mortality rate for each age cohort. Thus, if between time t and t+1, total life expectancy increases by n years for a cohort of age a, healthy life expectancy for that very same age cohort must also increase by n years, as assumed by the dynamic equilibrium hypothesis. If healthy life expectancy increases by n years, then the health status (and consequently health care spending) of this cohort of age a at time t+1 will be the same as the health status (and health care spending) of cohort of age a-n at time t.

([77]) Changes in life expectancy and therefore shifts in the age profile from one year to another are sometimes very small (in a range of a tenth part of a year). However, the data gathered by the Member States does not provide detailed information on costs per capita by single year of age (the most detailed item available is a 5-year average), so an additional calculation needs to be performed. To solve this problem, the intermediate values can be obtained by simple extrapolation/trend-smoothening method from the existing average figures. In this way it is possible to assign a concrete value of cost per capita to each tenth part of a year of age.

([78]) For the young and the oldest old the reference age remains the same over the whole projection period.

As before, in each year the respective unit cost is multiplied by the projected population in each age group age (using the baseline population projections) to obtain the total public spending for each age/gender group:

$$S_{g,a,t}^{ch} = c_{g,a,t}^{ch} p_{g,a,t} \qquad 2.8$$

where:

$S^{ch}{}_{g,a,t}$ is public spending on health care for all persons of gender g and age a in year t.

Next, the resulting total public spending on health care is divided by the projected GDP in order to obtain the public health care expenditure as a percentage of GDP:

$$T_t^{ch} = \frac{\sum S_{g,a,t}^{ch}}{Y_t} \qquad 2.9$$

where:

$T^{ch}{}_t$ is the ratio of total public spending on health care to GDP in year t.

2.3.4. Death-related costs scenario

The "*death-related costs scenario*" employs an alternative method to project public expenditure on health care. The methodology links per capita public expenditure on health care to the number of remaining years of life. Indeed, there is empirical evidence that a large share of the total expenditure on health care during a person's life is concentrated in the final years of life.([79]) As life expectancy increases and mortality rates decline, a smaller share of each age cohort is in a terminal phase of life and mortality is concentrated in very old age cohorts. If more people die at very old ages there may be a reduction in public expenditure on health care because per capita public expenditure in very old ages does actually decrease.

In practical terms, for countries which provide the relevant data for running the model, it is proposed to use an average profile of *death-related costs by age*. However, we propose to improve on the

methodology employed in the 2012 EPC-EC Ageing Report. This was constructed as follows:

Using age/gender-specific mortality rates (which are used as probabilities), each age group is split into the two sub-groups according to the number of remaining years of life: 1) that of decedents, i.e. those who are expected to die within a certain number of years, and 2) that of survivors, i.e. those who are not expected to die within those number of years.

Each of the two sub-groups within each age/gender group is assigned a specific and different per capita public expenditure profile – the *death-related costs* profiles, ideally differentiating expenditure occurring a full year before for decedents versus survivors. The ratio between the health costs of survivors and decedents is called the k-ratio.

Then the number of individuals in each subgroup of decedents and survivors is multiplied by its respective per capita public expenditure profile. This gives the total public expenditure of each age group in each year.

Summing total expenditure of each age group in a given year corresponds to the total public expenditure on health care in that year.

Note that the death-related costs profiles are as usual indexed to GDP per capita growth as in the previous scenarios.

The 2012 methodology was based on the assumption that the k-ratio (and therefore the cost profile) was to be kept constant over the forecast period, regardless of possible changes in longevity.

The k-ratio decreases in the older ages, where the probabilities of death increase dramatically. This is due to the fact that normal and death-related costs have different correlations with age. In particular, while the former are likely to increase along with age because of the progressive worsening of health status, the latter are likely to follow an opposite path insofar as the event of death, in the case of elderly people, is not as costly as in the case of

---

([79]) For an overview of empirical studies, see Raitano (2006).

younger ones. Such results are confirmed by empirical evidence from a number of studies. ([80])

The strong correlation between death-related costs and mortality rates suggests it is worthwhile to further investigate the plausibility of the assumption of no change in the age profile of k-ratio over time as life expectancy increases. Further analysis has been carried out using an alternative formulation based on the basic intuition that k-ratio is actually linked to life expectancy rather than age. Estimates, made on the basis of a potential function, prove the robustness of such a relationship for Italy and other Member States prepared by the IT AWG delegation.

Therefore, for this exercise, the k-ratio cost profile will vary over time, as longevity increases. Essentially, this would mean that it is the distance to time period before death rather than age per se which influences the k-ratio for people of a specific age and gender group.

Keeping unchanged the relationship between the k-ratio and life expectancy, as observed in the base year (cross-sectional analysis), implies that the age profile of the k-ratio moves over time according to changes in longevity (intertemporal analysis).

From the methodological point of view, such a refinement basically implies that the k-ratio is projected according to a cohort approach. This allows capturing changes in perceived health care needs and therefore treatment expectations of the very old as life expectancy increases. Therefore, the k-ratio at, say, age 75 is expected to increase.

Formal illustration

In the "*death-related costs scenario*", the population of each gender-age group is divided into subgroups according to the number of remaining years of life using mortality rate as a weighting factor (e.g. number of people aged *a* expected to die within two years from year *t* is calculated as population aged *a* in year *t* multiplied by the probability of dying within two years which is expressed as: the probability of surviving year *t* by persons aged *a* times the probability of

surviving year *t+1* by persons aged *a+1* times the probability of dying in year *t+2* by persons aged *a+2*).

Each subgroup is assigned a different unit cost, being an adjustment of the "normal" unit cost with the ratio of health care expenditure borne by a person of a given age and gender who is in her terminal phase of life to health care expenditure borne by a survivor. The number of people in each subgroup is thus multiplied by its respective cost per capita to get the total spending of each subgroup. The sum of total spending borne by the two subgroups is the total spending on health care in a given year.

Mathematically, we have the following formulation:

We divide people of the same age and gender into the groups of survivors and those supposed to die within a year. The costs of the decedents- death related costs – are labelled with $\psi_{g,a,t}^{DR}$, and the costs for the survivors – normal costs – are labelled with $\psi_{g,a,t}^{NC}$, where *g,a* and *t* refer, respectively, to gender, age and year. With $\mu_{n,x}$ being the probability of death, we get:

$$\begin{aligned} \psi_{g,a,t} &= \psi_{g,a,t}^{NC}\left(1-\mu_{g,a,t}\right)+\psi_{g,a,t}^{DR}\,\mu_{g,a,t} \\ &= \psi_{g,a,t}^{NC}\left(1-\mu_{g,a,t}+k_{g,a,t}\,\mu_{g,a,t}\right) \end{aligned} \quad 2.10$$

where $k_{g,a,t}=\psi_{g,a,t}^{DR}\big/\psi_{g,a,t}^{NC}$ is the k-ratio. It estimates, for a given gender and age, how many times the health care costs of decedents exceed those of a survivor. If $k_{g,a,t}=1$, then death-related costs do not matter, while with k going toward infinity means that total health care costs are spent in the last life year.

If one assumes a constant k-ratio over time (*t = 0*), the health care costs would vary along with changes in the probabilities of death:

([80]) Aprile, R. (2013); Gabriele et al.(2005); Lubitz and Riley (1993); Van Vliet and Lamers (1998); Madsen (2004); Raitano (2006).

$$\psi_{g,a,t} = \psi_{g,a,0}^{NC} \left(1 - \mu_{g,a,t} + k_{g,a,0}\, \mu_{g,a,t}\right) \qquad 2.11$$

Taking into account that costs of survivors in the base year can be derived from the total one, according to the following equation:

$$\psi_{g,a,t}^{NC} = \frac{\psi_{g,a,0}}{1 - \mu_{g,a,0} + k_{g,a,0}\, \mu_{g,a,0}} \qquad 2.12$$

equation [3] becomes:

$$\psi_{g,a,t} = \psi_{g,a,0}\, \frac{1 - \mu_{g,a,0} + k_{g,a,0}\, \mu_{g,a,0}}{1 - \mu_{0,x} + k_{g,a,0}\, \mu_{g,a,0}} \qquad 2.13$$

Equation 2.13 shows how the age-gender specific health care cost profile evolves, keeping the k-ratio unchanged with respect to the base year.

However, as shown by Aprile, the empirical evidence strongly supports the theory of a changing *k-ratio* as a function of changes in life expectancy.

The following potential function approximates well the empirical observations:

$$k = 1 + a\, e^{\,b} \qquad 2.14$$

according to which *k* is positively correlated with life expectancy (denoted with *e*) and is 1 when life expectancy is nil.([81]) Then, assuming the constant coefficients of the function over time, one may derive the relation between the *k-ratio* and age conditional on life expectancy as follows:

$$k_{g,a,t} = \begin{cases} k_{g,\bar{a},0}\, \dfrac{f(g,a,0)\; f(g,a,t)}{f(g,\bar{a},0)\; f(g,a,0)} \\[2mm] = k_{g,a,\bar{0}}\, \dfrac{f(g,a,t)}{f(g,\bar{a},0)} & a \geq \bar{a} \\[2mm] k_{g,a,0} & a < \bar{a} \end{cases} \qquad 2.15$$

where: $k_{g,\bar{a},0}$ is the value of *k-ratio* in the base year at the age $\bar{a}$, where *k-ratio* starts to be linked to life expectancy, and $f(g,a,t)$ is the fitted function. Replacing the formula of the potential function defined in equation 2.14, equation 2.15 becomes:

$$k_{g,a,t} = \begin{cases} k_{g,a,\bar{t}}\, \dfrac{1 + a\, e_{g,a,t}^{\,b}}{1 + a\, e_{g,a,\bar{t}}^{\,b}} & a \geq \bar{a} \\[3mm] k_{g,a,0} & a < \bar{a} \end{cases} \qquad 2.16$$

As can be seen, *k-ratio* is projected according to a cohort approach, starting from the base-year value at the age $\bar{a}$ being positively correlated with changes in life expectancy. If no change occurs in life expectancy, the age profile of *k-ratio* is the same as in the base-year.

Combining equations 2.13 and 2.16, the age profile of health care costs is projected according to the following equation:

$$\psi_{g,a,t} = \begin{cases} \psi_{g,a,0}\, \dfrac{1 + \mu_{g,a,t}\, k_{g,\bar{a},0}\, \dfrac{1 + a\, e_{g,a,t}^{\,b}}{1 + a\, e_{g,\bar{a},0}^{\,b}} - \mu_{g,a,t}}{1 + \mu_{g,a,0}\, k_{g,\bar{a},0} - \mu_{g,a,0}} & a \geq \bar{a} \\[4mm] \psi_{g,a,0}\, \dfrac{1 + \mu_{g,a,t}\, k_{g,a,0} - \mu_{g,a,t}}{1 + \mu_{g,a,0}\, k_{g,a,0} - \mu_{g,a,0}} & a < \bar{a} \end{cases} \qquad 2.17$$

As previously, the age-gender specific costs are adjusted to the GDP per capita growth and summed up over the entire population for each respective year to arrive at total costs.

2.3.5. Income elasticity scenario

This scenario attempts to capture the effect of changes in national income on demand for health care goods and services. This effect is the result of a number of factors: higher living standards, the fulfilment of the basic needs and therefore growing

expectations and social pressure to catch-up with the health care quality and coverage provided in richer neighbouring countries. ([82])

To calculate the possible effect of income, one can use different levels of income elasticities to the basic GDP per capita evolution path. More specifically, the "*income elasticity scenario*" shows the effect of an income elasticity of demand higher than 1, i.e. ε = 1.1, on the evolution of public expenditure on health care. An income elasticity exceeding 1 is an indicator that health care is considered by society as a 'luxury good'. An elasticity of 1.1 at the beginning of the period is chosen on the basis of existing reviews of empirical evidence gathered over the recent decades.([83]) It is the same as in the 2012 EPC-EC Ageing Report. It is also assumed that economic growth and process of real convergence between countries over the long run will drive elasticity down towards common unity level, by 2060.([84])

This scenario is identical to the " *demographic scenario"* except that the income elasticity of demand is set equal to 1.1 in the base year (rather than 1 in the case of the *" demographic scenario"*), converging in a linear manner to 1 by the end of projection horizon in 2060.

Formal illustration

The methodology used to project health care spending is the same as for the " *demographic scenario*", except in the way per capita public expenditure on health care is evolving over the projection period. Income elasticity is taken into account by replacing equation 2.1 by the following equation 2.18, so that the per capita cost of a person of gender *g* and age *a* in year *t* of the projection period, $c^{ie}g,a,t$, is adjusted to the GDP per capita growth with an elasticity that goes from 1.1 to 1 in 2060:

$$c^{ie}_{g,a,t} = c_{g,a,t-1}\Delta Ypc_t \varepsilon_t \qquad 2.18$$

where:

ie stands for income elasticity scenario

cg,a,t-1 is the cost per capita of a person of gender *g* and age *a* in year t-1;

ΔYpct is GDP per capita growth rate in year *t*;

εt is income elasticity of demand, assumed to converge from *ε2013* to *ε2060* in 2060 according to the following equation:

$$\varepsilon_t = \varepsilon_{2013} - (t - 2013)\cdot\frac{\varepsilon_{2013} - \varepsilon_{2060}}{2060 - 2013} \qquad 2.19$$

In the specific case where the income elasticity of demand converges from 1.1 in 2013 to 1 in 2060, the value will be the following:

$$\varepsilon_t = 1.1 - (t - 2013)\cdot\frac{0.1}{47} \qquad 2.20$$

The other steps of the projections are the same as in equations 2.3 and 2.4.

2.3.6. EU28 cost convergence scenario

The "*EU28 cost convergence scenario*" is meant to capture the possible effect of a convergence in real living standards (which emerges from the macroeconomic assumptions) on health care spending. In other words, this scenario proposes to take into account the convergence of citizens' expectations towards a similar basket of (health) goods.

This scenario considers the convergence of all countries that are below the EU28 average in terms of percent of GDP per capita health expenditure to that average. This would be illustrated as follows: the relative age-gender per capita public expenditure profiles below the corresponding (calculated) EU28-average age-gender per capita public expenditure in the base year would be assumed to progressively increase to this EU28-average age and gender-specific per capita public expenditure profile (as a percent of GDP per capita). The convergence will be achieved by

---

([82]) The demand for higher quality care may translate into demand for the most modern medical knowledge and technologies. In this context the impact of income could to a certain extent capture the impact of technology. The impact of technological development is assessed in a separate scenario, using econometric analysis of past trends in public expenditure on health care, demographic, income and non-income variables.

([83]) See Getzen (2000).

([84]) This is also a common technical assumption in many long-run projection models, to avoid "explosive" path of some of the variables used in the exercise.

2060. As a result, the convergence speed for all the countries below the EU28 average would take into account the differences in the initial situation, i.e. the extent of the initial gap between country-specific and EU28-average profile.

Formal illustration

To project public spending on health care, we build on the methodology used for the "*demographic scenario*". Indeed, for those countries whose age/gender per capita public expenditure as a share of GDP per capita (relative per capita spending) is equal to or above the EU28 average (relative per capita spending), equations 2.1 to 2.4 from the demographic scenario to project public spending on health care are used.

For those countries whose age/gender per capita public expenditure as a share of GDP per capita is below the EU28 average in the baseline year of 2013, we assume a different evolution path for this variable. We assume it evolves over the projection period so as to reach the EU28 average in 2060. The real convergence to EU28 average is assumed to follow the following path, based on an adjustment of equation 2.1 of the demographic scenario:

$$c_{g,a,t,i}^{cc} = c_{g,a,t-1,i}\left(\Delta Ypc_{t,i} + g_{t,i}\right) \qquad 2.21$$

where:

cc stands for cost convergence

$c^{cc}{}_{g,a,t,i}$ is cost per capita of a person of gender *g* and age *a* in year *t* of the projection period, in country *i*, adjusted to the GDP per capita growth and a catch-up effect if country *i* is below the EU28 average ;

$c_{g,a,t-1,i}$ is cost per capita of a person of gender *g* and age *a* in year *t-1* in country *i*;

$\Delta Ypc_{t,i}$ is GDP per capita rate growth in year *t* of country *i* and

$g_{t,i}$ is a hypothetical rate of growth of per capita costs which is higher than zero for those countries below the EU28 average and equal to zero for

those countries at or above the EU28 average. To close the gap, *gt,i* evolves according to the following mechanism.[85] :

$$g_{t,i} = \left[\left(\frac{\overline{rc}_{g,a,EU28,2013}}{rc_{g,a,i,2013}}\right)^{\frac{1}{2060-2013}}\right] - 1 \qquad 2.22$$

where:

$\overline{rc}_{g,a,EU28,2013}$ is the weighted EU28 average relative cost per capita of gender *g* and age *a* calculated in the baseline year of 2013 and $\overline{rc}_{g,a,i,2013}$ is the relative cost per capita of gender *g* and age *a* for country *i* (if below the EU28 average cost per capita) calculated in the baseline year of 2013 defined as

$$rc_{g,a,i,2013} = \left(\frac{c_{g,a,i,2013}}{Ypc_{g,a,i,2013}}\right) \qquad \text{and}$$

$$\overline{rc}_{g,a,EU28,2013} = \left(\frac{\overline{c}_{g,a,EU28,2013}}{\overline{Ypc}_{g,a,EU28,2013}}\right)$$

Where $\overline{c}_{g,a,EU28,2013}$ is the weighted EU28 average cost per capita of gender *g* and age *a* calculated in the baseline year of 2013 and $\overline{Ypc}_{g,a,EU28,2013}$ is the average GDP per capita in the EU28 calculated in the baseline year of 2013.

After country-specific per capita cost has been calculated, corresponding equations 2.3 and 2.4 are used to obtain total age/gender group expenditure and total public expenditure on health care in each projection year.

2.3.7. Labour intensity scenario

The "*labour intensity scenario*" is an attempt to estimate the evolution of public expenditure on health care taking into account that health care is

---

[85] Assumptions for different convergence paths according to the initial country-specific situation - comparing to the EU27-average age profile - will be explored further as soon as data is made available to calculate the new age profiles.

and will remain a highly labour-intensive sector. Consequently, unit costs (and therefore the age/gender specific per capita public expenditure profiles) are assumed to evolve in accordance with changes in labour productivity, rather than growth in GDP per capita. This assumption implies that the cost of public provision of health care is supply-driven rather than demand-driven. In practical terms, the proposed scenario is similar to the "*demographic scenario*" except that unit costs are assumed to evolve in line with the evolution of GDP per hours worked (which is usually higher than GDP per capita).([86])

As wages are projected to grow in line with productivity and generally faster than GDP per capita, this scenario provides an insight into the effects of unit costs in the health care sector being driven mostly by increases in wages and salaries. Note that this scenario still assumes that wages in the health sector grow at the same rate as wages in the whole economy, and that wages in the whole economy generally follow the trend of economy-wide productivity. Hence, expenditures per head are assumed to grow at the same rate as productivity in the whole economy.

Formal illustration

The only difference between this scenario and "*demographic scenario*" is the change in the development pattern of unit costs. The growth in GDP per capita is replaced by the growth in GDP per hours worked, so that equation 2.1 becomes:

$$c^{li}_{g,a,t} = c_{g,a,t-1} \Delta Yphw_t \qquad 2.23$$

where:

li stands for labour intensity scenario

ΔYphwt is the rate of growth of GDP per hours worked in year *t*,

$$\Delta Yphw_t = \left(\frac{Y_t}{\sum hw_t} - \frac{Y_{t-1}}{\sum hw_{t-1}} \right) \bigg/ \left(\frac{Y_{t-1}}{\sum hw_{t-1}} \right) \qquad 2.24$$

([86]) The 2009 "*labour intensity scenario*" used GDP per worker.

Corresponding equations 2.3 and 2.4 are then used to calculate total age/gender group expenditure and total public expenditure on health care in each projection year.

2.3.8. Sector-specific composite indexation scenario

Given the special character of the health care sector (high level of government regulation, investment in new technologies, high labour intensity), it might be preferable to use sector-specific rather than economy-wide elements as determinants of unit costs in the model. While a significant share of public expenditure on health corresponds to expenditure on staff (wages), we could go further and consider other inputs and therefore components of public expenditure on health care. These components may have evolved at a pace different from that of wages. The scenario called "s*ector-specific composite indexation scenario*" tries to capture the importance and evolution of various inputs to health care provision. This scenario looks at each of these different components separately and indexes each of them in a separate/different way, creating a sort of composite indexation for "unit cost development".

In order to capture the importance and evolution of various inputs we start by choosing a set of such inputs and calculate their respective share in public expenditure on health care. We consider that expenditure on health care can be disaggregated in its different inputs: 1) staff, to which corresponds expenditure on wages, 2) pharmaceuticals, 3) therapeutic appliances, 4) capital investment, and 5) other factors. For each of these inputs we calculate its share in total public expenditure on health care and then apply the share to the age-specific per capita expenditure. In doing this we (mechanically) divide each age-specific per capita expenditure into 5 sub-items of expenditure.

We then look at the past evolution of public expenditure on each of those inputs. In other words, we calculate the average annual growth of the expenditure associated with each of those inputs for the past 10 years. We further calculate the ratio of each of these growth rates to the growth rate of GDP per capita.

We then multiply each sub-item of the age-specific per capita expenditure by this growth ratio. ([87]) This allows for different evolution patterns for each component of expenditure so that in the future the share of each of these components is allowed to change, something which was not captured by previous scenarios. We then assume that the growth ratio multiplying each sub-item of expenditure converges to 1 in a certain year in the future (i.e. grows at the same pace as productivity or GDP per capita). ([88])

As to the pattern of convergence, past observations are used to determine the convergence pattern of the growth ratios. It is assumed that for all components the ratio converges to 1 in 2060. Different convergence patterns for each component can also be assumed.([89])

Formal illustration

In mathematical terms, the different steps of the projection exercise are as follows: The share of each component in total public expenditure on health care in each year t of available data, up to the baseline year of 2013 is calculated as follows. Assuming 5 inputs:

$$s_{i,t} = \frac{PE_{i,t}}{\sum_{i=1}^{5} PE_{i,t}} \qquad 2.25$$

where $S_{i,t}$ is the share of public expenditure on component or input i at each time t to total public expenditure on health care,

$PE_{i,t}$ is total public expenditure on component or input i at each time t and

$$\sum_{i=1}^{5} PE_{i,t}$$ is total public expenditure on health care expressed as the sum of the public expenditure on each of the five components or inputs.

The average share of the ten past observations, up to the latest available data, $\overline{s_{i,t}}$ of each component is calculated as

$$\overline{s_i} = \frac{\sum_{t=1}^{10} s_{i,t}}{10} \qquad 2.26$$

These average shares are combined with the age/gender specific per capita expenditure in 2013 so that this is the sum of the expenditure on the above five components

$$c_{g,a,2013} = \sum_{i=1}^{5} \overline{s_i} c_{g,a,2013} \qquad 2.27$$

To calculate the annual growth rate of public expenditure for each of the five components or inputs, the growth rate of public expenditure for component i at time t of available data up to the baseline year of 2013 included is:

$$\Delta PE_{i,t} = \left(\frac{PE_{i,t} - PE_{i,t-1}}{PE_{i,t-1}} \right) \qquad 2.28$$

and the average annual growth rate of public expenditure for component i for the last past 10 years, which is:

---

[87] The data is available in EUROSTAT, WHO, OECD/SHA (see details with tables).

[88] Let us assume that per capita public expenditure on health care for 20-year old men is €2000 in year t. Assume too, that in line with total public expenditure on health care, 40% is wages, 5% capital investment, 15% pharmaceuticals, 2% therapeutic appliances and 38% other inputs. Therefore, per capita public expenditure is divided into 5 sub-items: €800 in wages, €100 capital investment, €300 in pharmaceuticals, €40 in therapeutic appliances, €760 in other inputs. Then in year t+1 we have that expenditure increases as follows (numbers are just illustrative): €800x1.2 + €100x1.4 + €300x1.3 + €40x1.1 + €760x1, where 1.2, 1.4, 1.3, 1.1 and 1 are the (past observed) growth ratios of each component. As to the pattern of convergence, we can use past observations to determine the convergence pattern of the growth ratios.

[89] When extrapolating past trends, caution is called for in its interpretation as there may be methodological breaks in the series or policy changes, affecting e.g. pharmaceuticals.

$$\overline{\Delta PE_i} = \frac{\sum_{t=1}^{10} \Delta PE_{i,t}}{10} \qquad 2.29$$

Now, recall that the annual growth rate of GDP per capita is *ΔYpct* as defined in equation [2]. We then calculate the average annual growth rate of GDP per capita for the past ten years of available data (up to 2013 inclusive) as

$$\overline{\Delta Ypc} = \frac{\sum_{t=1}^{10} \Delta Ypc_t}{10} \qquad 2.30$$

The ratio of average annual grow rate of expenditure on each component to the average annual growth rate of GDP per capita is calculated by dividing equation 2.29 by equation 2.30.

Following these calculations the per capita cost is assumed to evolve in the following manner:

$$c_{g,a,t}^{di} = \sum_{i=1}^{5} \left(\overline{s_i} c_{g,a,t-1} \right) \frac{\overline{\Delta PE_i}}{\overline{\Delta Ypc}} \Delta Ypc_t \qquad 2.31$$

where:

di stands for decomposed indexation scenario and

ΔYpct is the GDP per capita rate of growth in year *t* for each country.

Each of the five ratios of growth rates (the ration of $\overline{\Delta PE_i}$ to $\overline{\Delta Ypc}$) converges to 1 by a specified date, 2060. Again, corresponding equations 2.3 and 2.4 are then used to calculate total age/gender group expenditure and total public expenditure on health care in each projection year.

2.3.9. Non-demographic determinants scenario

Since the second half of the 20th century, healthcare expenditure has been growing faster than income. Econometric studies show that demographic factors (e.g. ageing) have a positive but relatively minor impact on spending when compared with other drivers, such as income, technology, relative prices and institutional

settings. [90] In the 2012 Ageing Report, the non-demographic scenario for healthcare expenditure was projected to have a substantial impact, relatively to the reference scenario, raising public health expenditure in the EU (over the 2010-2060 period) by 2.8 pp of GDP in the EU27 compared with only 1.1 pp in the reference scenario. [91] By ignoring the effects due to non-ageing drivers, the AWG reference scenario implicitly assumes a substantial progressive downward tilt of past trends in healthcare spending, flattening out at the end of the period. [92]

In order to address this critical aspect of past exercises, and following analytical work carried out for the 2009 Ageing Report, [93] and more recently in preparation of the 2015 AR [94], this scenario reassess the impact of non-demographic factors (NDF) (e.g. technology, relative prices) on healthcare expenditure. It uses the *residual approach* to identify the impact of NDF on healthcare spending. In practice, the effect of demographic changes is subtracted from the total increase in expenditure and the remaining part (i.e. the residual) is attributed to changes in NDF. [95]

---

[90] Maisonneuve and Martins (2013), "A projection method of public health and long-term care expenditures", OECD Economic Department WP No. 1048.

[91] European Commission and Economic Policy Committee (2012), "The 2012 Ageing Report: economic and budgetary projections for the 27 EU Member States (2010-2060), European Economy, No. 2/2012.

[92] The reason for the convergence of the elasticity is that only a partial continuation of past trends related to NDD in the future is expected. In the past, extensions of insurance to universal coverage of the population were an important trigger of increases in public health expenditures. As universal coverage is nearly reached in the EU, this one-time shock will not occur again in the future. Note that by "coverage" is not only meant coverage in terms of percentage of population covered, but also in terms of the "depth" of the coverage, i.e. the size of the benefits basket and the coverage rates of benefits. However, data availability at the level of individual countries to correct for coverage effects is suboptimal.

[93] Dybczak K., and B. Przywara (2010), "The role of technology in health care expenditure in the EU", European Economy, Economic Papers No. 400.

[94] Medeiros J., and C. Schwierz (2013), "Estimating the drivers and projecting long-term public health expenditure in the European Union: Baumol's 'cost disease' revisited", European Economy, Economic Papers No. 507.

[95] Ideally, in order to identify the impact of technology on healthcare expenditure, besides income one should also control for other NDF, such as the health status, relative prices, and institutional variables. Limitations on data coverage prevent us from using a broader set of regressors.

This scenario uses panel regression techniques to estimate country-specific non-demographic cost (NDC) of healthcare. [96] NDC is defined as the excess of growth in real per-capita healthcare expenditure over the growth in real per-capita GDP after controlling for demographic composition effects. Alternatively, results can also be expressed in terms of country-specific "average" income elasticities of healthcare expenditure.

Panel regressions are run using data in growth rates [97] and assuming country fixed effects.

Data

Data on public healthcare expenditure is primarily taken from the System of Health Accounts (SHA) as provided by the OECD and Eurostat, and if necessary supplemented by national data sources. [98] The dataset covers 28 EU Member States and Norway. For some Member States, data series are available since the mid-1970s, [99] although time coverage is highly unbalanced across countries.

Nominal values are deflated using the GDP price deflator (Ameco) or in some model specifications using a proxy for the prices of healthcare goods and services. The latter is calculated as follows (Elk et al., 2009):

$$P_h = W^\phi * CPI^{1-\phi} \qquad 2.32$$

where the price of healthcare goods and services (Ph) is a weighted average of wages for the whole economy (W) and overall consumer prices (CPI).

However, in some specifications a proxy variable for relative prices of healthcare goods and services will also be used.

[96] This is called excess cost growth (ECG) in Clements et al. (2012).

[97] This avoids the difficult and largely unsettled issue in the literature regarding the co-integration of healthcare expenditure and income variables.

[98] Public healthcare expenditure is defined by the "core" functional components of health (SHA categories HC.1-HC.9, excluding HC.3), including capital investment in health (HC.R.1). Note that the OECD prefers using current (and not total) public healthcare expenditure (Maisonneuve and Martins, 2013).

[99] Data for 14 countries are available since the mid-1970s, namely for AT, DE, DK, EL, ES, FI, FR, IE, LU, NL, NO, PT, SE, and the UK.

The weights (ϕ) should be country-specific and be calculated using national accounts input-output tables (Medeiros and Schwierz, 2013). In practice, given the lack of information covering all the 28 EU MS, the weights are set parametrically. [100]

Some model specifications use a proxy variable for the relative prices of healthcare goods and services ($p \equiv \frac{p_h}{p_y}$), where p_y is the GDP price deflator. Nominal GDP, real GDP and population ratios are taken from DG ECFIN's Ameco macroeconomic database.

The regression equations

The key determinants of healthcare expenditure are income, demographic composition, technology progress, the Baumol relative-prices effect, health policies and institutions, and other factors that may vary across countries (e.g. behaviour, environment, education).

In all model specifications, the dependent variable is total (current and capital) public healthcare expenditure. As explanatory variables, all specifications include income and possibly also additional drivers, such as a proxy for the relative prices of healthcare goods and services, population composition variables, and a time dummy. All equations are estimated in growth rates (i.e. the first difference of logarithms), thereby sidestepping the unsettled issue of the co-integration of variables in levels.

There are basically two model specifications: one with a proxy variable for the relative prices of healthcare goods and services; another without. Regression with a proxy variable for the relative prices of healthcare goods and services

$$\Delta logh_{i,t} = \alpha + \mu_i + D_{85} + a * \Delta logx_{i,t} + b * \Delta logy_{i,t} + c * \Delta logp_{i,t} + \epsilon_{i,t} \qquad 2.33$$

where Δ is the first difference operator (i.e. $\Delta z_t \equiv z_t - z_{t-1}$).

---

[100] The value used will be close to the average of values estimated using input-output tables for the "human health activities sector" across EU MS (Medeiros and Schwierz, 2013).

Equation 2.33 assumes that real per-capita growth in public healthcare expenditure ($h_{i,t}$) is a function of a common growth rate across all countries (α); a country-specific growth rate differential (i.e. country fixed effects: μ_i); a period dummy (D_{85}), *signalling a common shift in the* growth rate after 1985;[101] a population composition effect ($x_{i,t}$);[102] real per-capita GDP growth rate ($y_{i,t}$); *and rela*tive prices of healthcare goods and services ($p_{i,t} \equiv \frac{p_{h_{it}}}{p_{y_{it}}}$). The common growth rate (α) and country fixed effects (μ_i) *capture time-in*variant factors, such as the institutional settings, and national idiosyncrasies.

Regression excluding a proxy variable for the relative prices of healthcare goods and services

$$\Delta \log h_{i,t} = \alpha + \mu_i + D_{85} + a * \Delta \log x_{i,t} + b * \Delta \log y_{i,t} + \epsilon_{i,t} \quad 2.34$$

Note that real per-capita healthcare is deflated using a price index for healthcare goods and services (p_h) in equation 2.33, while it is deflated using the GDP price deflator (p_y) in equation 2.34.

Derivation of estimates for country-specific NDC and "average" income elasticity

Non-demographic cost (NDC) of healthcare is defined as the excess of growth in real per-capita healthcare expenditure over the growth in real per-capita GDP after controlling for demographic change. Alternatively, results can also be expressed in terms of "average" country-specific income elasticities of healthcare expenditure.

According to its definition, NDC ($\widetilde{C}_\iota$) *estimates a*re calculated as:

$$\widetilde{C}_\iota \equiv \frac{\sum_t \frac{\Delta \widetilde{h_{i,t}}|\Delta x_{i,t}=0}{\widetilde{h_{i,t}}|\Delta x_{i,t}=0} + \sum_t \frac{\Delta p_{it}}{p_{it}}}{T_i} - \frac{\sum_t \frac{\Delta y_{it}}{y_{it}}}{T_i}$$

$$\approx \frac{\sum_t \Delta \log \widetilde{h_{i,t}}|\Delta x_{i,t}=0 + \sum_t \Delta \log p_{it} - \sum_t \Delta \log y_{it}}{T_i} \quad 2.35$$

with T_i *denoti*ng the number of data points in the sample for country i; a tilde over a variable means an estimated value; and the presence of relative prices (in the numerator of the first term of equation 2.35) is due to the fact that real healthcare expenditure and real GDP use different deflators.

According to equation 2.33, NDC ($\widetilde{C}_\iota$) *equal*s the difference between the (geometric) average growth rate of estimated real per-capita (public) healthcare expenditure, after controlling for the impact of demographic composition (i.e. assuming $\Delta x_{i,t} = 0$), minus the (geometric) average growth rate of real per-capita GDP. The difference being expressed in GDP units.

Using estimates of equation 1, $\widetilde{C}_\iota$ estimate for the period after 1985 is:

$$\widetilde{C}_i = \widetilde{\alpha} + \widetilde{\mu}_i + \widetilde{D}_{85} + (\widetilde{b}-1) * \frac{\sum_{t=1985}^{1985+T_i^*+1} \Delta \log y_{i,t}}{T_i^*}$$

$$+ (1+\widetilde{c}) * \frac{\sum_{t=1985}^{1985+T_i^*+1} \Delta \log p_{i,t}}{T_i^*} \quad 2.36$$

with T_i^* *denoting* the number of data points in the sample for country i after 1985.

An alternative way to present the econometric results is to express them instead in terms of "average" country-specific income elasticities of per-capita healthcare expenditure:

$$\widetilde{\eta}_\iota \equiv \frac{\frac{\sum_t \frac{\Delta \widetilde{h_{i,t}}|\Delta x_{i,t}=0}{\widetilde{h_{i,t}}|\Delta x_{i,t}=0} + \sum_t \frac{\Delta p_{it}}{p_{it}}}{T_i}}{\frac{\sum_t \frac{\Delta y_{it}}{y_{it}}}{T_i}}$$

$$\approx \frac{\frac{\sum_t \Delta \log \widetilde{h_{i,t}}|\Delta x_{i,t}=0 + \sum_t \Delta \log p_{it}}{T_i}}{\frac{\sum_t \Delta \log y_{it}}{T_i}} \quad 2.37$$

Using estimates of equation 1, the $\widetilde{\eta}_\iota$ estimate for the period after 1985 is*:*

---

[101] We are assuming that in a majority of countries the setting up and broadening of scope of national healthcare systems had largely been completed before 1985.

[102] Two strategies are used to control for the composition of the population. First, the ratios of young (14 years or younger) and old population (65 years or older) over the total population; second, the average age of the population. Results are only reported for the former.

$$\widetilde{\eta}_i = \widetilde{b} + \frac{\widetilde{\alpha} + \widetilde{\mu}_i + \widetilde{D}_{85} + (1+\widetilde{c}) * \frac{\sum_{t=1985}^{1985+T_i^*+1} \Delta\log p_{i,t}}{T_i^*}}{\frac{\sum_{t=1985}^{1985+T_i^*+1} \Delta\log y_{i,t}}{T_i^*}} \qquad 2.38$$

The relation between $(\widetilde{C}_\iota)$ and $(\widetilde{\eta}_\iota)$ is:

$$\widetilde{\eta}_\iota = 1 + \frac{\widetilde{C}_\iota}{\frac{\sum_t \Delta\log y_{it}}{T_i}} \qquad\qquad 2.39$$

It is clear from equation 2.39 that while NDC (i.e. $\widetilde{C}_\iota$) can always be calculated, the "average" income elasticity ($\widetilde{\eta}_\iota$) is only defined when the growth rate of real per-capita GDP is "sufficiently larger" than zero. It should be noted that an NDC ($\widetilde{C}_\iota$) tending to zero is equivalent to an income elasticity ($\widetilde{\eta}_\iota$) tending to one, formally:

$$\widetilde{C}_\iota \Rightarrow 0 \Leftrightarrow \widetilde{\eta}_\iota \Rightarrow 1 \qquad\qquad 2.40$$

Multiple model specifications were tried using the datasets, namely estimates including and excluding country-fixed effects and a period dummy.

Econometric results obtained are similar to those carried out for the NDC scenario of the 2012 Ageing Report.

As regards the implementation of the NDD scenario, and based on the technical work carried out by Commission Services for the 2012 Ageing Report, the AWG decided to use a common elasticity (η) of 1.4([103]) throughout the projection period, which will be reduced to 1 in 2060.

2.4. QUANTIFYING EFFECTS OF HEALTH CARE REFORMS

Policy reforms may impact on the future path of health care reforms. Wage adjustments of medical and non-medical personnel, changing prices of medical goods, capital investments, legislated changes in targets for future health care expenditure will impact the growth rate of health

care expenditure. This needs to be taken into account in the projection framework.

In the 2012 Ageing Report, recently legislated policy reforms were quantified – if possible – and were taken into account in the projections. Specifically, Member States provided data on legislated cost changes, both increases and reductions - per component of health care expenditure. The components used were: Wages; Pharmaceuticals and non-durables (HC.5.1); Therapeutical appliances and other durables (HC.5.2); Capital Formation (HC.R.1); and Prevention and public health services (HC.6).

The annual percentage reduction was deducted from the level of spending by component, effectively changing the level of total health care spending. Further, the age-cost profiles were adjusted proportionally to the change in the level of spending.

For the 2015 report, Member States again provide data on legislated reforms in the health care sector. If the fiscal effect of the reforms are quantifiable, these will be translated into adjusted age-cost profiles. These in turn will impact upon the projected path of health-care expenditure.

2.5. DATA SOURCES

Data collection

The data required to run long-term public expenditure projections in the field of health care includes:

- i.e. age/gender-specific expenditure profiles;

- per capita public expenditure on health care decomposed by the number of remaining years of life required to run the *death-related costs* scenario;

- public expenditure on health care; and

- per capita public expenditure on health care by gender and age cohorts.

The data-collection procedure has taken two steps. First, Commission Services (DG ECFIN) pre-filled

---

([103]) Corresponding to the weighted median of country-specific estimates.

data on the basis of existing international databases managed by international organisations (Eurostat, OECD, WHO, AMECO). The questionnaire was then circulated to the Member States, to endorse the pre-filled figures and complement these with data from national sources if no data was available from international sources. The completed data questionnaires were used for conducting the projections.

Note that age/gender specific per capita public expenditure on health care and per capita public expenditure on health care decomposed by the number of remaining years of life were not available in any common international databases. Therefore, they were provided exclusively by AWG delegates.

Computing public expenditure on health care

In order to calculate total public expenditure on health care, the following is done:

1) For the 24 EU Member States and Norway who use the SHA classification system and for whom SHA joint questionnaire data is available

Note that the most recent SHA manual was adopted in 2011. ([104]). However, we are still under a transition/piloting period so that data is still collected and publicly reported according to SHA 1.0. Therefore, calculation of public expenditure on health care in this report is still done under the reporting framework of SHA 1.0.

Public expenditure on health care is computed as the sum of all "core" health care SHA functions/expenditure categories HC.1 to HC.9, excluding HC.3 (defined as "LTC (health)" in SHA 2011 and "Long-term nursing care" in SHA 1.0). On top of these components, data on capital formation in health (HK in SHA 2011) (function HC.R.1 in SHA 1.0) is added.

More specifically the following SHA categories used are: services of curative care (HC.1); services of rehabilitative care (HC.2); ancillary services to health care (HC.4); medical goods dispensed to outpatients (HC.5); prevention and public health services (HC.6)([105]); health administration and health insurance (HC.7); on services not allocated by function (HC.9) plus, capital formation (HC.R.1 in SHA 1.0).

SHA data by function/expenditure category and respective sub-functions is available on OECD Health Data, Eurostat Cronos and WHO Data for All. Data for capital formation is available from the OECD Health Data, WHO Health for All or from national sources. Most recent data by category refers to 2012 though for some Member States data refers to 2011, 2010, 2009 and 2008.

2) For Member States who do not use the SHA classification system and for whom SHA joint questionnaire data is not available

Public expenditure on health care is computed using ESSPROS data as the sum of:

a) expenditure on "Inpatient health care" and "Outpatient health care" (including pharmaceutical products) in the "Sickness/health care" function;

b) expenditure on "Other benefits in kind" in the "Family/children function";

c) expenditure on "Rehabilitation of alcohol and drug abusers" in the "Social exclusion" function.

On top of these components, data on capital formation either from the OECD Health Data, WHO Health for All or from national sources is added. Most recent data by function/ category of expenditure is available in Eurostat (Cronos).

([104]) See the SHA Manual – System of Health Accounts 2011 at http://who.int/nha/sha_revision/sha_2011_final1.pdf . The manual contains guidelines for reporting health expenditure.

([105]) In The report uses the SHA 1.0 definition of this category, which has changed in SHA 2011.

3. LONG TERM CARE

3.1. SHORT OVERVIEW OF THE PROJECTION METHODOLOGY

Similar to previous projection exercises conducted jointly by the European Commission (EC) and the Ageing Working Group (AWG), the methodology to project long-term care (LTC) expenditure is based on a simple macro-simulation model. The model is based on the assumption that the whole population is divided into groups which are assigned certain characteristics (e.g. age, gender, per capita expenditure, health status, type of care etc.). When over time the (relative) size or features of these groups change, the long-term care expenditure changes in line with the change of those characteristics. Similar kinds of models are often used in long-term expenditure projections, in particular in cases where the exact micro information on the individuals and their transition from one status to the next are not available or unreliable.

The availability, accessibility and quality of long-term care data limits the choice for the methodology to be used and the various scenario's to be run. For the projection exercise SHA data is used where available – complemented with some proxies calculated on the basis of ESSPROS categories. ([106]) ([107]) Therefore, the models may not include all the relevant factors identified as affecting health and long-term care spending.

The 2006 projection exercise model, based on a proposal by Comas-Herrera et al. (2005), will continue to be used. The approach aims to maximise the numbers of factors affecting future LTC expenditure that can be examined. At the same time, it has to be made sure that a large number of Member States can provide the data necessary to run the projections. A schematic presentation of the projected methodology can be found in graph II.3.1 below. Specifically, the

methodology aims at analysing the impact of changes in the assumptions made about:

- the future numbers of elderly people (through changes in the population projections used);

- the future numbers of dependent elderly people (changes to the prevalence rates of dependency);

- the balance between formal and informal care provision (assuming a given shift in demand or exogenous changes in the availability of informal carers);

- the balance between home care and institutional care within the formal care system;

- the unit costs of care.

The methodology allows projecting the future need for long-term services in terms of numbers of people who are assumed to need long-term care services. This is done by using dependency rates, to estimate the fraction of the elderly population which is dependent, i.e. with a severe disability requiring the provision of a care service.

Firstly, a projection is made of the dependent population, on the basis of the baseline population projection and disability rates. Secondly, the dependent elderly population is split, by age and gender, following the type of care received (informal, formal at home, formal in institutions). Thirdly, average expenditure (i.e. age-gender profiles) is calculated for both types of formal care, and then multiplied by the projected number of recipients to obtain the projected public expenditure. More specifically, the necessary steps are:

Step 1: taking the baseline population projection (by age and gender), a projection is made of the dependent population, who are assumed to need some form of long-term care service, and the non-dependent population who are assumed not to be in need of long-term care services. This projection is made by taking age and gender-specific dependency ratios at the value observed in the base year estimated using existing indicators of disability from comparable sources) and applying them to the baseline population projection. More

---

([106]) At the time of producing the report, system of health accounts data was reported still in version 1.0 and not in the updated SHA 2011 format. Thus, this report relies on SHA 1.0 classification. See the annex to this chapter on sources of data.

([107]) For disability rates, EU-SILC data are used (EU-SILC: The European Statistics on Income and Living Conditions; see the Eurostat website at: http://epp.eurostat.ec.europa. eu/ortal/page/portal/microdata/eu_silc)

specifically, dependency rates refer to the concept of ADL-dependency which refers to difficulties in performing at least one Activity of Daily Living (ADL) (Katz et al., 1963). ([108]) EU-SILC data is used to obtain a proxy of "ADL-dependency" rates. For these dependency rates an average over the last five years will be used, based on availability.

In the model it is being assured that the projected amount of dependent citizens (i.e. citizens with a severe disability) will not decrease due to increasing life expectancy. Where such a decrease would be observed, adjustments will be made so that the amount of dependent citizens in a five-year age class cannot be inferior to that in the preceding one. Note that the practical implications of this adjustment may be rather small.

Step 2: the projected dependent elderly population is split, by age and gender, into three groups depending on the type of care they receive, namely (i) informal care, which is assumed to have no impact on public spending, (ii) formal care at home and (iii) formal care in institutions (both of which impact on public spending but their unit costs may differ). The model implicitly assumes that all those receiving home care or institutional care have difficulties with one or more ADLs, and that all persons deemed ADL-dependent either receive informal care, home care or institutional care. The split by type of care received is made by calculating the "probability of receiving different types of long-term care by age and gender". This is calculated for a base year using data on the numbers of people with dependency (projected in step 1), and the numbers of people receiving formal care at home and in institutions (provided by Member States). It is assumed that the difference between the total number of dependent people and the total number of people receiving formal care (at home or in institutions) is the number of people who rely exclusively on informal care.

Step 3: involves the calculation of average public spending for the two types of formal LTC services: (i.e. "*age-gender profiles of expenditure*") for a base year using data on total public expenditure in home care and institutional care and the numbers of people receiving formal care at home and in long-term care institutions (provided by Member States). Two assumptions are required:

- it is implicitly assumed that current expenditure in services divided by the number of users equals the long-run unit costs of services;

- it is assumed that average expenditure per user increases with the age of the user. ([109])

Step 4: involves the calculation of public spending for the two types of formal long-term care services, by multiplying the number of people receiving formal care (at home and in institutions) by the average age-specific public expenditure (respectively at home and in institutions) per year and per user. By adding up the expenditure on formal care at home and in institutions, total public expenditure on long-term care services ("in-kind benefits") is obtained.

Step 5: public expenditure on cash benefits for people with ADL-dependency is added to the expenditure on services, in order to obtain total public expenditure on long-term care. Note that cash benefits are assumed to grow in line with the numbers of people with dependency. ([110])

([108]) *Activities of Daily Living* (ADL) are the things people normally do in daily living including any daily activity they perform for self-care (such as feeding, bathing, dressing, grooming), work, homemaking and leisure (see: Webster's New World Medical Dictionary, Wiley Publishing, 2008). If a person has difficulty in performing at least one of them, he is considered as ADL-dependent.

([109]) In practice, average expenditure (aged 15 and above), for each type of service, is decomposed into average expenditure by age groups, by assuming the same rate of increase in spending by age as in the age-related expenditure profile. It is important to note that the age-related expenditure profile provides information on spending in formal care by age, without distinction between care provided at home and in institutions (unless newly provided by Member States). The model uses average public expenditure in formal care to project future expenditure in both types of services.

([110]) For more details on the cash benefits data, see the section below, which is specifically dedicated to this subject.

Graph II.3.1:   **Schematic presentation of the projection methodology / in-kind LTC benefits**
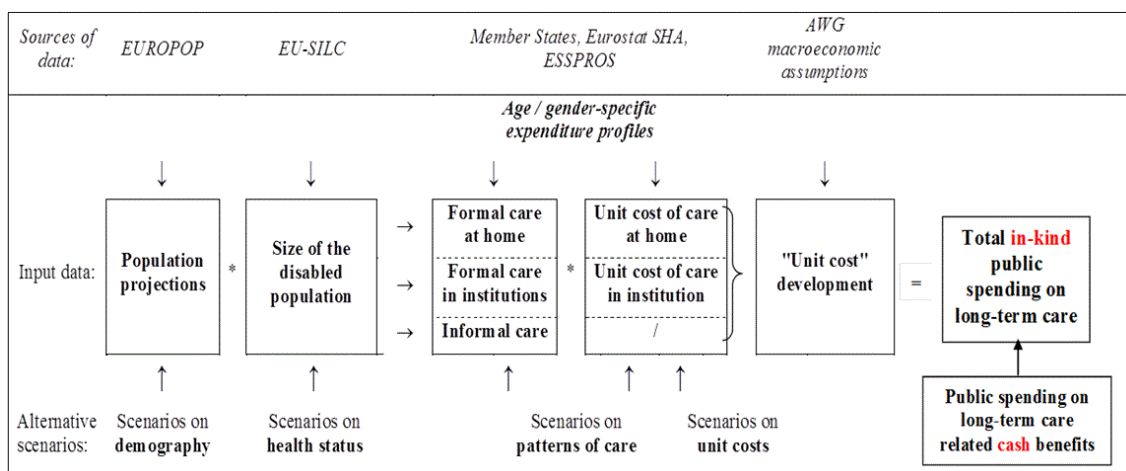
(1) As in 2012, the projections need to be viewed in the context of the overall projection exercise. Consequently, the common elements of all scenarios will be the population projections provided by Eurostat (EUROPOP2013) and the baseline assumptions on labour force and macroeconomic variables agreed by the EC and the AWG-EPC. The age and gender-specific per capita public expenditure (on long-term care) profiles are provided by Member States. They are applied to the demographic projections provided by Eurostat to calculate nominal spending on long-term care.
(2) This schematic representation shows the methodology for projecting in-kind benefits. Total public expenditure on long-term care is the sum of public expenditure on long-term care in-kind plus public expenditure on long-term care in cash benefits. Therefore, to the projections of long-term care expenditure on benefits in kind, one needs to add the projected cash benefits calculation.
Source: Commission Services.

Overall, given the availability of a numerical measure of disability, the projection methodology described above is more precise than that used for health care expenditure where there is no direct indicator of health status and the age-related expenditure profile is used as a proxy. However, an important caveat to note is that while dependency rates are an indicator of the need for care, those needs may not necessarily translate into actual public expenditure, for at least two reasons.

Firstly, the links between disability levels and demand/use of long-term care are not straightforward. Each step involves some uncertainty. There are many people with some form of disability who can lead completely independent lives without the need for care services. Furthermore, disability also depends on a person's perception of their ability to perform activities associated with daily living. On the one hand, survey data can underestimate some forms of disability. People may not report certain socially stigmatised conditions, such as alcohol and drug related conditions, schizophrenia, and mental degeneration. On the other hand, disability data can be too inclusive and measure minor difficulties in functioning that do not require provision of community care. In order to clarify the relation and to follow the usual eligibility conditions of public

schemes, it is commonly accepted that the disability levels accounted for are those categorized as "severe". [111]

Secondly, most long-term care is still provided by unpaid informal carers. Expenditure profiles contain information about the propensity to receive paid formal care, which depends on a number of factors other than dependency that affect demand for paid care such as household type, availability of informal carers, income or housing situation. Most of these factors, in turn, are also correlated with age.

[111] As these people are most in need of income support and services, such as long term care.

Table II.3.1:   **Overview of the different scenarios to project long-term care expenditure**

	Demographic scenario	Base case scenario	High life expectancy scenario	Constant disability scenario	Shift to formal care scenario	Coverage convergence scenario	Cost convergence scenario	Cost and coverage convergence scenario
	I	II	III	IV	V	VI	VII	VIII
Population projection	EUROPOP 2013	EUROPOP2013	Alternative higher life expectancy scenario	EUROPOP2013	EUROPOP2013	EUROPOP2013	EUROPOP2013	EUROPOP2013
Dependency status	2009-2013 average disability rates held constant over projection period	2009-2013 average disability rates held constant over projection period	2009-2013 average disability rates held constant over projection period	2009-2013 average disability rates change in line with changes in age-specific life	2009-2013 average disability rates held constant over projection period	2009-2013 average disability rates held constant over projection period	2009-2013 average disability rates held constant over projection period	2009-2013 average disability rates held constant over projection period
Age-related expenditure profiles	2012 cost profiles	2012 cost profiles	2012 cost profiles	2012 cost profiles	2012 cost profiles	2012 cost profiles	Cost profiles per Member State converge upwards to the EU28 average by 2060	Cost profiles per Member State converge upwards to the EU28 average by 2060
Policy setting / Care mix	Probability of receiving each type of care held constant at 2013 level	Probability of receiving each type of care held constant at 2013 level	Probability of receiving each type of care held constant at 2013 level	Probability of receiving each type of care held constant at 2013 level	Gradual increase (1% per year during 10 years) of the share of the disabled population receiving formal care (at home or in an institution).	Probability of receiving any type of formal care (in-kind or cash) converging until 2060 upwards to the EU28 average.	Probability of receiving each type of care held constant at 2013 level	Probability of receiving any type of formal care (in-kind or cash) converging until 2060 upwards to the EU28 average.
Unit cost development	GDP per capita	*In-kind*: GDP per hours worked; *cash benefits*: GDP per capita	*In-kind*: GDP per hours worked; *cash benefits*: GDP per capita	*In-kind*: GDP per hours worked; *cash benefits*: GDP per capita	*In-kind*: GDP per hours worked; *cash benefits*: GDP per capita	*In-kind*: GDP per hours worked; *cash benefits*: GDP per capita	*In-kind*: GDP per hours worked; *cash benefits*: GDP per capita	*In-kind*: GDP per hours worked; *cash benefits*: GDP per capita

Source: Commission services

3.2.   SCENARIOS CARRIED OUT IN THE PROJECTION EXERCISE

The advantage of the methodology described above is that it allows for the examination of different scenarios regarding the evolution of dependency rates, unit costs and policy settings. Consequently, a series of scenarios and sensitivity tests assess the potential impact of each of the determinants of long-term care expenditure on future public expenditure on long-term care. Building on the 2012 EPC-EC projections exercise ([112]), the present exercise maintains most of the existing scenarios and sensitivity tests while attempting to improve the specification of some of the scenarios, and runs one new scenario. The overview of the scenarios is presented in table II.3.1 above ([113]). The analysis tries to identify the impact of each quantifiable determinant separately, on the basis of hypothetical assumptions like an

estimated guess or a "what if" situation. Therefore, the results of the projections should not be interpreted as forecast of expenditure as for example particular policy/institutional settings in Member States or policy reforms are not taken into account.

The AWG and EPC will choose a baseline/reference scenario for long-term care expenditure in connection with the release of the final 2015 Ageing Report, containing the budgetary projections, as was the case in the 2009 and 2012 Ageing Reports.

3.2.1. Demographic scenario

The "*demographic scenario*" assumes that the shares of the older disabled population who receive either informal care, formal care at home or institutional care are kept constant over the projection period. Those constant shares are then applied to the projected changes in the dependent population. Since the prevalence of ADL-dependency is also kept constant over the projection horizon, the dependent population evolves precisely in line with the total elderly population. This implies that in practice all gains in life expectancy are spent in bad health/with disability. Arguably, it is a pessimistic scenario with respect to disability status, since it assumes

---

([112]) See Economic Policy Committee and European Commission (EPC/EC) (2012), The 2012 Ageing Report: economic and budgetary projections for the EU-27 Member States (2010-2060), European Economy, No. 2/2012, Directorate General Economic and Financial Affairs, European Commission 2012. Available at: http://ec.europa.eu/economy_finance/publications/europea n_economy/2012/2012-ageing-report_en.htm

([113]) See also annex 6 Mathematical illustration of the long-term care scenarios.

that average lifetime consumption of long-term care services will increase over time. It is a "no policy change scenario" as the probability of receiving care (either at home or in an institution) is assumed to remain constant at the 2012 (base year) level. The scenario is similar to the analogous scenario for health care expenditure, and costs are also assumed to evolve in line with GDP per capita growth (for all types of long-term care expenditure).

3.2.2. Base case scenario

While in the above-mentioned elements the scenario is similar to the analogous scenario for health care expenditure, the actual "*base case scenario*" is slightly different, as it was agreed already in previous exercises to link long-term care unit cost to GDP per worker, rather than to GDP per capita. Indeed, there exists a current imbalance of care mix, with a relative deficit of formal care provision. Further, this sector is highly labour-intensive and productivity gains can be expected to be particularly slow in this sector. Therefore, public expenditure on long-term care is expected to be rather more supply- than demand-driven. For that reason, GDP per worker (which is also assumed to reflect wage evolution in all sectors, including in the care sector), rather than GDP per capita had been chosen as the main driver of unit costs. In this sense, it is more similar to the "*labour intensity scenario*" run for the health care expenditure projections.

Similar to the 2012 exercise, the projections will link unit cost to GDP per hours worked for in-kind benefits (services), while unit cost of cash benefits will evolve in line with GDP per capita growth (as cash benefits are more related to a form of income support).

3.2.3. High life expectancy scenario

The *"high life expectancy scenario"* presents the budgetary effects of an alternative demographic scenario which assumes life expectancy to be higher for all ages than in the baseline scenario. In terms of methodology, the scenario does not differ from the *"base case scenario"*, apart from the fact that the baseline demographic projections (structure of the population evolving over the projection period as well as the consequent evolution in the macroeconomic assumptions) used

as input data are replaced with the alternative, high life expectancy, variant (the same used to assess the sensitivity of pension spending). The rationale is twofold. First, the marked increase in public expenditure with older age (i.e. 80 and more). In fact, the age profile for long-term care expenditure is much steeper than that for health expenditure, partly because the costs related to long-term care are very high for institutionalised individuals, and the share of institutionalised individuals increases sharply among persons aged over 80. Second, the higher age groups are also the part of the demographic projections which are likely to be the most uncertain.

3.2.4. Constant disability scenario

This scenario reflects an alternative assumption about trends in age-specific ADL-dependency rates. Being inspired by the so-called "*dynamic equilibrium hypothesis*", it is analogous to the "*constant health scenario*" performed in the framework of health care expenditure projections. The profile of age-specific disability rates shifts in line with changes in life expectancy (disability rate in the future is equal to that of a younger - by the same number of years as the change in age-specific life expectancy - age cohort today), resulting in a gradual decrease over time in disability prevalence for each age cohort.

3.2.5. Shift to formal care scenario

Ultimately, the public funding of long-term care – and the policy orientation – will determine whether future needs for long-term care translate into (direct) public expenditure or not, as neither informal care provision nor private expenditure on long-term care are formally part of public expenditure on long-term care.

Indeed, pressure for increased public provision and financing of long-term care services may grow substantially in coming decades, especially in Member States where the bulk of long-term care is currently provided informally. To illustrate the impact of possible future policy changes, such as Member States deciding to provide more formal care services to the elderly, additional scenarios have been prepared.

This policy-change scenario is run to assess the impact of a given – demand-driven – increase in

the (public) provision of formal care replacing care provided in informal setting. In particular, this sensitivity test examines the budgetary impact of a progressive shift into the formal sector of care of 1% per year of disabled elderly who have so far received only informal care. This extra shift takes place during the first ten years of the projection period only, thus it sums up to about 10.5% shift from informal to formal care.

The shift from informal to formal care is considered to be in line with the current shares of home care and institutional care in total formal care. In other words, if currently 10% of the dependents receiving care, receive care at home, the shift/increase will also go for 10% to home care (and 90% to institutional care).

3.2.6. Coverage convergence scenario

This scenario assumes that the exchange of best practices and growing expectations of the populations will drive an expansion of publicly financed formal care provision into the groups of population that have not been covered by the public programmes so far. Note that "formal coverage" covers any of the three types of formal long-term care: institutional care, formal home care, and cash benefits. The remaining number of "dependent" people is assumed to receive informal care. Similarly to the scenario assessing the effect of a shift from informal to formal care, this scenario should also be considered as a policy-change scenario, as it assumes a considerable shift in the current long-term care provision policy, while aiming to take into account the high diversity of country-specific current care-mix. It assumes a coverage convergence to the EU28 average by 2060. More specifically, the Member States where the formal coverage rate – i.e. referring to any of the three types of formal care described above – is below the EU28 average in the starting year are assumed to converge to this average by 2060.

3.2.7. Cost convergence scenario

This new scenario is run in parallel with the analogous scenario on health care expenditure projections. For those Member States with high levels of informal care, and therefore relatively low costs for long-term care, an increase in public expectations for more formal care (and therefore an increase in the average cost of long-term care) might be expected. For example, an increase in the costs of care (as percent of GDP per capita) towards the average for EU Member States could perhaps be expected. The "*cost convergence scenario*" is meant to capture the possible effect of a convergence in real living standards on long-term care spending. It assumes an upward convergence of the relative age-gender specific per beneficiary expenditure profiles (as percent of GDP per capita) of all countries below the corresponding EU28 average to the EU28 average. This is done for each type of formal care coverage (i.e. formal care in institutions, formal care at home, cash benefits).

3.2.8. Cost and coverage convergence scenario

This scenario combines the coverage convergence scenario and the cost convergence scenario, as described in the sections above.

It assumes a shift in the current long-term care provision policy leading to an upward coverage convergence to the EU28 average by 2060. More specifically, the Member States where the formal coverage rate – i.e. referring to any of the three types of formal care described above – is below the EU28 average in the starting year are assumed to converge to this average by 2060.

In addition this scenario assumes an upward convergence of the expenditure profiles (as percent of GDP per capita) of all countries below the corresponding EU28 average to the EU28 average. This is done for each type of formal care coverage separately (i.e. formal care in institutions, formal care at home, cash benefits).

3.3. DATA SOURCES

In order to assure the best possible comparability of data, it was already agreed in the previous projections exercises to rely, to the extent possible, on:

a) common methodologies and definitions (i.e. the System of Health Accounts - SHA) agreed by international institutions (Eurostat, OECD and WHO) and

b) data gathered through the joint data collection exercise (i.e. joint OECD-Eurostat-WHO questionnaire) and reported in Eurostat (Cronos) and OECD (Health Data) databases. ([114])

Note that the most recent SHA manual was adopted in 2011. ([115]). However, we are still under a transition/piloting period so that data is still collected and publicly reported according to SHA 1.0. Therefore, calculation of public expenditure on LTC in this report is still done under the reporting framework of SHA 1.0.

For the 2015 exercise, the aim is to improve further the level of consistency as compared to that of the 2009 and even 2012 rounds of projections. Nevertheless, the choice of the best option is still dependent on the availability of data in the international databases. When information is missing in the international databases, it has to be provided by each Member State individually. The detailed analysis of available data and classifications carried out ([116]) led to the following agreement. The definitions and data sources should remain very similar to those used in the 2012 Ageing Report, but for this exercise data availability and comparability are improved. Indeed, SHA data is provided in more details and covers a larger number of countries. Annex 5, on sources of data, gives an overview of the combinations of data sources for the 2015 projections exercise.

The data collecting procedure covers the same steps as for health care (see chapter 2 on health care), with the same questionnaire being used to report the data required for both health and long-term care expenditure projections.

For the Commission Services (DG ECFIN) to be able to calculate the proposed scenarios and run

the relevant sensitivity tests, the AWG delegates provide the following information in the framework of the long-term care expenditure projections:

- total numbers of dependent people receiving long-term care a) in institutions and b) at home, by sex and single age or five-year cohorts;

- total numbers of recipients of long-term care-related cash benefits, by sex and single age or five-year cohorts, and the eligibility conditions;

- possible overlapping between the recipients of cash benefits and the recipients of LTC services (legal possibility + numbers);

- total numbers and categories of informal caregivers;

- public expenditure per user (patient) on long-term care, by sex and single age or five-year cohorts (so-called "age-related expenditure profiles");

In addition, the Commission Services (DG ECFIN) pre-filled (according to the data availability) the following items, which the AWG delegates had to verify/confirm:

- total public spending on long-term care, disaggregated, if possible, into services of long-term nursing care (classified as HC.3 in the System of Health Accounts) and social services of long-term care (classified as HC.R.6.1);

- further disaggregation of total public spending on long-term care into spending on services in kind and spending on long-term care-related cash benefits, by sex and single age or five-year cohorts;

- further disaggregation of total public spending on services in kind into spending on services provided in the institutions (HC.3.1 + HC.3.2) and services provided at home (HC.3.3), by sex and single age or five-year cohorts;

- Relative shares of the three main categories of informal caregivers: spouses, children, an

---

([114]) See the SHA Manual – System of Health Accounts 1.0. The manual contains guidelines for reporting health expenditure according to an international standard. It proposes a common boundary of health care as well as a comprehensive and detailed structure for classifying the components of total expenditure on health.

([115]) See the SHA Manual – System of Health Accounts 2011 at http://who.int/nha/sha_revision/sha_2011_final1.pdf . The manual contains guidelines for reporting health expenditure.

([116]) See the note for the attention of the Ageing Working Group of the EPC: European Commission–DG ECFIN (2011a), "Health and long-term care expenditure projections: availability/collection of data", ECFIN/C2(2011)128176.

others (averages provided by the FELICIE data);

- disability rates by sex and five-year cohorts (based on EU-SILC data).

The following sections describe shortly the data available in the common databases (public expenditure on long-term care, split between services in kind and cash benefits, split between institutional and home care, disability rates), which are used to pre-fill the questionnaires circulated to the Member States for validation and integration where necessary. The remaining items (age profiles of long-term care, number of LTC beneficiaries and cash benefits recipients) are provided directly and exclusively by the Member States.

3.3.1. Public expenditure on long-term care

According to the System of Health Accounts classification, public expenditure on long-term care is defined as the sum of the following publicly financed items:

- services of long-term nursing care (HC.3) (which is also called "the medical component of long-term care" or "long-term health care", and includes both nursing care and personal care services), and

- social services of long-term care (HC.R.6.1 in SHA 1.0)([117]), which is the "assistance services" part, relating primarily to assistance with IADL tasks.

These mainly represent the in-kind benefits allocated to dependent people.

The medical component of *long-term care* (HC.3) is a range of services required by persons with a reduced degree of functional capacity, physical or cognitive, and who are consequently dependent on help with basic activities of daily living (ADL), such as bathing, dressing, eating, getting in and out of bed or chair, moving around and using the bathroom. The underlying physical or mental disability can be the consequence of chronic illness, frailty in old age, mental retardation or other limitations of mental functioning and/or

cognitive capacity. In addition, it comprises help with monitoring status of patients in order to avoid further worsening of ADL status.

This main personal care component is frequently provided in combination with help with basic medical services such as help with wound dressing, pain management, medication, health monitoring, prevention, rehabilitation or services of palliative care. Depending on the setting in which long-term care is provided and/or national programme design, long-term care services can include lower-level care of home help or help with instrumental activities of daily living (IADL) more generally, such as help with activities of housework, meals, shopping, transport and social activities.

The notion of long-term health care services usually refers to services delivered over a sustained period of time, sometimes defined as lasting at least six months.

Social services of long term care (HC.R.6.1 in SHA 1.0) comprise services of home help and residential care services: care assistance which are predominantly aimed at providing help with IADL restrictions to persons with functional limitations and a limited ability to perform these tasks on their own without substantial assistance, including supporting residential services (in assisted living facilities and the like).

As in the case of health care, the figures on public expenditure on long-term care are available in two separate databases: EUROSTAT database available at NewCronos Website and a parallel OECD database "OECD Health Data". SHA data on HC.3 and HC.R.6 is available for 13 Member States. For 11 other Member States and Norway, SHA data on HC.3 is available, but data on HC.R.6 is missing. As a proxy to HC.R.6 data, the agreement is to use ESSPROS items, comprising the benefits in kind from three ESSPROS functions:

- the sickness function;

- the disability function;

([117]) Under SHA 2011 this is function HC.R.1

- and the old-age function. ([118])

For the four remaining countries, there is no SHA data available. ([119]) In this case, it has been agreed to fully rely on a proxy for HC.R.6 based on the ESSPROS items, in parallel to the data on health care expenditure (see above, in the last paragraph of the chapter on health care.). The proxy for public expenditure on long-term care is therefore calculated as the sum of: a) *sickness/health care* function – "other benefits in kind"; b) *disability* function – "benefits in kind" ("accommodation" + "rehabilitation" + "home help/assistance in carrying out daily tasks" + "other benefits in kind"); c) *old age* function – "benefits in kind" ("accommodation" + "home help/assistance in carrying out daily tasks" + "other benefits in kind").

3.3.2. Public spending on cash benefits

Public spending on cash benefits is projected separately from expenditure on long-term care services, or "benefits in kind", provided at home or in an institution. The cash benefits include social programmes offering care allowances. Care allowances were introduced in a number of countries in order to allow households for more choice over care decisions, and to support care provided at home. They are mainly addressed to persons with long-term care needs who live in their own homes. However, the design of these programmes varies widely across countries, which reduces the comparability between them. Illustrating this variety of systems, it is noteworthy that some countries account for nursing allowances in the HC.3 category.

At least three types of cash-benefit programmes and/or consumer-choice programmes can be distinguished:

- personal budgets and consumer-directed employment of care assistants;

- payments to the person needing care who can spend it as she/he likes, but has to acquire sufficient care;

- payments to informal caregivers as income support.

Data from two databases are combined. Indeed, the HC.R.7 SHA category (health-related cash benefits) does not allow for a clear differentiation between health care related and long-term care related cash benefits. Moreover, the relevant data is missing for many countries. LTC-related cash benefits as a % of GDP are available for the same year as of SHA joint questionnaire data (or for the latest year available) within two ESSPROS functions: *disability* and *old age*. Both periodic and lump-sum parts of care allowances and economic integration in the *disability* function, as well as periodic care allowance in the *old-age* function, are added as cash benefits to the HC.3+HC.R.6 sum or to the correspondent ESSPROS sum in order to get total spending on long-term care.

3.3.3. Home care and institutional care spending

Long-term care is provided in a variety of settings. It can be provided at home and in the community, or in various types of institutions, including nursing homes and long-stay hospitals. Mixed forms of residential care and (internally or externally provided) care services exist in the form of assisted living facilities, sheltered housing, etc., for which a wide range of national arrangements and national labels exist.

Services at home include services provided by external home care providers, both public and private, in a person's private home on a long-lasting basis. This includes living arrangements in specially designed or adapted flats for persons who require help on a regular basis, but where this living arrangement still guarantees a high degree of autonomy and self-control over other aspects of a person's private life. Also included are services received on a day-case basis or in the form of short-term stays in institutions, for example in the form of respite care. During these stays, persons are not considered as 'institutionalised', but rather receiving temporarily services, which support their continued stay at home.

([118]) It is possible that the proxy for HC.R.6 includes some data which corresponds to HC.3.3 in the SHA joint questionnaire. Therefore, whenever the ESSPROS proxy for expenditure on LTC home care is higher than that reported in HC.3.3, we deduct HC.3.3 expenditure from the ESSPROS measure.

([119]) Note that SHA data for Italy should be made available soon.

Services in institutions include services provided to people with moderate to severe functional restrictions who live permanently or for an extended period of time (usually for six months or longer) in specially designed institutions, or in a hospital-like setting where the predominant service component is long-term care, although this may frequently be combined with other services (basic medical services, help with getting meals, social activities, etc.). In these cases, eligibility is often explicitly assessed and defined by level (severity) of dependency and level of care needs.

A necessary step for the purpose of the long-term projections is therefore to calculate the amount of long-term care expenditure associated with institutional care and that associated with home care. This requires some further data reclassification. For all the countries (but two, NL and PT) reporting expenditure using the SHA joint questionnaire data, information on HC.3 (Services of long-term nursing care) is available for: HC.3.1 (In-patient long-term nursing care); HC.3.2 (Day-cases of long-term nursing care) and HC.3.3 (Long-term nursing care: home care). As in the 2012 projections exercise, categories HC.3.1 and HC.3.2 are classified as care in institutions while HC.3.3 is classified as home care. On this basis, the part of HC.3 which is home care expenditure and the part which is expenditure on institutional care can be readily computed. ([120])

For the two countries which do not report HC.3 in disaggregated terms, a more indirect method is needed. One way is to look at expenditure on HC.3 (Services of long-term nursing care) for certain providers. Indeed, summing HC.3 expenditure for hospitals (HP.1), nursing and residential care facilities (HP.2) and providers of ambulatory health care except providers of home health care services (HP.3-HP.3.6) is another way of computing HC.3.1+HC.3.2, expenditure on institutional care. Summing HC.3 expenditure for providers of home health care services (HP.3.6) and private households as providers of home care

(HP.7.2) gives then a measure of HC.3.3, expenditure on home care.

With regards to the part of HC.R.6 which constitutes home care and the part which constitutes institutional care, there are two types of countries. For the countries which did not report HC.R.6 using the SHA joint questionnaire, a HC.R.6-proxy has already been calculated using ESSPROS. The mere process also provides an approximation for both amounts: expenditure on home care and expenditure on institutional care.

For the other countries – reporting HC.R.6 – a more indirect step is followed. A proxy for HC.R.6 is also calculated as described in detail in the previous section and then the respective shares of home care and institutional care are calculated in that proxy. These shares are then applied to the information provided by the countries according to the SHA joint questionnaire for HC.R.6. While not fully accurate it is the best way currently available to divide HC.R.6 expenditure into home and institutional care.

For the countries not reporting SHA joint questionnaire data at all, ESSPROS data readily allows to allocate LTC expenditure to home care or institutional care. As in the previous exercise, it is assume that *"home help/assistance in carrying daily tasks"* was provided at home, while *"accommodation"* referred to the institutional care. The other items remain unclear, such as *"rehabilitation"* (disability function) and *"other benefits in kind"* (all three functions) which can be provided either at home or in institutions. Given the relatively small share of those items in total LTC expenditure, a simplified assumption on the split between the two types of care is used (e.g. allocating "*rehabilitation*" to institutional care and "*other kinds of benefits*" to home care).

3.3.4. Disability rates

The use of the EU-SILC database information on disability rates has since the 2012 projection exercise substantially improved the accuracy of the projections. First, the coverage is extended to young and prime-aged groups and second, comparability is improved by using only a single data source. Finally, the measure of dependency given by SILC is fully adequate and the results of

---

([120]) Whenever the ESSPROS proxy for expenditure on institutional care was higher than that reported in HC.3.1 + HC.3.2, we deducted (HC.3.1 + HC.3.2) expenditure from the ESSPROS measure. This is because some long-term nursing care in institutions may be included in the accommodation categories of ESSPROS. The procedure may not be fully accurate but it removes any possibility for double counting.

the survey are official and endorsed by Member States.

EU-SILC currently covers the 28 EU countries as well as Norway and is implemented by means of a legal basis. ([121]) The EU-SILC is based on the idea of a common framework consisting in common procedures, concepts and classifications and harmonised lists of target variables to be transmitted to Eurostat.

It measures among others the number of people who have "Limitation in activities because of health problems [for at least the last 6 months]". ([122]) The latter is consequently an adequate measure of dependency and is available up to 2012 for people aged 15+.([123]) The AWG decided to use this measure in order to calculate the base year disability/dependency rates for the 2015 projection exercise, similar to 2012.

Compared to the 2012 exercise, the robustness of dependency rates calculated on the basis of the EU-SILC survey has been improved, by using a 5 year average (where available) of the dependency rates for each of the age-gender groups.

([121]) Regulation (EC) No 1177/2003.

([122]) The person's self-assessment of whether they are hampered in their daily activity by any ongoing physical or mental health problem, illness or disability. An activity is defined as: *"the performance of a task or action by an individual"* and thus activity limitations are defined as *"the difficulties the individual experience in performing an activity"*. Limitations should be due to a health condition. The activity limitations are assessed against a generally accepted population standard, relative to cultural and social expectations by referring only to activities people usually do. This is a self-perceived health question and gives no restrictions by culture, age, gender or the subject's own ambition. The purpose of the instrument is to measure the presence of long-standing limitations, as the consequences of these limitations (e.g. care, dependency) are more serious. A 6 months period is often used to define chronic or long-standing diseases in surveys.

([123]) For those aged 0-14 years, either national data is used if available or the rate is assumed to equal those aged 15-19.

4. EDUCATION

4.1. INTRODUCTION

A priori and assuming unchanged policies, the impact of ageing on public education expenditure is undetermined, somewhat contrasting with the expected rising effect of ageing on other major expenditure items, such as on pensions and health care. In fact, on the one hand, the expected decline in the number of young people is likely to allow for some savings, but on the other, the trends of higher enrolment rates, longer periods spent in education, and persistently rising costs of tertiary education might put upward pressure on total education expenditure.

It might be helpful to recall the following stylised facts. On average in the 2000-2012 period, education expenditure represented 5.3% of GDP in the EU27 (or 11.0% of total general government expenditure). ([124]) Expenditure ratios vary considerably across Member States from a minimum of 3.7% of GDP in Greece to a maximum of 7.5% in Denmark (see Table 1).

Projection of education expenditure requires consideration of a number of important methodological issues, namely (i) the definition (or perimeter) of education activities; (ii) considering that studying can take place on a part time basis after compulsory education; and (iii) considering that there are various outlays for public spending on education. ([125])

4.2. METHODOLOGY USED TO PROJECT EXPEDITURE ON EDUCATION

The methodology uses a "quasi-demographic" approach, meaning that not only demographic projections (EUROPOP2013) are used but also participation rate projections. A strong point of the methodology is the use of the UOE ([126]) data collection, which covers enrolment rates, staff levels, the labour force status of students (i.e. part time versus full time), and detailed data on total public expenditure. Data are disaggregated by single age and ISCED levels. As in the 2012 Ageing Report, projections are run separately for four ISCED groupings, representing primary education (ISCED 1), lower secondary education (ISCED 2), upper secondary education (ISCED 3 and 4), and tertiary education (ISCED 5 and 6). In order to simplify, it is assumed that enrolment in primary and lower secondary education levels is compulsory, ([127]) while enrolment in upper secondary and tertiary education levels depends on labour market outcomes, as changes in participation rates affect enrolment rates (in the opposite direction).

Projections are broken down basically in two components: (1) number of students; and (2) per capita expenditure per student.

([124]) Classification of the functions of government (COFOG) data. In the same period, health expenditure represented 6.9% of GDP (and 14.5% of total general government expenditure), while 'social protection' represented 18.7% (and 39.2% of total general government expenditure). 'Social protection' includes the 'old age' (pensions) function.

([125]) The latter takes two main forms: (i) direct purchases by the government of educational resources to be used by educational institutions (e.g. direct payments of teachers' wages by the education ministry); or (ii) payments by the government to educational institutions that have the responsibility for purchasing educational resources themselves (e.g. a block grant to a university).

([126]) UNESCO-UIS/OECD/Eurostat Data Collection on Education Statistics.

([127]) In the baseline scenario, enrolment rates for the two compulsory groupings are fixed at their historical levels.

Table II.4.1:   **Education expenditure-to-GDP ratios (in percentage)**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	avg. 2000-2012
Belgium	5.6	5.8	5.9	6.0	5.8	5.9	5.8	5.7	5.9	6.2	6.1	6.3	6.3	5.9
Bulgaria	4.3	3.7	3.8	4.2	4.1	4.3	3.7	3.8	4.1	4.3	3.8	3.6	3.5	3.9
Czech Republic	4.3	4.3	5.1	5.0	4.6	4.6	4.7	4.5	4.5	4.8	4.8	4.9	4.8	4.7
Denmark	7.4	7.4	7.7	7.7	7.6	7.3	7.0	6.7	6.9	8.0	8.1	7.8	7.9	7.5
Germany	4.1	4.2	4.2	4.2	4.1	4.1	4.0	3.9	4.0	4.4	4.4	4.4	4.3	4.2
Estonia	6.7	6.6	6.8	6.5	6.3	6.0	6.0	5.9	6.7	7.1	6.7	6.3	6.4	6.5
Ireland	4.3	4.5	4.5	4.6	4.6	4.7	4.6	4.8	5.3	5.4	5.4	5.2	5.2	4.9
Greece	2.9	2.7	2.9	4.0	3.9	3.9	3.9	3.9	4.1	4.3	4.0	4.1	4.1	3.7
Spain	4.4	4.3	4.4	4.3	4.4	4.3	4.3	4.4	4.6	5.1	4.9	4.8	4.5	4.5
France	6.0	5.9	6.1	6.1	5.9	5.8	5.8	5.6	5.7	6.2	6.2	6.1	6.1	6.0
Croatia	...	...	...	...	...	...	...	...	...	...	...	...	5.0	5.0
Italy	4.6	4.7	4.7	4.8	4.6	4.7	4.6	4.6	4.4	4.6	4.5	4.2	4.2	4.6
Cyprus	5.6	5.6	6.0	6.8	6.5	6.4	6.4	6.3	6.8	7.2	7.5	7.2	6.7	6.5
Latvia	5.5	5.5	5.8	5.5	6.1	5.6	6.0	5.9	6.6	6.8	6.1	5.7	5.5	5.9
Lithuania	6.0	6.0	6.0	5.7	5.8	5.4	5.3	5.2	5.8	6.8	6.1	5.8	5.6	5.8
Luxembourg	4.3	4.6	4.8	4.9	4.9	4.7	4.4	4.2	4.6	5.3	5.2	5.1	5.4	4.8
Hungary	5.2	5.3	5.7	6.2	5.8	5.8	5.8	5.5	5.2	5.3	5.7	5.2	4.8	5.5
Malta	5.1	5.6	5.8	5.9	5.6	5.5	5.5	5.3	5.2	5.4	5.6	5.7	5.9	5.5
Netherlands	5.0	5.2	5.4	5.6	5.6	5.5	5.3	5.3	5.5	5.9	5.8	5.8	5.8	5.5
Austria	5.6	5.5	5.5	5.6	5.3	5.2	5.2	5.2	5.4	5.7	5.7	5.6	5.6	5.5
Poland	...	...	6.1	6.1	5.7	6.1	6.0	5.7	5.7	5.6	5.6	5.5	5.5	5.8
Portugal	6.4	6.5	6.7	6.6	6.7	6.8	6.6	6.1	6.2	6.8	7.1	6.6	5.7	6.5
Romania	3.2	3.9	4.0	3.5	3.6	3.6	4.1	3.9	4.5	4.1	3.3	4.1	3.0	3.8
Slovenia	6.2	6.5	6.5	6.4	6.5	6.7	6.4	5.9	6.1	6.5	6.6	6.6	6.4	6.4
Slovakia	3.6	3.2	3.6	4.3	3.9	4.0	3.7	3.9	3.5	4.3	4.5	4.1	3.8	3.9
Finland	5.9	6.0	6.1	6.4	6.3	6.2	6.0	5.7	5.9	6.6	6.6	6.4	6.3	6.2
Sweden	6.8	7.2	7.3	7.2	7.1	7.0	6.9	6.7	6.8	7.2	6.9	6.8	6.8	7.0
United Kingdom	4.8	5.2	5.6	5.8	5.7	5.9	6.1	6.0	6.3	6.9	6.8	6.2	6.1	6.0
EA18	4.8	4.9	4.9	5.0	4.9	4.9	4.8	4.7	4.8	5.2	5.2	5.1	5.0	4.9
EU27	...	...	5.2	5.3	5.2	5.2	5.2	5.1	5.2	5.5	5.5	5.3	5.3	5.3
Norway	5.7	5.9	6.3	6.7	6.2	5.7	5.4	5.4	5.2	6.0	5.9	5.6	5.5	5.8

Source: Eurostat, COFOG data.

4.2.1. Number of students

Compulsory levels

For the compulsory levels considered (ISCED 1 and 2), enrolment rates per single age are assumed to remain constant at the level observed in a base period/year. In order to obtain the projected number of students enrolled in ISCED levels 1 and 2, demographic projections are multiplied by enrolment rates in the base period.

Non-compulsory levels

Enrolment rates for ISCED groupings 3-4 and 5 6 take into account labour market developments according to the formula (see section 4.5 for a derivation):

$$e_{i,t} = \frac{1 - p_{i,t} - i_{i,t}^*}{1 - \alpha_{i,t}}$$

4.1

where $e_{i,t}$ is the total enrolment rate (both full and part-time students) for single age cohort i in period t; $p_{i,t}$ is the participation rate; $\alpha_{i,t}$ is the fraction of part-time students in the total; and $i_{i,t}^*$ is the fraction of inactive individuals minus full-time students over the total population.

Actually, equation (1) will be implemented in terms of differences to a base period (*b*):

$$e_{i,t} - e_{i,b} = -\frac{\overline{\kappa}_{i,b}}{1 - \overline{\alpha}_{i,b}} * \left(p_{i,t} - p_{i,b} \right)$$

4.2

where

$$0 \leq \overline{\kappa}_{i,b}, \overline{\alpha}_{i,b} \leq 1$$

where $\overline{\kappa}_{i,b}$ is the ratio between full-time students and total inactive individuals; $\overline{\alpha}_{i,b}$ is the fraction of part-time students over the total number of

students. These two ratios are assumed to remain constant throughout the projection period.

According to equation 4.2, an increase in the participation rate leads to a decrease in the enrolment rate. ([128])

Enrolment rates per age are then broken down into ISCED levels (3-4 and 5-6) values, based on student shares in the base period/year.

4.2.2. Direct expenditure per student

Table II.4.2: **Annual expenditure on public education institutions per pupil in EUR PPS (1) in 2011**

	Isced 1	Isced 2-4	Isced 5-6	Total
Belgium	6981	8825	11599	8235
Bulgaria	1988	2292	3998	2713
Czech Republic	3417	5196	6995	5032
Denmark	7096	8228	15988	9666
Germany	5709	7721	11967	7979
Estonia	4012	4835	5929	4426
Ireland	...	...	...	...
Greece	...	...	...	...
Spain	5482	7232	9909	6689
France	5203	8333	11565	7368
Croatia	3917	2395	6013	3895
Italy	6028	6157	7515	6107
Cyprus	8881	10882	11161	9519
Latvia	3655	3488	5353	3877
Lithuania	3480	3300	6533	4044
Luxembourg	17950	11946	...	15273
Hungary	...	...	...	...
Malta	5697	13928	7948	9624
Netherlands	6094	9175	13309	8591
Austria	8005	10008	11527	9468
Poland	4541	4034	6221	4641
Portugal	...	...	7179	...
Romania	1548	1547	3165	2069
Slovenia	6953	6305	7669	6782
Slovakia	4061	3628	6015	4171
Finland	6138	7366	13541	7716
Sweden	7744	8082	15660	8571
United Kingdom	7929	7791	9262	8145
Norway	9372	10485	14172	10377

(1) Based on full-time equivalents.
Source: Commission services, based on UOE data.

Annual expenditure per student on public educational institutions varies significantly across education level and country (see Table 2). In 2011, spending per student ranged from €2069 (in PPS) in Romania to €15273 in Luxembourg. This variability reflects a number of factors, such as labour costs of teachers and non-teaching staff, different class sizes, differences in capital expenditure, as well as particular national circumstances. ([129])

4.2.3. Expenditure to GDP ratios are calculated using indexes

As a rule, average expenditure covering the last two years of available data, possibly 2010 and 2011, are chosen for the base period. Total expenditure on education is broken down into four components: i) expenditure on staff compensation (i.e. gross wages and salaries of teaching and non-teaching staff); ii) other current expenditure; iii) capital expenditure; and iv) transfers (e.g. scholarships and public subsidies to private education institutions).

The objective is to project the total (education) expenditure to GDP ratio. The ISCED levels considered are: ISCED 1, ISCED 2, ISCED 3&4, and ISCED 5&6. ([130])

$$\frac{\sum_i EDU_t^i}{GDP_t} = \frac{\sum_i [W_t^i + O_t^i + K_t^i + R_t^i]}{GDP_t} \qquad 4.3$$

where EDU_t^i is expenditure on education in ISCED level i and year t; W_t^i is expenditure on staff compensation; O_t^i is other current expenditure; K_t^i is capital expenditure; R_t^i is transfers; and i stands for the ISCED groups: 1, 2, 3&4, and 5&6.

In the baseline scenario, the main assumptions are the following:

([128]) To the extent that individuals entering the labour force are likely to have been previously involved in education activities. The LFS variable MAINSTAT, which describes the main labour market status, was used to assess the distribution of inactive individuals by age, distinguishing between schooling and other forms of inactivity, such as retirement and domestic tasks. Given that MAINSTAT is an optional variable, there are no data for DE and the UK.

([129]) For example, small EU Member States tend to send abroad a higher fraction of their tertiary students. Other things being equal, this tends to raise expenditure levels.

([130]) It should be stressed that no attempt is made to project total expenditure on education, as ISCED 0 level expenditure (pre-primary and not allocated by level) is not covered by the analysis.

- Per-capita costs grow in line with labour productivity. Per-capita values are defined either in terms of education staff or students. Specifically, the average compensation is defined per member of staff (W_t^i / T_t^i), while the other three expenditure variables are defined in terms of student ratios:

$$(\frac{O_t^i}{S_t^i} , \frac{K_t^i}{S_t^i} , \frac{R_t^i}{S_t^i})$$

- Where T and S are the numbers of workers in the education sector and students, respectively. ([131])

- The education staff to student ratio will remain constant over the projection period, which implies that staff adjusts instantaneously and fully to demographic changes.

Assuming that per capita variables grow in line with labour productivity is sufficient to derive the following compact general formula for the expenditure in education to GDP ratio:

$$\frac{\sum_i EDU_t^i}{GDP_t} = \left[\frac{\sum_i W_0^i}{GDP_0} * \overline{IT}_t + \frac{\sum_i [O_0^i + K_0^i + R_0^i]}{GDP_0} * \overline{IS}_t \right] * \frac{IP_t}{IG_t} + CE_t \qquad 4.4$$

where IT_t^i, IS_t^i, IP_t^i, and IG_t^i are indexes of respectively, staff, students, labour productivity, and GDP. ([132]) A bar over an index represents one calculated over all ISCED levels considered. ([133]) CE_t is the composition effect, which is usually a small number compared with the total expenditure-to-GDP ratio. ([134])

Equation 4.4 expresses the expenditure in education-to-GDP ratio as a function of base period ratios, and indexes for staff, students, labour productivity and GDP.

In the baseline scenario, which assumes a constant ratio of staff-to-students (i.e. $IT_t^i = IS_t^i$), equation 4.4 can be further simplified to:

$$\frac{\sum_i EDU_t^i}{GDP_t} = \frac{\sum_i EDU_0^i}{GDP_0} * \frac{\overline{IS}_t * IP_t}{IG_t} + CE_t \qquad 4.5$$

Equivalently, equation 4.5 can also be written as:

$$\frac{\sum_i EDU_t^i}{GDP_t} = \frac{\sum_i EDU_0^i}{GDP_0} * \frac{\overline{IS}_t}{IE_t} + CE_t \approx \frac{\sum_i EDU_0^i}{GDP_0} * \frac{\overline{IS}_t}{IE_t} \qquad 4.6$$

where IE_t is the employment index. ([135])

In the baseline scenario, equation 4a allows the following straightforward interpretation: projections for the expenditure-to-GDP ratio are obtained by "inflating" base period values by a students and labour productivity indexes and by "deflating" them by a GDP index. ([136]) There are two sources for the increase in expenditure (ratios): the (average) number of students and per-capita costs that are assumed to grow in line with labour productivity, conversely GDP growth "deflates" expenditure ratios.

([131]) These modelling assumptions involve considerable simplifications of the determinants of the unit costs of education. A key variable missing is class size. Research suggests that costs tend to change discontinuously with the creation/destruction of classes. Given the difficulty in obtaining data on the relationship between class size and costs, a reasonable approximation may be that of using student-to-staff ratios.

([132]) An index measures the ratio between the values of variable X in the current period t and in the base period 0:
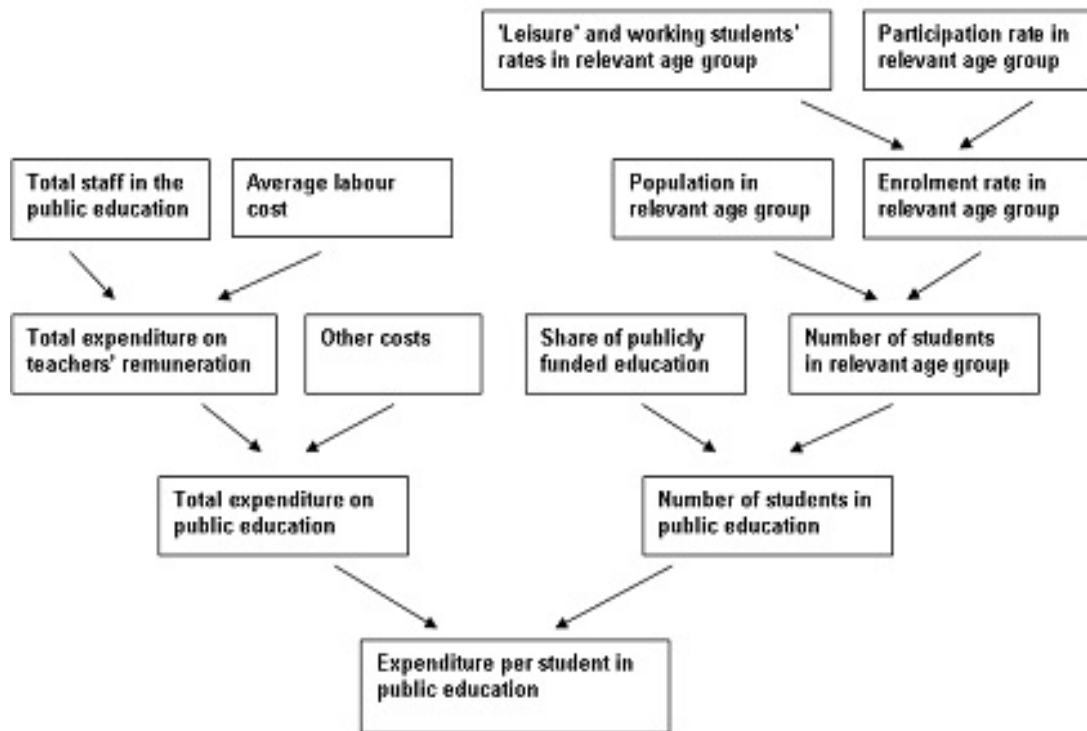$$IX_t = \frac{X_t}{X_0}$$

([133]) $\overline{IT}_t = \frac{\sum_i T_t^i}{\sum_i T_0^i}$ and $\overline{IS}_t = \frac{\sum_i S_t^i}{\sum_i S_0^i}$.

([134]) The composition effect is given by:
$$CE_t = \left[\frac{\sum_i W_0^i * \{IT_t^i - \overline{IT}_t\}}{GDP_0} + \frac{\sum_i [O_0^i + K_0^i + R_0^i] * \{IS_t^i - \overline{IS}_t\}}{GDP_0} \right] * \frac{IP_t}{IG_t}$$

([135]) The approximation assumes that CE_t is a small number.

([136]) The discrepancy being given by the composition effect (CE_t).

Graph II.4.1:   **Implicit decomposition of expenditure per student**

Source: Commission services, EPC

4.3. DATA

Eurostat will be the main provider of data, manly through the UOE data collection. (^{137}) The average for the years 2010-2011 (or more recent data if available) is used as the base period of the projections. For those countries where data are missing for the base period, data from earlier years or from national sources will be used. In the latter case, Members of the EPC/AWG will provide the relevant data to Commission Services.

Specifically, by country, year, and ISCED groupings (1, 2, 3-4, and 5-6), the following information from the UOE dataset is used:

- Total number of students by single age;

- Number of working students by single age;

- Numbers of teachers and non-teaching staff;

- Total expenditure in public wages;

- Other current (excluding wages) and capital expenditure;

- Share of transfers over total public education expenditure; and

- Share of publicly funded education.

Furthermore, and to secure full consistency of the long-term budgetary exercise, the common AWG macroeconomic assumptions for the following variables are used:

(1)   Total population per single age;

(^{137}) The objective of the UNESCO-UIS/OECD/EUROSTAT (UOE) data collection on education statistics is to provide internationally comparable data on key aspects of education systems, specifically on the participation and completion of education programmes, as well as the cost and type of resources dedicated to education (http://www.oecd.org/dataoecd/32/53/33712760.pdf).

(2)   Labour force per single age;

(3)   GDP per worker;

(4)   GDP.

4.4.   SENSITIVITY ANALYSIS

In addition to the baseline scenario described above, Commission Services will run a "*high enrolment rates*" sensitivity scenario, which is easily translated in terms of model variables/parameters. It assesses the impact of a gradual upward convergence (to be completed by 2040) of enrolment rates towards the average of the 3 best performers in the EU. ([138])

4.5.   DERIVATION OF THE ENROLMENT RATE FORMULA

Starting with the labour market identity:

$$\mathrm{E}_{i,t} + U_{i,t} + \mathrm{I}_{i,t} \equiv \mathrm{P}_{i,t}$$ 4.7

where $\mathrm{E}_{i,t}$, $U_{i,t}$, $I_{i,t}$ and $P_{i,t}$ are respectively employment, unemployment, inactive and the population for age cohort i in period t.

After adding and subtracting the number of full-time students ($SF_{i,t}$), and of part-time students ($SP_{i,t}$):

$$SF_{i,t} + SP_{i,t} - SP_{i,t} + \mathrm{E}_{i,t} + U_{i,t} + \mathrm{I}_{i,t} - SF_{i,t} \equiv \mathrm{P}_{i,t}$$
4.8

Let us use the definitions of total students $ST_{i,t} \equiv SF_{i,t} + SP_{i,t}$,   labour   force

$LF_{i,t} \equiv E_{i,t} + U_{i,t}$, and inactive minus full-time students $I_{i,t}^* \equiv I_{i,t} - SF_{i,t}$:

$$ST_{i,t} - SP_{i,t} + LF + I_{i,t}^* \equiv \mathrm{P}_{i,t}$$ 4.9

Dividing equation 4.9 by the population ($P_{i,t}$), and defining

$$\alpha_{i,t} \equiv \frac{SP_{i,t}}{SF_{i,t} + SP_{i,t}} = \frac{SP_{i,t}}{ST_{i,t}}$$

as the fraction of part-time students in the total number of students, the following identity is obtained:

$$\frac{ST_{i,t}}{\mathrm{P}_{i,t}} - \frac{SP_{i,t}}{ST_{i,t}} * \frac{ST_{i,t}}{\mathrm{P}_{i,t}} + \frac{LF_{i,t}}{\mathrm{P}_{i,t}} + \frac{I_{i,t}^*}{\mathrm{P}_{i,t}} \equiv 1$$ 4.10

Equation 4.10 can be rearranged as:

$$e_{i,t} = \frac{1 - p_{i,t} - i_{i,t}^*}{1 - \alpha_{i,t}}$$ 4.11

where the enrolment rate for total students is;

$$e_{i,t} \equiv \frac{ST_{i,t}}{P_{i,t}}$$

and the participation rate is;

$$p_{i,t} \equiv \frac{LF_{i,t}}{P_{i,t}}$$

$i_{i,t}^* \equiv \dfrac{I_{i,t}^*}{P_{i,t}}$ is the fraction of inactive minus full-time students over the population.

In equation 4.11, enrolment rates are inversely related to the participation and the (adjusted) inactivity rates.

In most EU Member States, the LFS MAINSTAT variable can be used to assess the distribution of

---

([138]) As done in the context of the EU2020 scenario in the 2012 AR and of the "Lisbon target scenario" in the 2009 AR. The 2009 AR run three sensitivity tests for education: i) "Lisbon target scenario"; ii) "High class sizes"; and, iii) "Wage drift in education". The 2012 AR run just one sensitivity test: the EU2020 scenario (equivalent to a high enrolment rate scenario). The latter comprised two elements: i) the share of early leavers from education and training should be less than 10%; and, ii) the share of 30 to 34 years olds with tertiary or equivalent educational attainment should be at least 40%.

inactivity by age, distinguishing between schooling and other forms of inactivity. ([139])

Assume that the ratio between full-time students and the total inactive ($\overline{\kappa}_{i,b}$) is constant over time at the value observed in the base period (b):

$$\frac{SF_{i,t}}{I_{i,t}} = \frac{SF_{i,b}}{I_{i,b}} = \overline{\kappa}_{i,b} \Rightarrow \frac{I_{i,t}^*}{P_{i,t}} = (1 - \overline{\kappa}_{i,b}) * \frac{I_{i,t}}{P_{i,t}} \Rightarrow i_{i,t}^* - i_{i,b}^* = (1 - \overline{\kappa}_{i,b}) * (i_{i,t} - i_{i,b})$$ 4.12

Where:

$\overline{\kappa}_{i,b} \leq 1$;

$i_{i,t} \equiv \frac{I_{i,t}}{P_{i,t}}$,

$i_{i,t}^* \equiv \frac{I_{i,t}^*}{P_{i,t}}$

are the inactivity and the adjusted inactivity rates, respectively.

A bar over a variable indicates that it is constant (i.e. time invariant).

4.5.1. How equation 4.11 is used to project enrolment rates

Expressing equation 4.11 in terms of differences to the base period, substituting equation 4.12, and using the identity $(p_{i,t} - p_{i,b}) + (i_{i,t} - i_{i,b}) \equiv 0$:

$$e_{i,t} - e_{i,b} = -\frac{\overline{\kappa}_{i,b}}{1 - \overline{\alpha}_{i,b}} * (p_{i,t} - p_{i,b})$$

4.13

where $\overline{\kappa}_{i,b} = \frac{SF_{i,b}}{I_{i,b}}$; $\overline{\alpha}_{i,b} \equiv \frac{SP_{i,b}}{SF_{i,b} + SP_{i,b}} = \frac{SP_{i,b}}{ST_{i,b}}$,

and $0 \leq \overline{\kappa}_{i,b}, \overline{\alpha}_{i,b} \leq 1$

A value for $\overline{\kappa}_{i,b}$ lower than one means that changes in the labour force do not necessary reduce one by one enrolment rates, because some people coming from inactivity were not involved in education activities.

([139]) However, given that the MAINSTAT variable, which describes the main labour market status is an optional one, there are no data for DE and the UK.

5. UNEMPLOYMENT BENEFITS

5.1. INTRODUCTION

Unemployment benefits (UB) projections are carried out in order to preserve the comprehensive nature of the long-term budgetary exercise, although UB expenditure is largely driven by (short- and medium-term) cyclical fluctuations rather than by (long-term) demographic waves. In addition, and for underperforming countries, UB projections largely depend on the strong assumption of a dramatic decline in the unemployment rate (UR), converging to some EU wide ceiling/benchmark, implicitly anticipating the future implementation of structural reforms in labour markets. There is the risk that presuming a structural reform in the labour market might pre-empt the need for addressing genuine age related concerns.

UB projections basically require three elements: i) calibration of UB expenditure for a recent base year/period; ii) assumption of an UR trajectory up to 2060; and iii) after some date, the assumptions of constant replacement and coverage rates of UB systems.

In order to apply the methodology described here and secure the comparability of projections across countries, data should be taken from Eurostat's Social Protection Statistics (ESSPROS). [140] Furthermore, expenditure data on unemployment benefits should cover recent years, namely 2012 and 2013. Given the delays involved in the official publication of these values by Eurostat, EPC/AWG delegates are requested to assist DG ECFIN in building the necessary dataset. [141]

The driving variable of the UB projections is the unemployment rate scenario commonly agreed in the AWG. The main assumption of the methodology is one of unchanged policies throughout the projection period, implying a constant replacement and coverage rates of UB systems after a given data, usually from the start of the projection period if no change in policies has been announced.

5.2. THE METHODOLOGY

The methodology basically uses the AWG's chosen unemployment rate scenario (as the driving variable) and UB expenditure in the base period (usually an average of two or three consecutive years) to extrapolate future expenditure levels. [142]

The methodology is derived from the following identity:

$$UB_t \equiv UB_t^{pb} * B_t \qquad \textbf{5.1}$$

where total expenditure in unemployment benefits (UB_t) is broken down in average expenditure per beneficiary (UB_t^{pb}) and the number of beneficiaries (B_t).

Unemployment expenditure per beneficiary is a fraction of average wages in the economy:

$$UB_t^{pb} = RR_t * \frac{W_t}{E_t} \qquad \textbf{5.2}$$

where RR_t is the replacement rate; W_t is the wage bill; and E_t is employment.

Substituting equation 2 into equation 1:

$$UB_t \equiv RR_t * \frac{W_t}{E_t} * \frac{B_t}{U_t} * U_t \qquad \textbf{5.3}$$

where U_t is unemployment.

Dividing equation **5.3** by GDP_t and rearranging:

$$\frac{UB_t}{GDP_t} \equiv RR_t * CR_t * WS_t * \frac{u_t}{1-u_t} \qquad \textbf{5.4}$$

---

[140] The European System of integrated Social PROtection Statistics (ESSPROS).
[141] If data based on ESSPROS definition are not available, delegates can provide national figures. If ESSPROS and national figures differ substantially, the Commission should make a proposal on how to reconcile them.

[142] Using multi annual averages can limit the impact of any given year on the final results, which is desirable in periods of strong economic fluctuations and possible statistical errors. Although a too long period should be avoided in order to reflect recent policy changes and limit discontinuities between actual data and projections.

where $CR_t \equiv \frac{B_t}{U_t}$ is the coverage rate or the take-up rate of unemployment benefits; $WS_t \equiv \frac{W_t}{GDP_t}$ is the wage share in income; and u_t is the unemployment rate. ([143])

Equation **5.4** shows that the ratio between UB expenditure and GDP is determined by four parameters/variables: i) the replacement rate of UB (*RR*); ii) the coverage/take-up rate of UB (*CR*); iii) the wage share in income (*WS*); and iv) the unemployment rate (*u*).

In order to generalise the formulation, let us assume that policies have been announced for the replacement and coverage rates:

$$RR_t = (1 + \eta_t) * RR_b \qquad \textbf{5.5}$$

$$\lim_{t \to \propto} \eta_t = \overline{\eta}$$

$$CR_t = (1 + \lambda_t) * CR_b \qquad \textbf{5.6}$$

$$\lim_{t \to \propto} \lambda_t = \overline{\lambda}$$

were *b* is a base year/period. Policy changes are assumed to converge to steady state values.

The wage share is assumed to be constant throughout the projection horizon at the level observed in the base period/year (*b*).

$$WS_t = WS_b \qquad \textbf{5.7}$$

Using equations **5.4** to **5.7**, the UB-to-GDP ratio ($\frac{UB_t}{GDP_t}$) is calculated as:

$$\frac{UB_t}{GDP_t} = \frac{UB_b}{GDP_b} * (1 + \eta_t) * (1 + \lambda_t) * \frac{1-u_b}{u_b} * \frac{u_t}{1-u_t}$$
5.8

"Historical" values (i.e. base period) are taken from the ESSPROS database for the UB-to-GDP

ratio ($\frac{UB_b}{GDP_b}$). During the projection period, the trajectory for the unemployment rate (u_t) is derived using the methodology agreed in the AWG (convergence of underperforming MS to an EU median), and using the latest European Commission's Economic Forecast available. Announced policy changes are incorporated through the variables η_t (change in the replacement rate) and λ_t (change in the coverage rate).

In the more common scenario of no policy changes, we assume $\eta_t = 0$ and $\lambda_t = 0$. This approximation should be neutral not leading to any systematic bias in the projections.

It is easy to see that changes in the UB-to-GDP ratio can be approximated by:

$$ln\left(\frac{UB_t}{GDP_t}\right) - ln\left(\frac{UB_b}{GDP_b}\right) \approx \eta_t + \lambda_t + \frac{1}{1-u_t}\frac{u_t-u_b}{u_b} \textbf{5.9}$$

This means that reducing the unemployment rate pays a "double dividend" in terms of lowering the UB-to-GDP ratio. For similar changes in the unemployment rate ($\frac{u_t-u_b}{u_b}$), countries with a higher unemployment rate (u_t) will record a larger variation in the UB-to-GDP ratio. ([144])

([143]) Given that $E = LF * (1 - u)$ and $U = LF * u$ then $\frac{U}{E} = \frac{u}{1-u}$; where uppercase variables *E*, *U*, *LF* are respectively, employment, unemployment and the labour force; and lowercase *u* the unemployment rate.

([144]) This methodology is non-linear for high levels of the UR. For countries starting with a high UR, its reduction pays a double dividend: i) lowering unemployment benefits, and; ii) increasing GDP. For countries starting with not too "extreme" URs, the impact of a reduction in the UR on UB is approximately linear. This reflects the fact that two channels affect the UB to GDP ratio: expenditure (the numerator) which varies with the unemployment rate; and GDP (the denominator) which is adversely affected by the unemployment rate.

ANNEX 1

Pension projection reporting sheet

Table II.A1.1:   **Pension projections reporting sheet: blocks common to all schemes**

European Commission
DG ECFIN Unit C2
 Draft reporting framework: Pension expenditure and contributions - in billions EUROs, current prices

Country:

Scenario:
Pension scheme:
Voluntary

A. Fixed table

		2013	2020	2030	2040	2050	2060
		Base year	Projections in current prices				
	GDP (ECFIN projection, in current prices - billions EUR)						
1	**GDP (used in projections, in current prices)**						
2	**GDP deflator**						
3	**Economy-wide average gross wage (current prices - billions €)**						
4	**Average gross wage (current prices - 1000 €)**						
5	**Consumer price inflation**						
	0 - AVERAGE GROSS WAGE AT RETIREMENT						
6	**Average gross wage at retirement (current prices - 1000 €)**						
	1 - PENSION EXPENDITURES (Gross, in millions €)						
7	**Public pensions scheme, gross (14+16+18+20+22) and (8+9+10+11+12+13)**						
	Of which						
8	aged -54						
9	aged 55-59						
10	aged 60-64						
11	aged 65-69						
12	aged 70-74						
13	aged 75+						
14	Old-age and early pensions - Earnings-related						
15	*Of which new pensions (153*154*155*156*157*158 if DB) or (155*156*159*160*161 if Point) or (157*158*159*162*163*164 if NDC)*						
16	Disability - Earnings-related						
17	*Of which new pensions*						
18	Survivors - Earnings-related						
19	*Of which new pensions*						
20	Other pensions - Earnings-related						
21	*Of which new pensions*						
22	Non-earning-related pensions including minimum pensions and minimum income guarantees (24+25+26)						
23	*Of which new pensions*						
24	*Of which old-age and early pensions*						
25	*Of which disability pensions*						
26	*Of which other pensions*						
27	**Private occupational scheme, gross**						
28	*Of which new pensions (165*166*167*168*169*170)*						
29	**Private individual scheme gross (31 + 33)**						
30	*Of which new pensions (171*172*173*174*175*176)*						
31	*Mandatory private individual scheme*						
32	*Of which new pensions*						
33	*Non-mandatory private individual scheme*						
34	*Of which new pensions*						
35	**Total pension expenditure, gross (7+27+29) and (36+37+38+39+40+41)**						
	Of which						
36	*aged -54*						
37	*aged 55-59*						
38	*aged 60-64*						
39	*aged 65-69*						
40	*aged 70-74*						
41	*aged 75+*						
42	**Public pension scheme, tax revenues**						
43	**Private occupational scheme, tax revenues**						
44	**Private individual scheme, tax revenues**						
45	**Total pension, tax revenues (42+43+44)**						
46	**Public pensions scheme, net**						
47	*Of which non-earning-related pensions including minimum pensions and minimum income guarantees*						
48	**Private occupational scheme, net**						
49	**Private individual scheme, net**						
50	**Total pension expenditure, net (46+48+49)**						
	2 - BENEFIT RATIO						
51	Public pensions ((7/89)/4)						
52	Of which old-age earnings-related pensions ((14/102)/4)						
53	Private occupational pensions ((27/110)/4)						
54	Mandatory private individual pensions (31/112)/4)						
55	Non-mandatory private individual pensions (33/113)/4)						
56	Total benefit ratio ((35/114)/4)						
	3 - GROSS AVERAGE REPLACEMENT RATES (at retirement)						
57	**Public pensions**						
58	Of which old-age earnings-related pensions ((15/153)/5 if DB) or ((15/155)/5 if Point) or ((15/157)/5 if NDC)						
59	Private occupational pensions (28/165)/5						
60	Private individual pensions (30/171)/5)						
61	Total gross replacement rate						
	4 - NUMBER OF PENSIONS (in 1000)						
62	Public pensions (63+64+65+66+67+68) and (69+70+71+72+73)						
	Of which						
63	aged -54						
64	aged 55-59						
65	aged 60-64						
66	aged 65-69						
67	aged 70-74						
68	aged 75+						
69	Old-age and early pensions - Earnings-related						
70	Disability - Earnings-related						
71	Survivors pensions - Earnings-related						
72	Other pensions - Earnings-related						
73	Non-earning-related pensions including minimum pensions and minimum income guarantees (74+75+76)						

Table (continued)

74	*Of which old-age and early pensions*						
75	*Of which disability pensions*						
76	*Of which other pensions*						
77	**Private occupational pensions**						
78	**Private individual pensions (79+80)**						
79	*Mandatory private individual*						
80	*Non-mandatory private individual*						
81	**All pensions (62+77+78) and (82+83+84+85+86+87)**						
	Of which						
82	aged -54						
83	aged 55-59						
84	aged 60-64						
85	aged 65-69						
86	aged 70-74						
87	aged 75+						
	5 - NUMBER OF PENSIONERS (in 1000)						
88	Public pensions (89+91+93+95+97+99)						
	Of which						
89	aged -54						
90	Of which female						
91	aged 55-59						
92	Of which female						
93	aged 60-64						
94	Of which female						
95	aged 65-69						
96	Of which female						
97	aged 70-74						
98	Of which female						
99	aged 75+						
100	*Of which female*						
101	Old-age and early pensions - Earnings-related						
102	Disability - Earnings-related						
103	Survivors pensions - Earnings-related						
104	Other pensions - Earnings-related						
105	Non-earning-related pensions including minimum pensions and minimum income guarantees (106+107+108)						
106	*Old-age and early pensions*						
107	*Disability pensions*						
108	*Other pensions*						
109	**Private occupational pensions**						
110	**Private individual pensions (111+112)**						
111	*Mandatory private individual*						
112	*Non-mandatory private individual*						
113	**All pensioners (114+116+118+120+122+124)**						
	Of which						
114	aged -54						
115	Of which female						
116	aged 55-59						
117	Of which female						
118	aged 60-64						
119	Of which female						
120	aged 65-69						
121	Of which female						
122	aged 70-74						
123	Of which female						
124	aged 75+						
125	Of which female						
	6 - CONTRIBUTIONS (employee+employer, in millions €)						
126	**Public pensions (127+128+129)**						
127	Employer						
128	Employee						
129	State						
130	**Private occupational pensions**						
131	**Private individual pensions (132+133)**						
132	*Mandatory private individual*						
133	*Non-mandatory private individual*						
134	**Total pension contributions (126+130+131)**						
	7 - NUMBER OF CONTRIBUTORS (employees, in 1000)						
135	**Public pensions**						
136	**Private occupational pensions**						
137	**Private individual pensions (138+139)**						
138	*Mandatory private individual*						
139	*Non-mandatory private individual*						
140	**All pensions (135+136+137)**						

(1) The green lines are provided on a voluntary base.
Source: Commission services, EPC

Table II.A1.2: **Pension projection reporting sheet: decomposition of new public pension expenditure - earnings related for points schemes**

Point schemes - CY	2013	2020	2030	2040	2050	2060
TOTAL						
141 **Number of new pensions (in 1000)**						
142 **Average number of insured points**						
143 **Average accrual rate**						
144 **Point value**						
145 **Sustainability/adjustment factors**						
146 **Average number of months paid the first year**						

Point schemes - DE	2013	2020	2030	2040	2050	2060
TOTAL						
141 **Number of new pensions (in 1000)**						
142 **Average pension**						
143 **Point value**						
144 **Average pension points accumulated at retirement (142/143)**						
145 **Sustainability/adjustment factors**						
146 **Average number of months paid the first year**						

Point schemes - HR	2013	2020	2030	2040	2050	2060
TOTAL						
141 **Number of new pensions (in 1000)**						
142 **Total pension points at retirement**						
143 Average pension points accumulated per year						
144 Actual and virtual contributory period						
145 **Point value (V)**						
146 **Sustainability/adjustment factors**						
147 **Average number of months paid the first year**						

Point schemes - RO	2013	2020	2030	2040	2050	2060
TOTAL						
141 **Number of new pensions (in 1000)**						
142 **Average annual pension**						
143 **Point value**						
144 **Average pension points at retirement (142/143)**						
145 **Contributyory period**						
146 **Average number of points accrued per year (144/145)**						
147 **Sustainability/adjustment factors**						
148 **Average number of months paid the first year**						
149 **Correction index**						

Point schemes - SK	2013	2020	2030	2040	2050	2060
TOTAL						
141 **Number of new pensions (in 1000)**						
142 **Total pension points at retirement**						
143 **Average pension points accumulated per year or average contributory period**						
144 **Average accrual rate (=V/K)**						
145 Point value (V)						
146 Point cost (K)						
147 **Sustainability/adjustment factors**						
148 **Average number of months paid the first year**						

(1) Data to be provided also by gender.
Source: Commission services, EPC

Table II.A1.3: **Pension projection reporting sheet: decomposition of new public pension expenditure - earnings related for DB schemes**

Defined Benefit schemes (BE BG CZ DK EE EL ES FR IE LT LU HU MT NL AT PT SI FI UK)	2013	2020	2030	2040	2050	2060
TOTAL						
153 **Number of new pensions (in 1000)**						
154 **Average contributory period (in years)**						
155 **Average accrual rate**						
156 **Monthly average pensionable earning**						
157 **Sustainability/adjustment factors**						
158 **Average number of months paid the first year**						

(1) Data to be provided also by gender.
Source: Commission services, EPC

Table II.A1.4: **Pension projection reporting sheet: decomposition of new public pension expenditure - earnings related for NDC schemes**

Notional defined contribution (IT LV PL SE NO)	2013	2020	2030	2040	2050	2060
TOTAL						
157 **Number of new pensions (in 1000)**						
158 **Average contributory period (in years)**						
159 **Average accrual rate (=c/A)**						
160 Notional-accounts contribution rate (c)						
161 Annuity factor (A)						
162 **Monthly average pensionable earning**						
163 **Sustainability/adjustment factors**						
164 **Average number of months of pension paid the first year**						

(1) Data to be provided also by gender.
Source: Commission services, EPC

Table II.A1.5:   **Pension projections reporting sheet: decomposition of new private pension expenditure**

	Private occupational scheme	2013	2020	2030	2040	2050	2060
	TOTAL						
159	**Number of new pensions (in 1000)**						
160	**Average contributory period (in years)**						
161	**Average accrual rate**						
162	**Monthly average pensionable earning**						
163	**Sustainability/adjustment factors**						
164	**Average number of months paid the first year**						
	Private individual scheme	2013	2020	2030	2040	2050	2060
	TOTAL						
165	**Number of new pensions (in 1000)**						
166	**Average contributory period (in years)**						
167	**Average accrual rate**						
168	**Monthly average pensionable earning**						
169	**Sustainability/adjustment factors**						
170	**Average number of months paid the first year**						

(1) This block is to be provided on a voluntary basis.
Source: Commission services, EPC

ANNEX 2

Components of pension systems in the EU Member States: main schemes

A2.1. COUNTRY FICHES

The annex describes pension systems in place in Member States based on laws and regulations in force in January 2014 or on the last date for which information has been received.

The country summaries show each system's major features by firstly classifying schemes into public and private. Separate programs in the public sector are presented according to the risk that is covered: *old-age*, *disability*, *survivor* and *minimum pension.* Private scheme are classified into *private occupational* and *private individual.*

Within each program more than a scheme can be present, i.e. whether separate old-age schemes exists for public and private sector employees or self-employed. Information by scheme is organised among the following topics: *regulatory framework*, *qualifying condition*, *contribution, benefit* and *taxes.*

All the information reported have been provided by Member States. No external resource is used to integrate the collected information.

Since the summary format requires brevity, technical terms have been developed that are concise as well as comparable and are applied to all programs. The terminology may therefore differ from national concepts or usage.

Belgium

Public schemes

OLD AGE

1) Pension scheme: Wage earner

Regulatory framework

Type - DB, Mandatory, earnings related, non means-tested.

First law - Decree-Law of 28 December 1944 on social security.

Current law - Miscellaneous provisions law (1) of 28 December 2011.

Coverage - Wage earners.

Administrative organization - National Pensions Office: www.onprvp.fgov.be.

Qualifying condition

Minimum retirement age and contributory years - 62 with 40 years of contribution as from 2016 (exceptions: 60 - 42 and 61 - 41).

Transition period: 60.5 - 38 in 2013; 61 - 39 in 2014; 61.5 - 40 in 2015.

Statutory retirement age - 65 years (65 in 2060).

Contributory period for full pension - 45 years.

Special schemes - Miners (except for miners with less than 20 career years as at 31 December 2011, who are subject to general conditions), civil aviation flying personnel (except for the -55 as at 31 December 2011, who are subject to general conditions), seamen, journalists: lower statutory retirement age, shorter contributory period for full pension.

Contribution

Contribution rate: Employers - 24.77% (for all Social Security schemes: see Additional features)

Contribution rate: Employees - 13.07% (for all Social Security schemes: see Additional features)

Contribution base - Contribution on all gross earnings, before any tax deduction; without ceiling

Additional features - Global Management of contributions in the wage earners' scheme since 1 January 1995: coverage for pensions, health care (until 2008), disability, primary incapacity, maternity leave, unemployment (including career breaks), family allowances (until 2015), professional sickness, work injury. In the wage earners' scheme, social spending is funded by contributions (63.8% in 2013), but also by state subsidies (16.3%) and alternative funding (16.5%) mainly made up of a percentage of VAT revenues.

Benefit

Pensionable earning reference - Full career.

Accrual rate - 1.67% (75/45) for head of household with a dependent spouse; 1.33% (60/45) in the other cases; see Additional features [1].

Bonuses for postponing retirement - New version of the pension bonus as at 1/1/2014: the pension bonus starts one year after the worker complies with the requirements for early retirement. The pension bonus is a lump-sum amount for each additional day effectively worked, increasing with the number of additional working days (from 1.5 EUR by day during the first 12 months till 2.5 EUR by day after 60 months).

Valorisation of pensionable earnings - Old age pension is calculated as replacement rate multiplied by the reference wage and divided by 45. For each career year, the gross wage up to a ceiling is adjusted to the current prices by the CPI. Some periods of inactivity (disability, some types of unemployment with company allowance, some types of unemployment) are valued at the last earned wage. Other periods of inactivity like long-term unemployment, unemployment with company allowance for people aged less than 60 and time credit are valued at the minimum claim per working year. The minimum claim per working year: applied if the adjusted wage in a full time employment of one year of career is lower than a specific amount. A minimum pension exists if the career is at least two thirds of a full career as wage earners, and is granted in proportion to the career fraction.

Indexation of pensions in payment - Automatically adjusted to the CPI and partially adapted to living standards in accordance with the Generation Pact; see Additional features [2].

Maximum replacement rate - 75% of the pensionable earning for head of household with a dependent spouse; 60% in the other cases.

Additional features - [1] Those accrual rates are not met in practice because of the various parameters of the calculation of the pension: minimum pension, minimum claim per working year, ceiling.

[2] The living standards adjustment of all replacement benefits is made within a total budget corresponding to the necessary budget required for an increase (of all replacement benefits in the scheme) of 1,25% indexation of the wage ceilings +1% indexation of lump-sum benefits + 0,5% indexation of the earnings-related benefits + 1,25% indexation of the minimum claim per year.

Taxes

Pension taxation - Gross pension is reduced with contributions (for health care and solidarity contribution) and also taxed. Pension benefit can be cumulated with work income complying with a ceiling of authorized income (the ceiling is automatically adjusted to the CPI). Since 1 January 2013, there is no limited income requirement anymore if the pensioner is 65 with a career of at least 42 years.

Tax rates - Contribution of 3.55% for health care if the pension benefit exceeds a threshold. Solidarity contribution is between 0 and 2% according to the pension benefit. Pension benefit is taxed if above a minimum amount varying according to the number of dependent children.

2) Pension scheme: Self-employed

Regulatory framework

Type – DB, mandatory, earnings related, non means-tested.

First law - Law of 30 June 1956.

Current law - Miscellaneous provisions law of 28 December 2011.

Coverage - Self-employed.

Administrative organization - National Pensions Office: www.onprvp.fgov.be.

Qualifying condition

Minimum retirement age and contributory years - see wage earner scheme.

Statutory retirement age - 65 years (65 in 2060).

Contributory period for full pension - 45 years.

Contribution

Contribution rate: Employees - From 12,870.43 to 55,576.94 EUR: 22%;

from 55,576.95 to 81,902.81 EUR: 14.16% (figures of 2014) (for all Social Security schemes: see Additional features).

Maximum contribution of 4,110.32 EUR for a quarter; minimum contribution of 729.46 EUR for a quarter (figures of 2014).

Contribution base - Contributions of year t are calculated on the basis of the net professional income of year t-3 (gross annual income minus professional expenses before tax withholding).

Additional features - Global management of contributions in the self-employed scheme since 1 January 1995: Coverage for pensions, health care (until 2008), disability, primary incapacity, maternity leave, family allowances (until 2015). In the self-employed scheme, social spending is funded by contributions (54.3% in 2013), but also by state subsidies (28.3%) and alternative funding (13.8%) mainly made up of a percentage of VAT revenues.

Benefit

Pensionable earning reference - Full career.

Accrual rate – see wage earner pension scheme.[1]

Penalties for early retirement - Removal of the penalty on 1/1/2014.

Bonuses for postponing retirement - see wage earner scheme

Valorisation of pensionable earnings - Old age pension is equal to the replacement rate multiplied by the reference income and the correction coefficient divided by 45. The reference income (valued at a fixed income before 1984, and calculated on the basis of the professional income as from 1984) up to an income ceiling is adjusted to the current prices by the CPI. The correction coefficient reflects the discrepancy between the contributions paid by wage earners and those paid by the self-employed. A minimum pension exists if the career is at least two thirds of a full career as a self-employed and/or wage earners, and is granted in proportion to the career fraction.

Indexation of pensions in payment - see wage earner scheme. See Additional features. [2]

Maximum replacement rate - see wage earner scheme.

Additional features - [1] See the wage earner pension scheme.

[2] The living standards adjustment of all replacement benefits is made within a total budget corresponding to the necessary budget required for an increase (of all replacement benefits in the scheme) of 1,25% indexation of the wage ceilings +1% indexation of lump-sum benefits + 0,5% indexation of the earnings-related benefits.

Taxes

Pension taxation - see wage earner pension scheme.

Tax rates - see wage earner pension scheme.

3) Pension scheme: Civil servants

Regulatory framework

Type – DB, mandatory, earnings related, non means-tested.

First law - General Law of 21 July 1844.

Current law - Miscellaneous provisions law of 28 December 2011.

Coverage - Civil servants (including disability).

Administrative organization - Service des pensions du secteur public (Pensioendienst voor de overheidssector): www.pdos.fgov.be.

Qualifying condition

Minimum retirement age and contributory years - see wage earner pension scheme.

Statutory retirement age - see wage earner pension scheme.

Contributory period for full pension - see wage earner pension scheme..

Special schemes - Education, army, police, magistrates, university professors, personnel of the SNCB (Belgian rail transport organisation), ministers and priests: lower statutory retirement age, shorter contributory period for full pension.

Contribution

Special scheme - Local authorities: single rate since 2016 (both employer and employee, both old age and survivor). This rate will be 41.5% in 2016 and then be adjusted according to the evolution of pension expenditure.

Benefit

Pensionable earning reference - Wages of the last 10 years.

Accrual rate - 1.67% (1/60); see additional features.

Bonuses for postponing retirement The specific age pension supplement granted to civil servants is replaced by the pension bonus as at 1/1/2014: see wage earner pension scheme.

Valorisation of pensionable earnings - Old age pension is equal to a reference wage multiplied by the number of service years (maximum 45) divided by a "tantième" (60). The reference wage or the

mean of the wages of the last 10 years adjusted to the nominal wage growth in the public sector. To benefit from a minimum pension, 20 years of services is required.

Indexation of pensions in payment - Automatically adjusted to the CPI and to the real wage increases of the working civil servants.

Maximum replacement rate - 75% of the pensionable earning.

Additional features - This accrual rate is not met in practice because of the various parameters of the calculation of the pension: minimum pension, ceiling.

Taxes

Pension taxation - see wage earner scheme.

Tax rates – same as wage earner scheme plus a contribution of 0.5% for funeral expenses.

4) Pension scheme: Unemployment with company allowance (only the part paid from unemployment benefit scheme)

Regulatory framework

Type – DB, mandatory, earnings related, non means-tested.

First law - Decree-Law of 16 January 1975.

Current law - Miscellaneous provisions law of 28 December 2011; law of 13 December 2012.

Coverage - Workers of wage earners' scheme.

Administrative organization - National Employment Office: www.rva.be.

Qualifying condition

Minimum retirement age and contributory years - 60 with 40 years of contribution for men as from 2015 (35 in 2013); same age with 40 years of contribution for women as from 2024 (28 in 2013, 31 in 2015, 32 in 2016, 33 in 2017, 36 in 2020). Maximum retirement age: 64.

Statutory retirement age - 60 years (60 in 2060).

Special schemes - Unemployment with company allowance for heavy work: 58 with 35 years of contribution; unemployment with company allowance for companies undergoing restructuring (55 as from 2013) or in difficulty (55 as from 2018).

Contribution

See wage earner pension scheme.

Benefit

Pensionable earning reference - Last wage.

Valorisation of pensionable earnings - Benefit is equal to the replacement rate multiplied by the last wage (limited to a ceiling).

Indexation of pensions in payment – see the wage earner scheme.

Maximum replacement rate - 60% of the pensionable earning.

Additional features – see point (2) of the wage earner scheme.

Taxes

Pension taxation - Employer contribution on the company allowance according to date of dismissal, age and sector of the company. Contribution of 6.5% paid by the employer on the total amount of the unemployment benefit and the company allowance. The company allowance is taxed, not the unemployment benefit.

DISABILITY

1) Pension scheme: Wage earner

Regulatory framework

Type - DB, Mandatory, earnings related, non means-tested.

First law - Decree-Law of 28 December 1944 on social security.

Current law - Law of 14 July 1994.

Coverage - Wage earners.

Administrative organization - Institut national d'assurance maladie-invalidité: www.inami.fgov.be and Rijksdienst voor ziekte-en invaliditeitsverzekering: www.riziv.fgov.be.

Qualifying condition

Minimum retirement age and contributory years - No minimum age (between 18 and 64). Minimum 120 days of work during the last 6 months.

Contribution

See the old-age wage earner pension scheme.

Benefit

Pensionable earning reference - Last wage.

Valorisation of pensionable earnings - Benefit is equal to the replacement rate multiplied by the last wage (limited to a ceiling).

Indexation of pensions in payment – see the old-age wage earner scheme.

Maximum replacement rate - 65% of the pensionable earning for head of household; 55% for lone persons 40% for cohabitants.

Additional features – see point (2) of the old-age wage earner pension scheme.

Taxes

Pension taxation - Contribution and taxation.

Tax rates - Contribution of 3.5% if above a specific threshold. Benefit is taxed but tax reduction exists.

2) Pension scheme: Self-employed

Regulatory framework

Type – DB, mandatory, non earnings related (lump sum), non means-tested.

First law - Decree-Law of 20 July 1971.

Current law - Decree-Law of 20 July 1971.

Coverage - Self-employed.

Administrative organization - Institut national d'assurance maladie-invalidité : www.inami.fgov.be and Rijksdienst voor ziekte-en invaliditeitsverzekering: www.riziv.fgov.be.

Qualifying condition

Minimum retirement age and contributory years - No minimum age (between 18 and 64) - waiting period of 6 months.

Contribution

Contribution rate: Employees – see the old-age self-employed pension scheme.

Contribution base see the old-age self-employed pension scheme.

Additional base - see the old-age self-employed pension scheme.

Benefit

Pensionable earning reference - Lump-sum benefit.

Indexation of pensions in payment - see the old-age self-employed pension scheme.

Additional features - see the old-age self-employed pension scheme.

Taxes

Pension taxation - Contribution and taxation.

Tax rates - Contribution of 3.5% if above a specific threshold. Benefit is taxed but tax reduction exists.

SURVIVOR

1) Pension scheme: Wage earner

Regulatory framework

Type - DB, Mandatory, earnings related, non means-tested.

First law - Decree-Law of 28 December 1944 on social security.

Current law - Law of 5 May 2014.

Coverage - Wage earners.

Administrative organization - National Pensions Office: www.onprvp.fgov.be

Qualifying condition

Minimum retirement age and contributory years - Age of 45 in 2015 plus 0.5 each year until 2025 (age of 50).

Special schemes – less than 45 years (less than 50 in 2025): transition allowance for 1 year (2 years if children).

Contribution

Contriution rate: Employees - 13.07% (for all Social Security schemes).

Contribution base - Contribution on all gross earnings, before any tax deduction; without ceiling.

Additional features – see old-age wage earner pension scheme.

Benefit

Pensionable earning reference - Full career if the deceased was a pensioner; effective contributory period if the deceased was not a pensioner.

Accrual rate - 1.33% (60/45).

Valorisation of pensionable earnings – If the deceased benefited from an old-age pension for head of household, survivor pension is calculated as the 80% of the old-age pension of the deceased.

If the deceased benefited from an old-age pension for lone person, survivor pension is the old-age pension of the deceased. If the deceased was not a pensioner, survivor pension is based on calculation of the old-age pension with the effective contributory period (number of years of occupation till the year before the date of death) on the one hand, and the contributory period for a full pension (number of years between the 20th anniversary and the year before the date of death) on the other hand. This ratio cannot exceed 1. Survivor pension cannot exceed old-age pension with full career.. See also Qualifying conditions.

Indexation of pensions in payment - see old-age wage earner pension scheme.

Maximum replacement rate 60% of the pensionable earnings

Additional features - see old-age wage earner pension scheme.

Taxes

See old-age wage earner pension scheme.

2) Pension scheme: Self-employed

Regulatory framework

Type – DB, mandatory, earnings related, non means-tested.

First law - Law of 30 June 1956.

Current law - Law of 25 April 2014.

Coverage - Self-employed

Administrative organization - National Pensions Office: www.onprvp.fgov.be

Qualifying condition

See wage earner survivor pension scheme.

Contribution

See self-employed old-age pension scheme.

Benefit

See wage earner survivor pension scheme.

Taxes

See self-employed old-age pension scheme.

3) Pension scheme: Civil servants

Regulatory framework

Type – DB, mandatory, earnings related, non means-tested.

First law - General Law of 21 July 1844.

Current law - Miscellaneous provisions law of 15 May 2014.

Coverage - Civil servants.

Administrative organization - Service des pensions du secteur public (Pensioendienst voor de overheidssector): www.pdos.fgov.be.

Qualifying condition

See wage earner survivor pension scheme.

Contribution

Contribution rate: Employees - 7.5% survivor pension.

Contribution base - Contributions are calculated on the basis of the gross monthly salary.

Special scheme – see the old age civil servants scheme.

Benefit

Pensionable earning reference - Wages of the last 10 years.

Accrual rate - 1.5% (60/40).

Valorisation of pensionable earnings - 60% of the wages of the last 10 years of the deceased multiplied by the contributory period in months of

the deceased divided by the number of months between the 20th anniversary and the date of death (maximum 480 months or 40 years). See also Qualifying conditions.

Indexation of pensions in payment - Automatically adjusted to the CPI and to the real wage increases of the working civil servants.

Maximum replacement rate - 60% of the pensionable earning.

Taxes

See civil servant old-age pension scheme

MINIMUM PENSION

Pension scheme: Assistance scheme

Regulatory framework

Type - DB, mandatory, non-earnings related, means-tested

First law - Law of 1 April 1969 on the guaranteed income for elderly persons.

Current law - Law of 22 March 2001 on the guaranteed income for elderly persons.

Coverage - All people with a real and permanent residence in Belgium.

Administrative organization - National Pensions Office: www.onprvp.fgov.be

Qualifying condition

Minimum retirement age and contributory years - 65

Statutory retirement age – 65 years (65 in 2060)

Contribution

Funded by taxes

Benefit

Valorisation of pensionable earnings - Maximum amounts different for cohabitants and lone persons.

Indexation of pensions in payment - Automatically adjusted to the CPI and partially adapted to living standards in accordance with the Generation Pact (see Additional features).

Additional features - The living standards adjustment of all assistance benefits is made within a total budget corresponding to the necessary budget required for an increase (of all benefits in the assistance scheme) of 1% indexation of lump-sum benefits.

Taxes

Tax exempt.

Private schemes

PRIVATE OCCUPATIONAL

1) Pension scheme: Wage earner

Regulatory framework

Type - DB, hybrid, DC and DC with guarantee plans. Mandatory, earnings related, non means-tested.

First law - Act of 6 April 1995 on occupational pensions

Current law - Act of 28 April 2003 on occupational pensions (last amendment introduced by the Act of 15 May 2014 (loi portant des dispositions diverses/wet houdende diverse bepalingen)

Coverage - Workers of the wage earners' scheme

Administrative organization - IORP or insurance company

Qualifying condition

Minimum retirement age and contributory years - The normal retirement age is 65 with a possibility of early retirement as from 60 if provided for by the plan rules.

Retirement age linked to life expectancy - No link to life expectancy

Statutory retirement age - The participation in the plan is mandatory as long as the wage earner remains employed by the sponsor. If the wage earner remains employed after 65, he/she continues to build up pension rights under the plan rules.

Contributory period for full pension - Only relevant for DB. It depends on the plan rules. If the plan rules follow the provisions as available for the State pension, a contribution period of 45 years is required for a full pension in a DB plan.

Contribution

Contribution rate: Employers - Dependent on the pension scheme

Contribution rate: Employees - Dependent on the pension scheme

Contribution rate: Government - No contribution

Fund (or any residual funding from the State) - No State commitment to cover possible deficits

Contribution base - Dependent on the pension scheme

Benefit

Pensionable earning reference - Dependent on the pension scheme

Accrual rate - Dependent on the pension scheme

Penalties for early retirement - The wage earner is entitled to vested rights in case of departure before the normal retirement date (65). Payment of the benefits is only possible as from 60.

Bonuses for postponing retirement - The wage earner builds up pension rights in accordance with the pension formula as long as he/she remains employed by the sponsor.

Valorisation of pensionable earnings - Wage earners are entitled to vested rights if they participate in a pension plan during their career. For DC and CB pension plans, the vested reserves correspond to the capitalization of the paid (for DC) / allocated (for CB) contributions in accordance with the plan rules. For DB pension plans, the vested reserves correspond to the current value (calculated according to the contractual technical rules, however with a maximum discount rate of 6% and the mortality tables MR/FR) of the vested benefits.

Indexation of pensions in payment - Dependent on the pension scheme

Maximum replacement rate - There is no maximum. A limit is however determined for the tax deductibility of the pension contributions. In order to be tax deductible, the pension benefits (State pension and occupational pension) can not exceed 80% of the last salary.

Sustainability factor/benefit linked to life expectancy - Mortality tables (based on life expectancies) are taken into account for the calculation of the vested rights in DB pension plans and in order to convert annuities into lump sum benefits or lump sum benefits into annuities.

Taxes

Contribution - The pension contribution is tax deductible if the pension benefits (State pension and occupational pension) do not exceed 80% of the last salary.

Tax rate and description - The Belgian system is EET. There is no taxation on the contributions. A social security contribution is however due on the sponsor's contributions (8.86% + 1.5% when above a ceiling)

Returns on investment and fund accumulation - The Belgian system is EET. The sponsor and the participants are not subject to any taxation on the returns on investment.

Withdrawals - The Belgian system is EET. Lump sums and annuities paid to the participants are taxed.

Tax rate and description - Lump sums: lump sums built up by employee's contributions: 10% / lump sums built up by sponsor's contributions: 20% if payment as from 60; 18% if payment as from 61; 16.5% if payment as from 62 + possibility to benefit from a tax rate of 10% when the participant remains active until 65. Annuities: progressive tax rate depending on the total incomes of the participant. Social security contributions apply to both lump sums and annuities (3.55% + a contribution between 0-2%).

2) Pension scheme: Self-employed

Regulatory framework

Type - DC, DC with guarantee plans, DB. Voluntary, earnings related, non means-tested

First law - Act of 24 December 2002 on occupational pensions for the self-employed

Current law - Act of 24 December 2002 on occupational pensions for the self-employed

Coverage - Workers of the self-employed scheme

Administrative organization - IORP or insurance company

Qualifying condition

Minimum retirement age and contributory years - The normal retirement age is 65 with a possibility of early retirement as from 60 if provided for by the plan rules.

Retirement age linked to life expectancy - No link to life expectancy

Statutory retirement age - The participation in the plan is possible as long as the participant remains self-employed in accordance with the pension agreement. If he/she remains self-employed after 65, it is in principle possible to continue to build up pension rights.

Contribution

Contribution rate: Employers - Ordinary agreement: maximum 8.17% of the professional income up to a ceiling. Social agreement: maximum 9.40% of the professional income up to a ceiling.

Fund (or any residual funding from the State) - No State commitment to cover possible deficits

Contribution base - The professional incomes of the self-employed participant

Benefit

Pensionable earning reference - Dependent on the pension scheme

Accrual rate - Dependent on the choice of the self-employed participant

Penalties for early retirement - The self-employed is entitled to vested rights as defined by the pension agreement in case of termination of the pension agreement before retirement. Payment of the benefits is only possible as from 60.

Bonuses for postponing retirement - In principle, possibility to build up pension rights as long as the participant is self-employed in accordance with the pension agreement.

Valorisation of pensionable earnings - The self-employed is entitled to pension rights as defined by the pension agreement.

Indexation of pensions in payment - Dependent on the pension scheme

Maximum replacement rate - The maximum provided for in the law refers to the maximum contribution which can be paid by the self-employed (8.17% of the professional income up to a ceiling - social agreement: maximum 9.40% of the professional income up to a ceiling).

Sustainability factor/benefit linked to life expectancy - Mortability tables (based on life expectancies) are taken into account a.o. in order to convert annuities into lump sums or lump sums into annuities.

Taxes

Contribution - The tax deductibility of the contribution is limited to the contribution allowed by law (8.17% of the professional income up to a ceiling - social agreement: maximum 9.40% of the professional income up to a ceiling).

Tax rate and description - The Belgian system is EET. There is no taxation on the contributions.

Returns on investment and fund accumulation - The Belgian system is EET. The sponsor and the participants are not subject to any taxation on the returns on investment.

Withdrawals - The Belgian system is EET. Lump sums and annuities paid to the participants are taxed.

Tax rate and description - Lump sums: the taxation (progressive tax rate depending on the total incomes of the participant) applies to an hypothetical annuity (calculated in accordance with the legislation). Annuities: progressive tax rate depending on the total incomes of the participant. Social security contributions apply to both lump sums and annuities (3.55% + a contribution between 0-2%).

3) Pension scheme: Self-employed company executives (dirigeants d'entreprises/bedrijfsleiders)

Regulatory framework

Type - DB, hybrid, DC and DC with guarantee plans. Voluntary, earnings related, non means-tested

First law - Act of 15 May 2014 on occupational pensions for company executives

Current law - Act of 15 May 2014 on occupational pensions for company executives

Coverage - Self-employed company executives of the scheme

Administrative organization - IORP or insurance company

Qualifying condition

Minimum retirement age and contributory years - The normal retirement age is 65 with a possibility of early retirement as from 60 if provided for by the plan rules.

Retirement age linked to life expectancy - No link to life expectancy

Statutory retirement age - The participation in the plan is possible as long as the participant remains a self-employed executive of the company in accordance with the plan rules.

Contributory period for full pension - Only relevant for DB. It depends on the plan rules.

Contribution

Contribution rate: Employers - Dependent on the pension scheme

Contribution rate: Employees - Dependent on the pension scheme

Fund (or any residual funding from the State) - No State commitment to cover possible deficits

Contribution base - Dependent on the pension scheme

Benefit

Pensionable earning reference - Dependent on the pension scheme

Accrual rate - Dependent on the pension scheme

Penalties for early retirement - The self-employed executive is entitled to vested rights as defined by the plan rules in case of departure before retirement. Payment of the benefits is only possible as from 60.

Bonuses for postponing retirement - In principle, possibility to build up pension rights as long as the participant is a self-employed executive of the sponsor in accordance with the plan rules.

Valorisation of pensionable earnings - The self-employed executive is entitled to pension rights as defined by the plan rules.

Indexation of pensions in payment - Dependent on the pension scheme

Maximum replacement rate - There is no maximum. A limit is however determined for the tax deductibility of the pension contributions. In order to be tax deductible, the pension benefits (State pension and occupational pension) can not exceed 80% of the last salary (paid on a monthly basis).

Sustainability factor/benefit linked to life expectancy - Mortality tables (based on life expectancies) are taken into account for the calculation of the vested rights (as defined by the plan rules) in DB pension plans and in order to convert annuities into lump sum benefits or lump sum benefits into annuities.

Taxes

Contribution - The pension contribution is tax deductible if the pension benefits (State pension and occupational pension) do not exceed 80% of the last salary.

Tax rate and description - The Belgian system is EET. There is no taxation on the contributions if the conditions provided by law are met. A social security contribution (1.5%) is however due on the sponsor's contributions above a ceiling.

Returns on investment and fund accumulation - The Belgian system is EET. The sponsor and the participants are not subject to any taxation on the returns on investment.

Withdrawals - The Belgian system is EET. Lump sums and annuities paid to the participants are taxed.

Tax rate and description - Lump sums: lump sums built up by participant's contributions: 10% / lump sums built up by sponsor's contributions: 20% if payment as from 60; 18% if payment as from 61; 16,5% if payment as from 62 + possibility to benefit from a tax rate of 10% when the participant remains active until 65. Annuities: progressive tax rate depending on the total incomes of the participant. Social security contributions apply to both lump sums and annuities (3.55% + a contribution between 0-2%).

PRIVATE INDIVIDUAL

1) Pension scheme: Pension savings fund

Regulatory framework

Type - Voluntary

Current law – Law of 3 August 2012 on UCITS

Qualifying condition

Statutory retirement age - 65 years.

Taxes/incentives

Contribution - Tax deductibility of the contribution (contribution limited to 950 euro in 2014) if contract of minimum 10 years and signed between 18 and 65 years.

Withdrawals - If tax deductibility of the contribution, then tax on long-term savings applies on the capital.

Tax rate and description - Tax on long-term savings on the capital: 10% as from 60 or on the 10th anniversary of the policy; personal income tax if contract redeemed before 60.

2) Pension scheme: Life-insurance

Regulatory framework

Type – Voluntary

Current law – Act of 9 July 1975 on insurance companies

Qualifying condition

Statutory retirement age – minimum 65 years.

Taxes/incentives

Contribution -. Tax deductibility of the contribution (contribution limited to 2280 euro in 2014) if contract of minimum 10 years and signed before 65 years.

Withdrawals - If tax deductibility of the contribution, then tax on long-term savings applies on the capital.

Tax rate and description - Tax on long-term savings on the capital: 10% as from 60 or on the 10th anniversary of the policy; personal income tax if contract redeemed before 60.

Bulgaria

Public schemes

OLD AGE

1) Pension scheme: State Public Insurance – III labour category

Regulatory framework

Type – DB, mandatory, earnings related, non means-tested.

First law - Law on Pensions 1951 (revoked), Law on Public Social Security Fund 1995 (revoked).

Current law - Social Insurance Code (named Mandatory Social Insurance Code until 31.12.2002) SG issue 110/17.12.1999, in force as of 1 January 2000; Last amendment 2014: http://www.nssi.bg/en/legislationen.

Coverage - Employers, employees working within the III labour category, self-employed; civil servants; military and police officers; farmers.

Administrative organization - National Social Security Institute: http://www.nssi.bg/.

Qualifying condition

Minimum retirement age and contributory years - Men: age of 63 and 8months with at least 37 years and 8 months of contributions;

Women: age of 60 and 8 months with at least 34 years and 8 months contributions or 65 years and 8 months for both genders and at least 15 years of actual contributions.

Retirement age linked to life expectancy - not legislated.

Statutory retirement age - For 2013 and 2014: Men: 63 years and 8 months;

Women: 60 years and 8 months. As of 1 January 2015, the statutory retirement age will be raised by four months each calendar year to reach 65 for men and 63 for women.

Contributory period for full pension - 37 years and 8 months for men;

34 years and 8 months for women.

Special schemes - Exceptions from the general rule: military and police officers can retire regardless of their age with completed 27 contribution years.

Contribution

Contribution rate: Employers - 7.1% for persons born after 31.12.1959

9.9% for those born before 1.01.1960.

Contribution rate: Employees - 5.7% for persons born after 31.12.1959

7.9% for those born before 1.01.1960.

Contribution rate: Government - 12%.

Fund (or any residual funding from the State) - State commitment for covering the deficit on annual basis.

Contribution base - The monthly earned income within thresholds regulated by the Law on State Social Security Budget (yearly). In 2013 the insurable income ceiling is BGN 2200. Minimum thresholds are set each year for different economic activities and basic professions.

Special scheme - Exceptions from the general rules:

1) entire contribution for civil servants, military and police officers is paid by the state;

2) the state pays additional 23% contribution for military and police officers.

3) Credited periods include maternity, unemployment, temporary incapacity.

Benefit

Pensionable earning reference - 3 best years of insurance before 1.1.1997 plus all insurance years after that date.

Accrual rate - Currently 1.1%. As of 1 January 2017 will be increased to 1.2% for newly awarded pensions.

Penalties for early retirement - n/a.

Bonuses for postponing retirement - No maximum deferral period. The accrual rate for deferral after statutory retirement age is 4.0% per year.

Valorisation of pensionable earnings - No valorisation of pensionable earnings. The ratio of an individual's average insurable income and the national average insurable income is applied in the pension formula.

Indexation of pensions in payment - 50% CPI plus 50% of the insurance income growth for the previous year.

Maximum replacement rate - No maximum replacement rate. Maximum pension amount is 35% of the insurable income ceiling for the current year. In 2013 the maximum pension amount is BGN 770.

Sustainability factor/benefit linked to life expectancy - not legislated.

Special scheme - Exceptions from the general rules: For military and police officers 3 years of service are counted as 5 years in pension formula.

Additional features - For persons born after 1959, the pension amounts are reduced in compliance with the average percentage of the contribution, transferred to the second pillar (Universal pension funds).

Taxes

Pensions are not taxable

2) Pension scheme: State Public Insurance - II labour category (hazardous jobs)

Regulatory framework

Type – DB, mandatory, earnings related, non means-tested.

First law - Law on Pensions 1951 (revoked), Law on Public Social Security Fund 1995 (revoked).

Current law - Social Insurance Code (named Mandatory Social Insurance Code until 31.12.2002) SG issue 110/17.12.1999, in force as of 1 January 2000; Last amendment 2014: http://www.nssi.bg/en/legislationen.

Coverage - All persons working within the second labour category (hazardous jobs).

Administrative organization - National Social Security Institute: http://www.nssi.bg/

Qualifying condition

Minimum retirement age and contributory years - Men: age of 57 and 8 months with at least 15 contribution years and 100 age plus service points,

Women: age of 52 and 8 months with at least 15 contribution years and 94 age plus service points.

Retirement age linked to life expectancy - not legislated.

Statutory retirement age - see III labour category pension scheme

Contributory period for full pension - at least 15 contribution years in second labour category and 100 age plus service points for men, 94 age plus service points for women.

Additional features - Current legislation stipulates shifting the early retirement to the Professional Pension Funds as of 1 January 2015.

Contribution

Contribution rate: Employers - 10.1% for persons born after 31.12.1959 and 12.9% for those born before 1.01.1960.

Contribution rate: Employees - 5.7% for persons born after 31.12.1959 and 7.9% for those born before 1.01.1960.

Contribution rate: Government - 12%.

Fund (or any residual funding from the State) - State commitment for covering the deficit on annual basis.

Contribution base - see III labour category pension scheme.

Benefit

See III labour category pension scheme.

Special schemes - 4 years of service in the second labour category are counted as 5 in the qualifying conditions as well as in pension formula.

Taxes

Pensions are not taxable

3) Pension scheme: State Public Insurance - I labour category (hazardous jobs).

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Law on Pensions 1951 (revoked), Law on Public Social Security Fund 1995 (revoked).

Current law - Social Insurance Code (named Mandatory Social Insurance Code until 31.12.2002) SG issue 110/17.12.1999, in force as of 1 January 2000; Last amendment 2014: http://www.nssi.bg/en/legislationen.

Coverage - All persons working within the first labour category (hazardous jobs).

Administrative organization - National Social Security Institute: http://www.nssi.bg.

Qualifying condition

Minimum retirement age and contributory years - Men: age of 52 and 8 months with at least 10 contribution years and 100 age plus service points; Women: age of 47 and 8 months with at least 10 contribution years and 94 age plus service points.

Retirement age linked to life expectancy - not legislated.

Statutory retirement age - see III labour category pension scheme.

Contributory period for full pension – At least 10 contribution years in first labour category and 100 age plus service points for men, 94 age plus service points for women.

Additional features - Current legislation stipulates shifting the early retirement to the Professional Pension Funds as of 1 January 2015.

Contribution

Contribution rate: Employers - 10.1% for persons born after 31.12.1959 and 12.9% for those born before 1.01.1960.

Contribution rate: Employees - 5.7% for persons born after 31.12.1959 and 7.9% for those born before 1.01.1960.

Contribution rate: Government - 12%.

Fund (or any residual funding from the State) - - State commitment for covering the deficit on annual basis.

Contribution base - see III labour category pension scheme.

Benefit

See III labour category pension scheme.

Special schemes - 3 years of service in the first labour category are counted as 5 in the qualifying conditions as well as in pension formula.

Taxes

Pensions are not taxable

4) Pension scheme: Teachers Fund (for early retirement)

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Set up in 1997 by Amendment of the Law on Public Social Security Fund (revoked), Law on Pensions 1951 (revoked).

Current law - Social Insurance Code 2000, http://www.nssi.bg/en/legislationen.

Coverage - Teachers in public and private schools.

Administrative organization - National Social Security Institute: http://www.nssi.bg/

Qualifying condition

Minimum retirement age and contributory years - Men: age of 60 and 8 months with at least 30 years and 8 months contributions;

Women: age of 57 and 8 months with at least 25 years and 8 months contributions.

Retirement age linked to life expectancy - not legislated.

Statutory retirement age - see III labour category pension scheme.

Contributory period for full pension – see III labour category pension scheme.

Contribution

Contribution rate: Employers – 4.3%

Contribution base - see III labour category pension scheme.

Benefit

Pensionable earning reference - 3 best years of insurance before 1.1.1997 plus all insurance years after that date.

Accrual rate - Currently 1.1%. As of 1 January 2017 will be increased to 1.2% for newly awarded pensions.

Penalties for early retirement - 0.1% for every month of early retirement

Bonuses for postponing retirement – Upon attainment of the statutory retirement age without taking advantage from early retirement - 0.33% for every insurance month after meeting the requirements for early retirement.

Additional features – after reaching the statutory retirement age, pensions are paid in full amount by Pension scheme: State Public Insurance – III labour category.

Taxes

Pensions are not taxable

DISABILITY

Pension scheme: State Public Insurance

Regulatory framework

Type –DB, mandatory, earnings related, non means-tested.

First law - Law on Pensions 1951 (revoked), Law on Public Social Security Fund 1995 (revoked).

Current law - Social Insurance Code 2000, http://www.nssi.bg/en/legislationen.

Coverage - All insured persons who have lost more than 50 percent of their ability to work.

Administrative organization - National Social Security Institute http://www.nssi.bg.

Qualifying condition

Minimum retirement age and contributory years – For Disability due to General Disease - men and women: 20<age<24 - 1 contribution year;

25<age<29 - 3 contribution years; 30plus - 5 contribution years;

For age <20 and for persons born blind or became blind before starting to work - regardless of the insurance period.

For Disability due to work accident and occupational disease - regardless of age and contribution years.

Additional features - Payable to insured persons who lost more than 50% of their ability to work.

Contribution

Contribution rate: Employers - No separate contribution rate. The contribution rate for old age covers the risk of disability.

Contribution rate: Employees - See employers contribution rate.

Contribution rate: Government - See employers contribution rate.

Fund (or any residual funding from the State) - State commitment for covering the deficit on annual basis.

Contribution base - See old age pension scheme.

Benefit

Accrual rate - Currently 1.1%. As of 2017 will be increased to 1.2 %.

Penalties for early retirement – n/a.

Valorisation of pensionable earnings - See old age pension scheme.

Indexation of pensions in payment - same as old age pensions

Maximum replacement rate - See old age pension scheme.

Sustainability factor/benefit linked to life expectancy – n/a.

Taxes

Pensions are not taxable.

SURVIVOR

Pension scheme: State Public Insurance

Regulatory framework

Type – DB, earnings related, non means-tested.

First law - Law on Pensions 1951 (revoked), Law on Public Social Security Fund 1995 (revoked).

Current law - Social Insurance Code 2000, http://www.nssi.bg/en/legislationen

Coverage - Dependent survivors: children, widows(ers), parents.

Administrative organization National Social Security Institute http://www.nssi.bg.

Qualifying condition

Minimum retirement age and contributory years - For children up to age 18 (age26 if a student or soldier, no limit if disabled), for surviving spouse - within 5 years before attaining the statutory retirement age (earlier if disabled), for parents of deceased persons (military service) - regardless of age.

Contribution

Contribution rate: Employers - No separate contribution rate. The contribution rate for old age covers the risk of survival.

Contribution rate: Employees - See employers contribution rate.

Contribution rate: Government - See employers contribution rate.

Fund (or any residual funding from the State) - State commitment for covering the deficit on annual basis.

Contribution base - See old age pension scheme.

Penalties for early retirement – n/a.

Benefit

Indexation of pensions in payment - See old age pension scheme.

Maximum replacement rate - See old age pension scheme.

Sustainability factor/benefit linked to life expectancy – n/a.

Special schemes - The amount of pension is determined as a percentage of the deceased person's pension as follows: one heir - 50 percent; two heirs - 75 percent; three and more heirs - 100 percent. (Split equally among all entitled survivors).

Taxes

Pensions are not taxable.

MINIMUM PENSION

Pension scheme: State public insurance – social old-age pension

Regulatory framework

Type - Non earnings related, means-tested

First law - Law on Pensions 1951 (revoked).

Current law - Social Insurance Code 2000, http://www.nssi.bg/en/legislationen.

Coverage - Persons above 70 years at age who meet the requirements.

Administrative organization - National Social Security Institute http://www.nssi.bg.

Qualifying condition

Minimum retirement age and contributory years - 70 years for men and women.

Additional features - The annual income of a family member shall be less than the amount of the guaranteed minimum income for the country for the last 12 months.

Contribution

Fund (or any residual funding from the State) Transfer from the State Budget to the State Public Insurance Budget, covering non-contributory pension expenditure.

Benefit

Additional features - The amount of pension is determined by the Council of Ministers.

Taxes

Pensions are not taxable.

Private schemes

PRIVATE OCCUPATIONAL

Pension scheme: Supplementary voluntary pension funds under occupational schemes

Regulatory framework

Type - DC, voluntary, earnings related, non means-tested.

First law - Social Insurance Code 2000; Amendment of 11.07.2006, SG issue 56; http://www.nssi.bg/en/legislationen.

Current law - Social Insurance Code 2000; Amendment of 11.07.2006, SG issue 56; http://www.nssi.bg/en/legislationen.

Administrative organization - Licensed pension insurance companies

Qualifying condition

Minimum retirement age and contributory years – 55 years both men and women.

Statutory retirement age – 60 years both men and women.

Benefit

Pensionable earning reference - full insurance period.

Additional features - fixed-term annuity

Taxes

Contribution - The contributions paid by employers (at the amount of up to BGN 60) and insured persons (up to 10 % of the taxable income) are tax exempt.

Returns on investment and fund accumulation - Both are exempt from taxation

PRIVATE INDIVIDUAL

1) Pension scheme: Professional pension funds - I labour category

Regulatory framework

Type - DC, mandatory, earnings related, non means-tested.

First law - Social Insurance Code SG issue 110/17.12.1999, in force as of 1 January 2000; http://www.nssi.bg/en/legislationen.

Current law - Social Insurance Code 2000, http://www.nssi.bg/en/legislationen.

Coverage - All persons working within the first labour category (hazardous jobs).

Administrative organization - Licensed pension insurance companies.

Qualifying condition

Minimum retirement age and contributory years - For 2015 - Men: 10 years and 6 months before the statutory retirement age and at least 10 years contribution period;

Women: 12 years and 6 months before the statutory retirement age and at least 10 years contribution period.

Statutory retirement age – See public old-age pension scheme.

Additional features - Scheme for early retirement. Pensions shall be paid out as of 1 January 2015.

The period of early retirement will be shortened by 6 months each year to reach 8 years before the statutory retirement age.

Contribution

Contriution rate: Employers - 12%

Contribution base - The monthly earned income within thresholds regulated by the Law on State Social Security Budget (yearly). In 2013 the insurable income ceiling is BGN 2200. Minimum thresholds are set each year for different economic activities.

2) Pension scheme: Professional pension funds - II labour category

Regulatory framework

Type - DC, mandatory, earnings related, non means-tested.

First law - Social Insurance Code SG issue 110/17.12.1999, in force as of 1 January 2000; http://www.nssi.bg/en/legislationen.

Current law - Social Insurance Code 2000, http://www.nssi.bg/en/legislationen.

Coverage - All persons working within the second labour category (hazardous jobs).

Administrative organization - Licensed pension insurance companies.

Qualifying condition

Minimum retirement age and contributory years - For 2015 - Men: 5 years and 6 months before the statutory retirement age and at least 15 years contribution period;

Women: 7 years and 6 months before the statutory retirement age and at least 15 years contribution period.

Statutory retirement age – See public old-age pension scheme.

Additional features - Scheme for early retirement. Pensions shall be paid out as of 1 January 2015. The period of early retirement will be shortened by 6 months each year to reach 3 years before the statutory retirement age.

Contribution

Contribution rate: Employers - 7%

Contribution base - The monthly earned income within thresholds regulated by the Law on State Social Security Budget (yearly). In 2013 the insurable income ceiling is BGN 2200. Minimum thresholds are set each year for different economic activities.

3) Pension scheme: Universal pension funds - supplementary life-long old age pensions

Regulatory framework

Type - DC, mandatory, earnings related, non means-tested.

First law - Social Insurance Code SG issue 110/17.12.1999, in force as of 1 January 2000; http://www.nssi.bg/en/legislationen.

Current law - Social Insurance Code 2000, http://www.nssi.bg/en/legislationen.

Coverage - All persons insured by the public pension insurance, born after 1959.

Administrative organization - Licensed pension insurance companies

Qualifying condition

Minimum retirement age and contributory years – 5 years before the statutory retirement age.

Statutory retirement age – See public old-age pension scheme.

Additional features - In accumulation phase. No pension payments yet.

Contribution

Contribution rate: Employers - 2.8%

Contribution rate: Employees - 2.2%

Contribution base - The monthly earned income within thresholds regulated by the Law on State Social Security Budget (yearly). In 2013 the insurable income ceiling is BGN 2200. Minimum thresholds are set each year for different economic activities.

Additional features - As of 1 January 2017 the contribution rate will be increased from 5% to 7%.

Benefit

Pensionable earning reference - full insurance period

Additional features - life annuity

4) Pension scheme: Supplementary voluntary pension funds

Regulatory framework

Type - DC, voluntary, earnings related, non means-tested

First law - Law on supplementary voluntary pension insurance SG issue 65/20.07.1999.

Current law - Social Insurance Code 2000, http://www.nssi.bg/en/legislationen.

Coverage - Any person above 16 years of age.

Administrative organization - Licensed pension insurance companies

Qualifying condition

Same as those of the universal pension funds - supplementary life-long old age pensions

Benefit

Pensionable earning reference - full insurance period.

Additional features - life or fixed-term annuity.

Taxes

Contribution - The contributions paid by employers (at the amount of up to BGN 60) and insured persons (up to 10 % of the taxable income) are tax exempt.

Returns on investment and fund accumulation - Both are exempt from taxation

Withdrawals - Withdrawals of funds before retirement will be taxed if tax reliefs have been used.

Tax rate and description - 10%

Czech Republic

Public schemes

OLD AGE

Pension scheme: public system (PAYG)

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Pension Insurance Act (No. 155/1995),1995.

Current law - Pension Insurance Act (No. 155/1995) after last revisions in 2012.

Coverage - All persons excluding armed forces.

Administrative organization - Czech Social Security Admínistration: http://www.cssz.cz/en/.

Qualifying condition

Minimum retirement age and contributory years - Minimum retirement age: 5 years before statutory age but not earlier than at age 60

Contributory period: min. 29 years, or 19 years at age 5 years higher than statutory (in 2013)

Retirement age linked to life expectancy - not specific rule (retirement age postponement is set with respect to life expectancy)

Statutory retirement age - men: 62 years and 8 months. Women:

No child: 61 years and 8months

1 child: 60 years and 8 months

2 children: 59 years and 8 months

3 and 4: 58 years and 8 months

5 and more: 57 years and 8 months (in 2013)

Contributory period for full pension - min. 29 years, or 19 years at age 5 years higher than statutory (in 2013). Continuously increasing to min. 35 years after 2018, or 20 years at age 5 years higher than statutory (after 2013).

Special schemes - none

Additional features - none

Contribution

Contribution rate: Employers - 21.5% (includes all **Type**s of pensions)

Contribution rate: Employees - 6.5% (includes all Types of pensions)

Contribution rate: Government - none

Fund (or any residual funding from the State) - Balance of pension system is part of general government budget.

Contribution base - wages (upper limit for contribution amounts to 48 times the monthly wage per calendar year; includes all Types of pensions).

Special scheme - There is not a special scheme. There are not payments for non-contributory periods into the system. However, they are partly acknowledged as contributory periods in terms of entitlement.

Additional features - A person aged less than 35 can decide to shift 3p.p. into pension savings pillar together with additional 2% from his/her own sources. However, only marginal number of people opts for this option.

Benefit

Pensionable earning reference - Last 30 years of career, but only back to 1986. Continuously increasing to full career length.

Accrual rate - 1.5%.

Penalties for early retirement - 0,9% per 90 days in the 1st year; 1,2% per 90 days in the 2nd year; 1,5% per 90 days further up to the 5th year.

Bonuses for postponing retirement - 1,5% per 90 days (no pension drawn); 1,5% per 180 days (half of the pension drawn); 0,4% per 360 days (full pension drawn).

Valorisation of pensionable earnings - nominal wage growth.

Indexation of pensions in payment - valorisation rule: CPI plus 1/3 real wage growth.

Maximum replacement rate – none.

Sustainability factor/benefit linked to life expectancy – none.

Special schemes – none.

Additional features - none.

Taxes

Pension taxation - Only pension benefits exceeding 36x minimum wage are subject to Personal Income Tax.

Tax rates - Personal Income Tax rate 15%.

Special schemes – none.

Additional features - none.

DISABILITY

Pension scheme: public system (PAYG)

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Pension Insurance Act (No. 155/1995),1995.

Current law - Pension Insurance Act (No. 155/1995) after last revisions in 2012.

Coverage - All persons excluding armed forces.

Administrative organization - Czech Social Security Admínistration: http://www.cssz.cz/en.

Qualifying condition

Minimum retirement age and contributory years - none

Retirement age linked to life expectancy - none

Statutory retirement age - none

Contributory period for full pension - none

Special schemes - none

Additional features - none

Contribution

Contribution rate: Employers - 21.5% (includes all **Type**s of pensions)

Contribution rate: Employees - 6.5% (includes all types of pensions)

Contribution rate: Government - none

Fund (or any residual funding from the State) - Balance of pension system is part of general government budget

Contribution base - wages (upper limit for contribution amounts to 48 times the monthly wage per calendar year; includes all types of pensions)

Special scheme - There is not a special scheme. There are not payments for non-contributory periods into the system. However, they are partly acknowledged as contributory periods in terms of entitlement

Additional features - none

Benefit

Pensionable earning reference - The whole career before becoming disabled.

Accrual rate – 1.5%; 0.75%; 0.5% according to the degree of disability.

Penalties for early retirement - none

Bonuses for postponing retirement - none

Valorisation of pensionable earnings - nominal wage growth.

Indexation of pensions in payment - valorisation rule: CPI plus 1/3 real wage growth

Maximum replacement rate - none

Sustainability factor/benefit linked to life expectancy - none

Special schemes - none

Additional features - none

Taxes

Pension taxation - Only pension benefits exceeding 36 times the minimum wage are subject to Personal Income Tax.

Tax rates - Personal Income Tax rate 15%.

Special schemes – none

Additional features – none

SURVIVOR

Pension scheme: public system (PAYG)

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Pension Insurance Act (No. 155/1995), 1995.

Current law - Pension Insurance Act (No. 155/1995) after last revisions in 2012.

Coverage - All persons excluding armed forces.

Administrative organization - Czech Social Security Admínistration: http://www.cssz.cz/en.

Qualifying condition

Minimum retirement age and contributory years - none

Retirement age linked to life expectancy - Applicable for widows/widowers: retirement age postponement is set with respect to life expectancy.

Statutory retirement age - Applicable for widows/widowers: men: same as PAYG; women: same as PAYG or 4 years less than PAYG for men of the same age (depends which is lower).

Contributory period for full pension - none

Special schemes - none

Additional features - none

Contribution

Contribution rate: Employers - 21.5% (includes all types of pensions).

Contribution rate: Employees - 6.5% (includes all types of pensions).

Contribution rate: Government. - None

Fund (or any residual funding from the State) - Balance of pension system is part of general government budget

Contribution base - wages (upper limit for contribution amounts to 48 times the monthly wage per calendar year; includes all **Type**s of pensions)

Special scheme - none

Additional features - none

Benefit

Pensionable earning reference - Pensionable earning is a fraction of earning (or pensionable earning) of spouse or parents.

Accrual rate – 1.5%

Penalties for early retirement - none

Bonuses for postponing retirement - none

Valorisation of pensionable earnings - nominal wage growth

Indexation of pensions in payment - valorisation rule: CPI plus 1/3 real wage growth

Maximum replacement rate - none

Sustainability factor/benefit linked to life expectancy - none

Special schemes - none

Additional features - none

Taxes

Pension taxation - Only pension benefits exceeding 36 times the minimum wage are subject to Personal Income Tax.

Tax rates - Personal Income Tax rate 15%

Special schemes - none

Additional features - none

Private schemes

PRIVATE INDIVIDUAL

1) Pension scheme: Pension savings pillar

Regulatory framework

Type - DC, voluntary entry (no possibility to leave the system), earnings related, non means-tested.

First law - Act No 426/2011 Coll. on Retirement Savings (in effect since 1 January 2013, some provisions since 1 January 2012).

Current law - Act No 426/2011 Coll. on Retirement Savings (in effect since 1 January 2013, some provisions since 1 January 2012).

Coverage - All people could have entered the system until July 2013, since then only people younger than 35 can enter.

Administrative organization - Financial Administration of the Czech Republic and Pension companies.

Qualifying condition

Minimum retirement age and contributory years - same conditions as for PAYG old age pension.

Retirement age linked to life expectancy - not specific rule (retirement age postponement is set with respect to life expectancy).

Statutory retirement age - same as for PAYG old age pension.

Contributory period for full pension - Not explicitly specified.

Special schemes - none

Additional features - Participant has to pay social contributions (scheme not available for inactive or unemployed)

Contribution

Contribution rate: Employers - none

Contribution rate: Employees - 0.05

Contribution rate: Gov. - none

Fund (or any residual funding from the State) - none

Contribution base - same as for PAYG

Special scheme - none

Additional features - none

Benefit

Pensionable earning reference - Earnings during the participation in the scheme.

Accrual rate (for non-DB systems effective accrual rate) - No data; depends on the fund performance.

Penalties for early retirement - none

Bonuses for postponing retirement - none

Valorisation of pensionable earnings - nominal wage growth.

Indexation of pensions in payment - depends on the fund performance.

Maximum replacement rate - none

Sustainability factor/benefit linked to life expectancy - none

Special schemes - none

Additional features - Possibility to choose from 3 kinds of annuity

Taxes

Contribution - same as PAYG

Returns on investment and fund accumulation - 0% tax of fund income since 2015

Withdrawals - same as PAYG - Tax exemption applies in case of regular pension and up to maximum amount of the 36 times minimum wage

2) Pension scheme: Supplementary pension savings pillar (III pillar)

Regulatory framework

Type - DC, voluntary, earnings related, non means-tested.

First law - Act No. 42/1994 Coll., on supplementary pension insurance with state contribution

Current law - Act No 427/2011 Coll. on Supplementary Pension Savings (in effect since 1 January 2013; § 29-73, § 94-97, § 170-200 since 28 December 2011; § 86 since 28 June 2012; § 74-83, §84 par. 1, 2, and 4, § 85 and 87 since 1 November 2012);

Coverage - All people older than 18 years can enter the system

Administrative organization - Pension companies, Ministry of Finance as regards the state contribution

Qualifying condition

Minimum retirement age and contributory years - 5 years before statutory retirement age; 5 years but the contract can set longer minimum contributory period which cannot however exceed 10 years

Retirement age linked to life expectancy - not specific rule (retirement age postponement is set with respect to life expectancy)

Statutory retirement age - same as for PAYG old age pension

Contributory period for full pension - 5 years but the contract can set longer minimum contributory period which cannot however exceed 10 years

Special schemes - none

Additional features - none

Contribution

Contribution rate: Employers - there is no fixed amount

Contribution rate: Employees - there is no fixed amount

Contribution rate: Government - Depends on participant´s contribution: Gov. Contribution is 90CZK if 300CZK, 110CZK if 400CZK, 130CZK if 500CZK, 150CZK if 600 CZK, 170CZK if 700CZK, 190CZK if 800CZK, 210CZK if 900CZK, 230CZK if participant contributes 1000CZK or more.

Fund (or any residual funding from the State) - none

Contribution base - none

Special scheme - none

Additional features - the state contribution is dependent on the size of the contribution of the participant

Benefit

Pensionable earning reference - none

Accrual rate (for non-DB systems effective accrual rate) - No data; depends on the fund performance

Penalties for early retirement - none

Bonuses for postponing retirement - none

Valorisation of pensionable earnings - none

Indexation of pensions in payment - depends on the fund performance

Maximum replacement rate - none

Sustainability factor/benefit linked to life expectancy - none

Special schemes - Pre-retirement scheme

Additional features - May be drawn as lump-sum or as annuity

Taxes

Contribution - The participant can deduct the contribution from the tax base (income tax) up to the total amount of 12000 CZK. The amount of monthly contribution maximizing the tax deduction is 2000 CZK because tax deductible are contributions above 12000 CZK per year.

Returns on investment and fund accumulation - Withholding tax 15 % on individual capital gains, not applicable for life annuity.   0% tax of fund income since 2015

Withdrawals - In case of preliminary withdrawal, the participant must pay back the amount of tax deductions applied in previous years

Denmark

Public schemes

OLD AGE

1) Pension scheme: Public old-age pension

Regulatory framework

Type - DB, mandatory, non earnings related, supplement is means-tested.

Coverage - All citizens

Administrative organization - Government.

Qualifying condition

Minimum retirement age and contributory years – 65 n/a

Retirement age linked to life expectancy – legislated.

Statutory retirement age - 65 (2014),Discretionary increase in retirement age from 65 in 2018 to 67 years in 2022, indexed to life expectancy from 2030, 72,5 (2060).

Contributory period for full pension - 40 (there are no contributions, but the pensioner has to have lived in Denmark for at least 40 years before reaching the retirement age. Otherwise, the pension benefit is reduced proportionally).

Additional features - The minimum requirement is 3 years residence in Denmark between the age of 15 and the retirement age. For people who are neither Danish citizens nor EU citizens, this requirement is increased to 10 years, where at least 5 years have to be just before the retirement age.

Contribution

No contributions

Benefit

Penalties for early retirement – n/a.

Bonuses for postponing retirement - It is possible to postpone retirement with up to 10 years

and thereby increase the old age pension. The additional benefit is calculated as the period postponed relative to the expected lifetime at the postponed retirement age, multiplied by the regular old age pension. The additional benefit is added until death.

Indexation of pensions in payment - Adjusted once a year on the basis of wage developments in the private sector (the area covered by the Danish Employers' Confederation), cf. the Rate Adjustment Percentage Act.

Sustainability factor/benefit linked to life expectancy - no

Special schemes - People, who are eligible for old-age pension, can also be eligible for the "supplementary pension benefit", which is targeted at the poorest pensioners. The maximum yearly benefit is DKK 16,200 (euro 2,200) in 2014. To receive the supplementary pension benefit, the pensioner cannot have more than DKK 80,300 (euro 10,800) in liquid wealth. The full benefit is received if the pensioner does not have income (apart from old-age pension) in excess of DKK 19,100 (euro 2,600) for singles and DKK 37,900 (euro 5,100) for married or cohabiting couples. The supplementary pension is reduced if the income is larger than this threshold and is fully phased out if the income is larger than DKK 66,500 (euro 8,900) for singles and DKK 133,400 (euro 17,900) for married or cohabiting couples.

Additional features - Public old-age pension consists of a basic amount and a pension supplement. The basic amount is DKK 70,900 (euro 9,500) annually in 2014 and taxable. The basic amount is reduced only on the basis of earnings from earned income. If the pensioner has earned income of more than DKK 301,200 (euro 40,400) annually, the basic amount is reduced by 30 per cent of the part of the earned income that exceeds the threshold. The pension supplement is DKK 73,600 (euro 9,900) annually for single pensioners and DKK 35,600 (euro 4,800) annually for married or cohabiting pensioners in 2014. The pension supplement is taxable and reduced if the pensioner or his/her spouse or cohabitant has earnings above a certain limit besides public old-age pension (earned income, supplementary pension income, equity income, investment income, etc.). The supplement is reduced with 16-

32 per cent of the income that exceeds a specified threshold. The percentage reduction and the threshold depend on the marital status of the pensioner and whether the spouse is a pensioner or not.

Taxes

Pension taxation - Benefit subject to regular personal income taxation

Tax rates - The total tax rate in 2014 for public pensions is 37.4 % in an average local municipality (sum of tax rates for local municipality tax, church tax, health tax and bottom income tax). This rate is applied to all income in excess of the basic deduction of DKK 42,800 (euro 5,700). An additional 15 % in taxes (top income tax) is added for income above DKK 449,100 (euro 62,000). Public pensions are not taxed with the 8 per cent payroll tax.

2) Pension scheme: Civil servants old-age pension

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested

Coverage - Civil servants

Administrative organization - Government

Qualifying condition

Minimum retirement age and contributory years - 60-n/a

Retirement age linked to life expectancy - Legislated (but not for civil servants hired before January 1st, 2007)

Statutory retirement age - 60

Contributory period for full pension - 37 (employed as civil servant. There are no contributions)

Contribution

No contributions

Benefit

Pensionable earning reference - Depends on tenure and final wage

Indexation of pensions in payment - Adjusted once a year on the basis of wage of (similar) civil servants, which are regulated according to agreements

Maximum replacement rate - 57 (gross) (achieved if the person has worked as civil servant for 37 years)

Sustainability factor/benefit linked to life expectancy - no

Taxes

Pension taxation - Benefit subject to regular personal income taxation

Tax rates - See public old age pension scheme.

3) Pension scheme: Voluntary early retirement

Regulatory framework

Type - Mixed, voluntary, non earnings related, means-tested wrt. pension wealth.

Coverage - Wage earners

Administrative organization - Unemployment insurance funds

Qualifying condition

Minimum retirement age and contributory years – 60 years and 5 months - 30 years of contribution

Retirement age linked to life expectancy - Legislated

Statutory retirement age - 60 years and 5 months (2014), Discretionary increase in retirement age

from 60 years in 2013 to 64 years in 2023 (implies that VERP period is shortened from 5 to 3 years), indexed to life expectancy from 2027, 69 years and 5 months (2060)

Contributory period for full pension – 30 years

Additional features - The member must have been a member of an unemployment insurance fund and paid the voluntary early retirement contributions for 30 years to be eligible for VERP. Furthermore, it is a precondition that the membership and the contributions start no later than the age of 30.

Contribution

Contribution rate: Employees - DKK 5700 annually (2014)

Fund (or any residual funding from the State) - No fund set up to manage contributions and benefits. VERP benefits are tax financed, while VERP contributions are general government revenue.

Benefit

Indexation of pensions in payment - Adjusted once a year on the basis of wage developments in the private sector (the area covered by the Danish Employers' Confederation), cf. the Rate Adjustment Percentage Act.

Sustainability factor/benefit linked to life expectancy - no

Additional features - The basic benefit is DKK 211,900 (euro 28,400). This amount can be reduced based on the size of the person's pension wealth.

Taxes

Pension taxation - Benefit subject to regular personal income taxation.

Tax rates - See old age pension scheme.

DISABILITY

Pension scheme: Disability pensions

Regulatory framework

Type - DB, mandatory, non earnings related, means-tested.

Coverage - All citizens

Administrative organization - Government

Qualifying condition

Minimum retirement age and contributory years - 18-na. The key conditions for being awarded anticipatory pension are: that the working capacity is permanently reduced; that the reduction is of such an extent that the person will not be able to support himself fully or partially from paid work; and that all possibilities to improve the working capacity has been tried out.

Retirement age linked to life expectancy - no

Statutory retirement age - Under normal circumstances, disability pension is only awarded to people above the age of 40. People below 40 years is instead assigned to a "resource process" in order to improve the work capacity.

Additional features - Eligibility rules for disability pension are the same as for old-age pension. However, for disability pension, the reduction if the pensioner has lived abroad is based on the number of years between the age of 15 and the age when disability pension is granted. If the pensioner has lived at least 4/5 of this period in Denmark, full disability pension is granted.

Contribution

No contributions

Benefit

Indexation of pensions in payment - Adjusted once a year on the basis of wage developments in the private sector (the area covered by the Danish Employers' Confederation), cf. the Rate Adjustment Percentage Act.

Sustainability factor/benefit linked to life expectancy - no

Additional features - The disability pension is DKK 211,900 (euro 28,400) annually in 2014 for singles and DKK 180,100 (euro 24,100) for married and cohabiting people. Disability pension is means tested, based on earned income and capital income. The pension is reduced if this income is larger than DKK 72,200 kr. (euro 9,700) for singles and DKK 114,400 (euro 15,300) for married or cohabiting couples. Furthermore, the benefit also depends on the spouse's income and on whether the spouse is a pensioner. The disability pension is reduced with 30 percent of the income above the threshold; although only with 15 percent if the spouse also has a right to a social pension (disability or old-age pension).

Taxes

Pension taxation - Benefit subject to regular personal income taxation

Tax rates - See public old-age pension scheme.

Private schemes

PRIVATE OCCUPATIONAL

1) Pension scheme: Labour market supplementary pensions, ATP

Regulatory framework

Type - DC, mandatory, non earnings related, non means-tested.

Coverage - All wage earners and most recipients of income transfers

Administrative organization - ATP

Qualifying condition

Minimum retirement age and contributory years - 65-n/a

Retirement age linked to life expectancy - Legislated

Statutory retirement age - See public old-age pension scheme.

Contribution

Contribution rate: Employers - For a full time employee, the employer contributes DKK 180 per month (euro 24)

Contribution rate: Employees - For a full time employee, the employee contributes DKK 90 per month (euro 12)

Additional features - Covers 92 % of the population between 25 and 60 years. The size of the contributions is part of the collective wage agreement between trade unions and employer's associations

Benefit

Accrual rate - Market return

Penalties for early retirement – n/a

Bonuses for postponing retirement - It is possible to postpone retirement until the age of 75 and thereby increase ATP pension. The additional benefit is calculated on the basis of expected longevity and the market interest rate. Currently, a postponement of 1 year will increase the ATP pension with 5 %. The additional benefit is added until death.

Indexation of pensions in payment - Depends on reserves in ATP. Decision is taken by the board every year.

Sustainability factor/benefit linked to life expectancy - no

Additional features - Full benefit amounts to DKK 24,200 (euro 3,200) in 2013, which is paid to members who have paid full contributions from the age of 18 to the pension age. Benefit is paid until death.

Taxes

Contribution - exempt from taxation (apart from 8 % payroll tax)

Tax rate and description - 8% payroll tax is applied to ATP contributions

Returns on investment and fund accumulation - 15.3%

Tax rate and description - all returns, including unrealised capital gains, are taxed

Withdrawals - Benefit subject to regular personal income taxation

Tax rate and description - Same as public old age pension

2) Pension scheme: Employees' capital fund (LD)

Regulatory framework

Type - DC, mandatory, non earnings related, non means-tested.

Coverage - Wage earners in the period 1977-1979

Administrative organization - LD

Qualifying condition

Minimum retirement age and contributory years - 65-na

Statutory retirement age – 65

Contribution

The scheme is closed for new contributions

Benefit

Indexation of pensions in payment - Lump sum benefit, so no indexation.

Additional features - Lump sum benefit

Taxes

Returns on investment and fund accumulation – 15.3%

Tax rate and description - all returns, including unrealised capital gains, are taxed

Withdrawals - Benefit subject to regular personal income taxation

Tax rate and description - See public old-age pension scheme.

3) Pension scheme: Occupational pensions, all schemes except new capital pension

Regulatory framework

Type - DC, quasi mandatory, non earnings related, non means-tested.

Coverage - Primarily wage earners in occupations with collective wage agreement

Administrative organization - Pension funds

Qualifying condition

Minimum retirement age and contributory years - 60-na

Retirement age linked to life expectancy - Yes (but not for pensions with contributions before May 1st 2007)

Statutory retirement age - Occupational pensions can be paid out 5 years before the public old-age pension age

Contribution

Contribution rate: Employers - Contribution rate varies, depending on the wage agreement. 60 % of those with contributions have a contribution rate between 10 and 15 %. The employer pays 2/3 of the contribution while the employee pays 1/3.

Contribution rate: Employees - Contribution rate varies, depending on the wage agreement. 60 % of those with contributions have a contribution rate between 10 and 15 %. The employer pays 2/3 of the contribution while the employee pays 1/3.

Contribution base - Wages before taxes

Additional features - Due to the 2012 tax reform, no new contributions to tax-exempted capital pensions can be made (last contributions in 2012). Instead, contributions can be made to a new capital pension (first contributions in 2013), where contributions are not exempted from taxation, but where benefits are not taxed (so capital pensions are changed from ETT to TTE).

Benefit

Indexation of pensions in payment - Specific for each pension fund

Sustainability factor/benefit linked to life expectancy - no

Additional features - There are 3 different kinds of pensions: Life-long annuity, rate pensions and capital pensions. Life-long annuities are paid until death, rate pensions are paid out over a period of 10-25 years, while capital pensions are paid out as a lump sum benefit. Benefits for life-long annuities are calculated based on life-expectancy and interest rates, benefits for rate pensions are calculated based on interest rates and the pay-out period, while for the capital pensions, the accumulated pension wealth is paid out as a lump sum benefit.

Taxes

Contribution - exempt from taxation (apart from 8 % payroll tax)

Tax rate and description - 8% payroll tax is applied to contributions

Returns on investment and fund accumulation - 15.3%

Tax rate and description - all returns, including unrealised capital gains, are taxed

Withdrawals - Benefit subject to regular personal income taxation. However, capital pensions are taxed with a flat 40 % tax rate

Tax rate and description - See public old-age pension scheme.

4) Pension scheme - Occupational pensions, all schemes except new capital pension

See occupational pension scheme (all scheme except new capital pension) except for taxation.

Taxes

Contribution - exempt from taxation (apart from 8 % payroll tax)

Tax rate and description - 8% payroll tax is applied to contributions

Returns on investment and fund accumulation - 15.3%

Tax rate and description - all returns, including unrealised capital gains, are taxed

Withdrawals - Benefit subject to regular personal income taxation. However, capital pensions are taxed with a flat 40 % tax rate

Tax rate and description - Same as public old age pension

PRIVATE INDIVIDUAL

1) Pension scheme: Individual, private pensions, all schemes except new capital pension

See occupational pension schemes except for taxation.

Taxes

Contribution - exempt from taxation (apart from 8 % payroll tax)

Tax rate and description - 8% payroll tax is applied to contributions

Returns on investment and fund accumulation - 15.3%

Tax rate and description - all returns, including unrealised capital gains, are taxed

Withdrawals - Benefit subject to regular personal income taxation. However, capital pensions are taxed with a flat 40 % tax rate

Tax rate and description - Same as public old age pension

2) Pension scheme: Individual private pensions, new capital pension

See occupational pension schemes except for taxation.

Taxes

Contribution subject to regular personal income taxation

Tax rate and description - See public old-age pension scheme.

However, the 8 % payroll tax is also paid (and the payroll tax can be deducted from the taxable income)

Returns on investment and fund accumulation - 15.3%

Tax rate and description - all returns, including unrealised capital gains, are taxed

Withdrawals - Benefits are not taxed

Germany

Public schemes

OLD AGE

Pension scheme: Statutory pension system

Regulatory framework

Type - Point system, mandatory, earnings related, non means-tested.

First law - Arbeiterrentenversicherungs-Neuregelungssetz (ArVNG, 1957); Angestelltenversicherungs-Neuregelungsgesetz (AnVNG, 1957); Knappschaftsrentenversicherungs-Neuregelungsgesetz (KnVNG, 1957).

Current law - German statutory pension law, SGB VI.

Coverage - every person who pays contributions (with min. of 5 years).

Administrative organization - Deutsche Rentenversicherung: http://www.deutsche-rentenversicherung.de.

Qualifying condition

Minimum retirement age and contributory years - 63 years with 35 years of pension relevant contribution

Retirement age linked to life expectancy - Statutory retirement age will raise gradually to 67 in 2029

Statutory retirement age - 65 years and 3 month (2014)

Contributory period for full pension - no explicit full pension

Contribution

Contribution rate: Employers - 9.45%

Contribution rate: Employees - 9.45%

Contribution rate: Government - no governmental contribution rate but state subsides with annual indexation.

Fund (or any residual funding from the State) - The statutory pension insurance scheme holds a 'sustainability fund', which is allowed to fluctuate between the amount of 0.2 and 1.5 of monthly pension expenditures. If the contribution rate is to be projected (in year t) to fail to guarantee the amount of the 'sustainability fund' between the upper or the lower limit for the next year (t+1), a new contribution rate is set to meet the corresponding requirements in t+1.

Contribution base - Individual gross salary (max.: specific earning ceiling with annual indexation; min.: 450 Euro/month)

Benefit

Pensionable earning reference - life-time

Point value - 28.61 Euro per month, West-Germany; 26.39 Euro per month, East-Germany (1.7.2014-31.06.2015); Point value is indexed annually.

Point cost - (individual) full contribution rate based on individual gross earnings up to earning ceiling

Criteria foraccumulation of points - pension relevant elements.

Penalties for early retirement - 0.3% for each month

Bonuses for postponing retirement - 0.5% for each month

Valorisation of pensionable earnings - development of the economy-wide average wage

Indexation of pensions in payment - wages plus sustainability factor

Sustainability factor/benefit linked to life expectancy - change of relation pensioners to contributors as part of pension Point value indexation rule

Taxes

Pension taxation - Regarding individual income taxes, Germany is currently undergoing a change in the tax regime relating to contributions and pensions. Hence, the taxation of pensions from the statutory Pension schemes is gradually changing from a system with partial taxations of contributions and practically no taxation of pension benefits into an opposite system. Pension contributions will be completely exempted from tax by the year 2025 and pension benefits will be completely taxed by the year 2040. Beside this, it should be noted that the effective tax rate depends on household income, which includes more than the income source of old-age pensions.

Tax rates - The taxation relevant part of pension income is taxed with the respective individual income tax rate.

Retirement age linked to life expectancy - no

Statutory retirement age - no

Contributory period for full pension - no explicit full pension

Contribution

See old-age pension scheme.

Benefit

See old-age pension scheme.

Taxes

See old-age pension scheme.

DISABILITY

Pension scheme: Statutory pension system

Regulatory framework

Type - Point system, mandatory, earnings related, non means-tested.

First law - Arbeiterrentenversicherungs-Neuregelungssetz (ArVNG, 1957); Angestelltenversicherungs-Neuregelungsgesetz (AnVNG, 1957); Knappschaftsrentenversicherungs-Neuregelungsgesetz (KnVNG, 1957)

Current law - German statutory pension law, SGB VI.

Coverage - every person who pays contributions (with min. of 5 years)

Administrative organization - Deutsche Rentenversicherung; http://www.deutsche-rentenversicherung.de

Qualifying condition

Minimum retirement age and contributory years - from beginning of working career

SURVIVOR

Pension scheme: Statutory pension system

Regulatory framework

Type - Point system, mandatory, earnings related, non means-tested.

First law - Arbeiterrentenversicherungs-Neuregelungssetz (ArVNG, 1957); Angestelltenversicherungs-Neuregelungsgesetz (AnVNG, 1957); Knappschaftsrentenversicherungs-Neuregelungsgesetz (KnVNG, 1957)

Current law - German statutory pension law, SGB VI.

Coverage - every person who pays contributions (with min. of 5 years)

Administrative organization - Deutsche Rentenversicherung: http://www.deutsche-rentenversicherung.de

Qualifying condition

Minimum retirement age and contributory years - by birth

Retirement age linked to life expectancy - no

Statutory retirement age - no

Contributory period for full pension - no explicit full pension

Contribution

See old-age pension scheme.

Benefit

Pensionable earning reference - life-time of decedents

See old-age pension scheme.

Taxes

See old-age pension scheme.

Contribution

Contribution rate: Gov. - tax-financed

Benefit

Indexation of pensions in payment - aggregate of 70% CPI for low income group and 30% of economy-wide average net wage

MINIMUM PENSION

Pension scheme: Not part of the statutory pension system

Regulatory framework

Type - Means-tested, non earnings related.

First law - German Federal social assistance law, 1962

Current law - German social assistance law, SGB XII, chapter IV

Coverage - Individuals - as of the age of the statutory retirement age or in case of long-term disability - are entitled for Means-tested benefits from social assistance if provision from all income sources is not sufficient.

Administrative organization - community institutions

Qualifying condition

Minimum retirement age and contributory years - for long-term disabled individuals: age 18; for others: statutory retirement age / no minimum contributory years

Tax rates – 21%

Estonia

Public schemes

OLD AGE

Pension scheme: State pension insurance (I pillar)

Regulatory framework

Type - DB (point scheme)

Qualifying condition

Minimum retirement age and contributory years - Statutory minus 3 years, minimum 15 years of contribution

Retirement age linked to life expectancy – Not legislated

Statutory retirement age - Men 63 Women 61 (2016 - both 63: 2026- both 65)

Contributory period for full pension - minimum contributory period -15 years

Contribution

Contribution rate: Employers - 20% (16% for II pillar members)

Contribution base - Gross wage

Benefit

Pensionable earning reference - full career

Penalties for early retirement - -0.4% for each month

Bonuses for postponing retirement - +0.9% for each month

Indexation of pensions in payment - 20% CPI + 80% social tax revenue growth

Taxes

Pension taxation - Income tax (additional threshold applied)

DISABILITY

Qualifying condition

Minimum retirement age and contributory years - No retirement age and contributory years depend on age (1-15 years)

Retirement age linked to life expectancy - No

Contribution rate: Employers - 20%(16% for II pillar members)

Contribution

Contribution base - Gross wage

Benefit

Pensionable earning reference - full career

Indexation of pensions in payment - 20% CPI + 80% social tax revenue growth

Taxes

Pension taxation - Income tax (additional threshold applied)

Tax rates – 21%

SURVIVOR

Qualifying condition

Minimum retirement age and contributory years - No retirement age and contributory years depend on age (1-15 years)

Retirement age linked to life expectancy – No

Contribution

Contribution rate: Employers - 20% (16% for II pillar members)

Contribution base - Gross wage

Benefit

Pensionable earning reference - full career

Indexation of pensions in payment - 20% CPI + 80% social tax revenue growth

Taxes

Pension taxation - Income tax (additional threshold applied)

Tax rates – 21%

MINIMUM PENSION

Regulatory framework

Type – Non earnings related, non means-tested.

Qualifying condition

Minimum retirement Minimum retirement age and contributory years - 5 years of living in Estonia

Retirement age linked to life expectancy - No

Contribution

Fund (or any residual funding from the State) - Financed by state budget

Benefit

Indexation of pensions in payment - 20% CPI + 80% social tax revenue growth

Taxes

Pension taxation - Income tax (additional threshold applied)

Tax rates – 21%

Private schemes

PRIVATE OCCUPATIONAL

Pension scheme: Private Mandatory funded pension (II pillar)

Regulatory framework

Type - DC

Qualifying condition

Minimum retirement age and contributory years - Men 63 Women 61

Statutory retirement age - Men 63 Women 61 (2016 - both 63: 2026- both 65)

Contribution

Contribution rate: Employers – 45%

Contribution rate: Employees – 2%

Contribution base - Gross wage

Benefit

Pensionable earning reference - full career

Accrual rate - 2,5% (real, used in projections)

Penalties for early retirement - Early retirement is not possible

Taxes

Contribution - Not taxed

Returns on investment and fund accumulation - Not taxed

Withdrawals - Income tax (additional threshold applied)

tax rate and description – 21%

PRIVATE INDIVIDUAL

Pension scheme: Voluntary pension (III pillar)

Regulatory framework

Type - DC

Qualifying condition

Minimum retirement age and contributory years - Men 55 Women 55

Statutory retirement age - None

Contribution

Contribution rate: Employers - voluntary

Contribution rate: Employees - voluntary

Benefit

Pensionable earning reference - full career

Penalties for early retirement - Full income tax

Taxes

Contribution - Not taxed, up to 15% of salary or 6000 EUR

Returns on investment and fund accumulation - Not taxed

Withdrawals - If life annuity 0%, other 10%, before age 55 - 21%

Ireland

Public schemes

OLD AGE

Pension scheme - State pension contributory

Regulatory framework

Type - Flat rate. Mandatory, although voluntary contributions may be on record in some circumstances. Certain Public Servants who will qualify PS pension entitlements exempt. Non-earnings related, non means-tested.

First law - Social Welfare Act

Current law - Social Welfare and Pension Acts, various years

Coverage - People who are over 66 and who have the required Social Insurance contributions

Administrative organization - Department of Social Protection

Qualifying condition

Minimum retirement age and contributory years - Age 66. Minimum contribution years =10 (rate will vary on record)

Retirement age linked to life expectancy - Not as such, although increases planned to anticipate such increase in LE

Statutory retirement age - No statutory retirement age, pension age is 66 (was 65 until January 2014)

Contributory period for full pension - Career average 48+cons

Special schemes - Additional increases for living alone, over 80, and assistance with costs of running household

Contribution

Contribution rate: Employers - Varies

Contribution rate: Employees - Varies

Contribution rate: Government - n/a

Fund (or any residual funding from the State) - Social Insurance Fund. Shortfalls met by Exchequer

Contribution base - Varies

Special scheme - n/a

Additional features - n/a

Benefit

Pensionable earning reference - Flat Rate

Accrual rate – n/a

Penalties for early retirement - n/a

Bonuses for postponing retirement - n/a

Valorisation of pensionable earnings - n/a Flat Rate

Indexation of pensions in payment - Rate reviewed annually in Budget

Maximum replacement rate - n/a Flat Rate

Sustainability factor/benefit linked to life expectancy - Increase retirement age and tighten link between contributions and benefits

Special schemes - n/a

Additional features - n/a

Taxes

Pension taxation - Taxable. If you are over 66 you are not liable to pay PRSI. SPC is exempt from USC.

Tax rates - PAYE rates

DISABILITY

1) Pension scheme - Blind Pension

Regulatory framework

Type - Flat rate, non earnings related, means-tested

First law - Social Welfare Act

Current law - Social Welfare and Pension Acts, various years

Coverage - Blind, under 66

Administrative organization - Department of Social Protection

Qualifying condition

N/A

Contribution

N/A

Benefit

Pensionable earning reference - Flat Rate

Accrual rate - N/A

Penalties for early retirement - N/A

Bonuses for postponing retirement - N/A

Valorisation of pensionable earnings - N/A Flat Rate

Indexation of pensions in payment - Rate reviewed annually in Budget

Maximum replacement rate - N/A Flat Rate

Sustainability factor/benefit linked to life expectancy - N/A

Special schemes - N/A

Additional features - N/A

Taxes

Pension taxation - Taxable

Tax rates - PAYE rates

Special schemes - N/A

Additional features - N/A

2) Pension scheme - Disability allowance

Regulatory framework

Type - Flat rate, non earnings related, means-tested

First law - Social Welfare Act

Current law - Social Welfare and Pension Acts, various years

Coverage - Resident, long-term incapacitated ,under 66

Administrative organization - Department of Social Protection

Qualifying condition

N/A

Contribution

N/A

Benefit

See the blind pension scheme

Taxes

Not taxable

3) Pension scheme - Invalidity pension

Regulatory framework

Type - Flat rate. Mandatory, although voluntary contributions may be on record in some circumstances. Certain Public Servants who will qualify PS pension entitlements exempt. Non earnings related, non means-tested

First law - Social Welfare Act

Current law - Social Welfare and Pension Acts, various years

Coverage - Long-term incapacitated, under 66

Administrative organization - Department of Social Protection

Qualifying condition

Minimum retirement age and contributory years - N/A

Retirement age linked to life expectancy - n/a

Statutory retirement age - n/a

Contributory period for full pension - 260 (5 years) paid PRSI contributions since entering social insurance. 48 contributions paid or credited in the last complete tax year before the date of claim

Special schemes - Additional increases for living alone, over 80, and assistance with costs of running household

Contribution

See old age scheme

Benefit

See old age scheme

Taxes

Pension taxation - Taxable

Tax rates - PAYE rates

Special schemes - n/a

Additional features - n/a

SURVIVOR

1) Pension scheme - Widow's, Widower's or Surviving Civil Partner's (Contributory) Pension

Regulatory framework

Type - Flat rate. Mandatory, although voluntary contributions may be on record in some circumstances. Certain Public Servants who will qualify PS pension entitlements exempt. Earnings related, non means-tested

First law - Social Welfare Act

Current law - Social Welfare and Pension Acts, various years

Coverage - Bereaved, based on contributions of claimant or deceased

Administrative organization - Department of Social Protection

Qualifying condition

See the invalidity pension scheme

Benefit

Pensionable earning reference - Flat Rate

Accrual rate - N/A

Bonuses for postponing retirement - N/A

Valorisation of pensionable earnings - N/A Flat Rate

Indexation of pensions in payment - Discretionary

Maximum replacement rate - N/A Flat Rate

Taxes

Pension taxation - Taxable. If you are over 66 you are not liable to pay PRSI. This scheme is exempt from USC.

Tax rates - PAYE rates

2) Pension scheme - Widow's, Widower's or Surviving Civil Partner's (Non-Contributory) Pension

Regulatory framework

Type - Flat rate. Mandatory, although voluntary contributions may be on record in some circumstances. Certain Public Servants who will qualify PS pension entitlements exempt. Non-earnings related, means-tested.

First law - Social Welfare Act

Current law - Social Welfare and Pension Acts, various years

Coverage - Bereaved, based on contributions of claimant or deceased

Administrative organization - Department of Social Protection

Qualifying condition

Minimum retirement age and contributory years - N/A

Retirement age linked to life expectancy - n/a

Statutory retirement age - n/a

Contrib. period for full pension - n/a

Special schemes - Additional increases for living alone, over 80, and assistance with costs of running household

Additional features - n/a

Benefit

See the Widow's, Widower's or Surviving Civil Partner's (Non-Contributory) Pension scheme

Taxes

See the Widow's, Widower's or Surviving Civil Partner's (Non-Contributory) Pension scheme

MINIMUM PENSION

Pension scheme - State pension non-contributory

Regulatory framework

Type - Flat rate, non earnings related, means-tested

First law - Old Age Pensions Act 1908 (UK)

Current law - Social Welfare and Pension Acts, various years

Coverage - Over 66, resident

Administrative organization - Department of Social Protection

Qualifying condition

See the old age pension scheme

Benefit

See the Widow's, Widower's or Surviving Civil Partner's (Non-Contributory) Pension scheme

Taxes

See the Widow's, Widower's or Surviving Civil Partner's (Non-Contributory) Pension scheme

Private schemes

PRIVATE OCCUPATIONAL

1) Pension scheme: DB

Qualifying condition

Minimum retirement age and contributory years - 55

Retirement age linked to life expectancy - Not linked

Statutory retirement age - No statutory retirement age, state pension age is 66 (was 65 until January 2014)

Contrib. period for full pension - 40 years

Contribution

Contribution rate: Employers - 15%

Contribution rate: Employees - 5%

Contribution rate: Government - tax relief at marginal rate

Benefit

Pensionable earning reference - Career average + Full Career

2) Pension scheme: FDC

Qualifying condition

Minimum retirement age and contributory years - 55

Statutory retirement age - 65

Contribution

Contribution rate: Employers - 8%

Contribution rate: Employees - 5%

Contribution rate: Government - tax relief at marginal rate

PRIVATE INDIVIDUAL

Pension scheme: FDC

Qualifying condition

Minimum retirement age and contributory years - 55

Statutory retirement age - 60

Contributory period for full pension - scheme rules

Contribution

Contribution rate: Government - tax relief at marginal rate

Benefit

Accrual rate - Rate of return

Greece

Public schemes

OLD AGE

1) Pension scheme: IKA-ETAM & DEH

Regulatory framework

Type - DB, mandatory, both earnings related and non earnings related, non means-tested

Current law - N.3863/2010

Coverage - Private sector employees

Qualifying condition

Minimum retirement age and contributory years - 62+ for 40 contributory years

Retirement age linked to life expectancy - Legislated

Statutory retirement age - 67+

Contributory period for full pension - 40 years (at least 15 years at the statutory retirement age)

Special schemes - Hazardous Occupation: Statutory Retirement Age 62+

Additional features - Transition period

Contribution

Contribution rate: Employers - 13.33%

Contribution rate: Employees - 6.67%

Contribution base - Monthly Wage

Special scheme - Hazardous Occupation : Employee Contribution rate 8.87% & Employer Contribution rate 14.73%

Additional features - Plus Contributions : 30% of the co-collected amounts of OAED by IKA-ETAM

Benefit

Pensionable earning reference - The average of carrier salaries starting from 2011

Accrual rate - 0.8% to 1.5% depending on years of service

Penalties for early retirement - 1/200 per month

Valorisation of pensionable earnings - CPI change taking into account average earnings growth

Indexation of pensions in payment - min(50% CPI change + 50% GDP growth , CPI change)

Additional features - Transition period

2) Pension scheme: PS

Regulatory framework

Type - DB, mandatory, both earnings related and non earnings related, non means-tested

Current law - N.3863/2010

Coverage - Civil servants

Qualifying condition

See the IKA-ETAM & DEH pension schemes

Contribution

Contribution rate: Employees - 6.67%

Contribution base - Monthly Wage

Benefit

See the IKA-ETAM & DEH pension schemes

3) Pension scheme: OAEE

Regulatory framework

Type - DB, mandatory, both earnings related and non earnings related, non means-tested

Current law - N.3863/2010

Coverage - Self-employed

Qualifying condition

See the IKA-ETAM & DEH pension schemes

Contribution

Contribution rate: Employees - 20%

Contribution base – Insurance classes

Benefit

Pensionable earning reference - Depending on the history of insurance classes

Valorisation of pensionable earnings - Insurance classes - Current value at retirement

See the IKA-ETAM & DEH pension schemes for additional information

4) Pension scheme: ETAA

Regulatory framework

Type - DB, mandatory, both earnings related and non earnings related, non means-tested

Current law - N.3863/2010

Coverage - Lawyers-Engineers-Notaries-Doctors (Employees & Self-employed)

Qualifying condition

See the IKA-ETAM & DEH pension schemes

Contribution

Contribution rate: Employers - 13.33%

Contribution rate: Employees - 6.67% employees; 20% self-employed

Contribution base - Monthly Wage; insurance classes

Benefit

Pensionable earning reference - The average of carrier salaries starting from 2011 / Depending on the history of insurance classes

Valorisation of pensionable earnings - CPI change taking into account average earnings growth / Insurance classes - Current value at retirement

See the IKA-ETAM & DEH pension schemes for additional information

5) Pension scheme: OGA

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested

Current law - N.3863/2010

Coverage - Agricultural workers

Qualifying condition

See the IKA-ETAM & DEH pension schemes

Contribution

Contribution rate: Employees - 7%

Contribution rate: Government 14%

Contribution base – Insurance classes

Benefit

Pensionable earning reference - Depending on the history of insurance classes

Accrual rate – 2%

Valorisation of pensionable earnings - Insurance classes - Current value at retirement

Indexation of pensions in payment – min (50% CPI change + 50% GDP growth , CPI change)

6) Pension scheme: ETAP-MME

Regulatory framework

Type - DB, mandatory, both earnings related and non earnings related, non means-tested

Current law - N.3863/2010

Coverage - Media Employees

Qualifying condition

See the IKA-ETAM & DEH pension schemes

Contribution

Contribution rate: Employers - 13.33%

Contribution rate: Employees - 6.67%

Contribution base - Monthly Wage

Benefit

See the IKA-ETAM & DEH pension schemes

7) Pension scheme: NAT

Regulatory framework

Type - DB, mandatory, both earnings related and non earnings related, non means-tested

Current law - N.3863/2010

Coverage - Shipmen

Qualifying condition

See the IKA-ETAM & DEH pension schemes

Contribution

Contribution rate: Employers - 14%

Contribution rate: Employees - 9%

Contribution base - Monthly Wage

Benefit

Pensionable earning reference - Various

Accrual rate – Various

Indexation of pensions in payment – min (50% CPI change + 50% GDP growth , CPI change)

Spain

Public schemes

OLD AGE

Pension scheme: Public pensions (apply to 1, 2, 3)

Contribution rate: Employers - Total general contribution not earmarked only to public retirement pensions.

Contribution rate: Employees - Total general contribution not earmarked only to public retirement pensions.

1) Pension scheme: Social Security Employees (private sector) general regime

Type - DB, mandatory, earnings related, non means-tested.

First law - Law on Labour Accidents on 1900; Labourer retirement on 1919; Obligatory Maternity Insurance on 1923; Forced Unemployment Insurance on 1931; Health Insurance on 1942; Obligatory Insurance of Old Age and Disability of 1947;Law 193/1963 on the Framework of the Social Security; Law 116/1969 (Special Regime of Seafarers);Law 35/1980 (on war pensions);RDL 19/1981 (on extraordinary pensions to terrorism's victims);RD 1609/1987 (special regime for housekeepers);RD 851/1992 (pensions for acts of terrorism);

Current law - RDL 1/1994 (Consolidated text of the Law on Social Security); Law 40/2007 (on Social Security measures); Law 27/2011 (on update, adequacy and modernization of the Social Security System; RDL 5/2013 (measures to prolong the careers of elder workers and to promote active ageing); Law 23/2013 (Sustainability Factor and Revaluation Index for the Pension System)

Administrative organization - www.seg-social.es

Qualifying condition

Minimum retirement age and contributory years - Immediate 2 year increase for early retirement 2013. Reduction coefficients apply. 63 age for early retirement and 33 years minimum contribution 61 in limited cases of economic crisis. "Pension reform Law 27/2011, August 1st"

Retirement age linked to life expectancy - No

Statutory retirement age - Increase in the statutory age from 65 to 67 years from 2013 till 2027. 65 still possible with 38,5 years of contribution. "Pension reform Law 27/2011, August 1st".

Contributory period for full pension - 37 years; 38years and 5 months. "Pension reform Law 27/2011, August 1st".

Contribution

Contribution rate: Employers - 23.6%

Contribution rate: Employees - 4.7%

Contribution rate: Government - Central government transfers amount to 12,16% of total expenditure

Benefit

Pensionable earning reference - Gradual 10 year increase till 2022 (from 15 to 25 last years). "Pension reform Law 27/2011, August 1st".

Accrual rate - With 15 years of contribution: 50% of pensionable earnings. Linear increase till 100% with 37 years of contribution. Reduction and increasing coefficients for early (7.5-6.5%) or late retirement (2-4%). "Pension reform Law 27/2011, August 1st".

Penalties for early retirement - 1.875% for every quarter before statutory age if involuntary termination (2% if voluntary) for contributory period <38.5 years; 1.75% (1.875%) for contributory period between 38.5 years and 41.5 years; 1.625% (1.75%) for contributory period between 41.5 and 44.5 years; 1.5% (1.625%) for contributory periods > 44.5 years

Bonuses for postponing retirement - 2% for careers up to 25 years ; 2.75% for careers between 25 and 37 years ; 4% for careers above 37 years

Valorisation of pensionable earnings - The Contribution base is the monthly earned income within thresholds regulated by the Annual Budget Law. Evolution with wages, but the maximum contributory base is normally closer to CPI inflation. Contribution bases corresponding to the 24 months prior to retirement are computed in nominal terms. The remaining CBs are adjusted according to the evolution of the Consumer Price Index

Indexation of pensions in payment - Index for Pension Revaluation, as established in Law 23/2013

Maximum replacement rate - Maximum pension 35,634 34527 (euros per year in 2013 2010)

Sustainability factor/benefit linked to life expectancy - Not applicable. After 2019 the initial pension will be linked to changes in life expectancy at 67 "Law 23/2013"

2) Pension scheme: Social Security Self-employed

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Law 1167/1960 (integrating the self-employed on occupational mutual insurance companies)

Current law - Law 1/1980 (pensions to widows of self-employed); RD 2621/1986 (integrating self-employed regimes); RD 497/1986 (modifying the self-employed regime)

Administrative organization - www.seg-social.es

Qualifying condition

See the Social Security Employees (private sector) general regime

Contribution

Contribution rate: Employers - 29.8%

Contribution rate: Government - Central government transfers amount to 12.16% of total expenditure

Benefit

See the Social Security Employees (private sector) general regime

3) Pension scheme: Civil servants scheme Central government employees and military

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - RD 22 October 1926 on the Statute of Civil Servants' Pensions (Clases Pasivas del Estado)

Current law - Law 19/1974 (on enhancing Civil Servants' Pensions); RDL 46/1978 (on war pensions); Law 20/1981 (on military retirement age); RDL 17/1982 (on compulsory retirement age of teachers); Law 23/2013 (Sustainability Factor and Revaluation Index for the Pension System)

Administrative organization - www.clasespasivas.sepg.pap.minhap.gob.es..

Qualifying condition

Minimum retirement age and contributory years - 65 years of age and 15 years of contributions

Retirement age linked to life expectancy - No

Statutory retirement age - Statutory age, 65.

Contributory period for full pension - 35 years

Contribution

Contribution rate: Employees - 3.86%

Contribution rate: Government - Imputed payments

Benefit

See the Social Security Employees (private sector) general regime. Sustainability Factor not applicable.

DISABILITY

1) Pension scheme: Social Security Employees (private sector) general regime

Regulatory framework

Type - mandatory, earnings related, non means-tested.

Administrative organization - www.seg-social.es

Qualifying condition

Minimum retirement age and contributory years - 1800 days of contributions in the 10 previous years, unless disability stemming from occupational accident

2) Pension scheme: Social Security Self-employed

Regulatory framework

Type – Voluntary, earnings related**,** non Means-tested

Administrative organization - www.seg-social.es

Qualifying condition

Minimum retirement age and contributory years - Requires additional contribution for occupational accident or illness

3) Pension scheme: Civil servants scheme Central government employees and military

Regulatory framework

Type - Mandatory, earnings related, non Means-tested

First law - RD 22 October 1926 on the Statute of Civil Servants' Pensions (Clases Pasivas del Estado)

Administrative organization - www.clasespasivas.sepg.pap.minhap.gob.es

Qualifying condition

Minimum retirement age and contributory years - No minimum contributory career is required

Retirement age linked to life expectancy - For workers with careers longer than 20 years, the computed contribution years are those effectively contributed plus those remaining until reaching the retirement age // For workers with careers shorter than 20 years, the resulting benefit is reduced by 5% for each year remaining until reaching 20 years of service, with a maximum reduction of 25%

SURVIVOR

1) Pension scheme: Social Security Employees (private sector) general regime

Type - mandatory, earnings related, non means-tested.

Administrative organization - www.seg-social.es

Qualifying condition

Minimum retirement age and contributory years - 500 days of contributions in the 5 years previous to the demise or 15 years of contributions; At least one-year marriage or shared children.

2) Pension scheme: Social Security Self-employed

Type - mandatory, earnings related, non means-tested.

Administrative organization - www.seg-social.es

Qualifying condition

Minimum retirement age and contributory years - Same as above, plus no arrears on Social Security payments

3) Pension scheme: Civil servants scheme Central government employees and military

Regulatory framework

Type - Mandatory, earnings related, non Means-tested

First law - RD 22 October 1926 on the Statute of Civil Servants' Pensions (Clases Pasivas del Estado)

Administrative organization - www.clasespasivas.sepg.pap.minhap.gob.es

Qualifying condition

Minimum retirement age and contributory years - No minimum contributory career is required

MINIMUM PENSION

1) Pension scheme: Public pensions (apply to 1 and 2)

Regulatory framework

Type - Mandatory, earnings related, non means-tested

First law - Law 193/1963 on the Framework of the Social Security

Coverage - Minimum pension supplements for contributory pensions

Qualifying condition

Minimum retirement age and contributory years - Increasing from 65 to 67 years of age and 15 of contribution

Contribution

Contribution rate: Government - Since 2013, the central government pays 100% of complements to minimum pensions

2) Pension scheme: Civil servants scheme Central government employees and military

Regulatory framework

Type - Mandatory, earnings related, non means-tested

First law - Law 17 July 1956

Qualifying condition

Minimum retirement age and contributory years - 65 years of age and 15 years of contributions

Contribution

Contribution rate: Government - Since 2013, the central government pays 100% of complements to minimum pensions

3) Pension scheme: Public pensions - Non earnings related

Regulatory framework

Type - Mandatory, non earnings related, means-tested

Coverage - Non-Earnings related basic scheme granted to people with income below a threshold approved every year in The Budget Law

Administrative organization - CCAA

Qualifying condition

Minimum retirement age and contributory years - 65 years of age

Contribution

Contribution rate: Government - 100%.

Private schemes

PRIVATE OCCUPATIONAL

Regulatory framework

Type - Voluntary, earnings related, non means-tested

Administrative organization - Private

Taxes

Contribution - Exempt contribution in PIT up to yearly 10,000 €(12.500 €if above 50 years of age)

PRIVATE INDIVIDUAL

See private occupational pension scheme

France

Public schemes

OLD AGE

1) Pension scheme: Private sector pensions scheme

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested

First law - Loi n° 46-1146 du 22 mai 1946

Current law - Loi n° 2014-40 du 20 janvier 2014 garantissant l'avenir et la justice du système de retraite

Coverage - Private sector employees

Administrative organization - CNAV: Parliament sets general guidelines and votes the annual social security budget for pensions. The board of directors of Cnav (30 members with voting rights plus 4 consultative members) approves Cnav's financial statements and operating budget, outlines social action policies for general-scheme retirees, and issues opinions on draft laws and decrees that could affect pensions. The board can also propose any measure it considers appropriate.

Website:
https://www.lassuranceretraite.fr/cs/Satellite/PUBFooter/english-version?packedargs=null;

RSI : http://www.rsi.fr/a-propos-du-rsi.html;

MSA : http://www.msa.fr/lfr

Qualifying condition

Minimum retirement age and contributory years - 62, no requirement on contributory years.

Retirement age linked to life expectancy - No

Statutory retirement age - 67[1]

Contributory period for full pension - 43 years under 67[2]

Additional features - [1] Since the 2010 reform. For the 1956 generation and the next ones.

[2] Since the 2013 reform. For the 1973 generation and the next ones.

Contribution

Contribution rate: Employers - 10.20% up to the SSC, plus 1.75% above the SSC in 2014

(SSC: Social Security Ceiling, wage ceiling which determines the contribution rate level. In 2014, the SSC is 3129€/month).

Contribution rate: Employees - 7.05% up to the SSC, plus 0.25% above the SSC in 2014.

Fund (or any residual funding from the State) - Pensions Reserve Fund (Fonds de réserve pour les retraites: FRR); Old age solidarity fund (Fonds de solidarité Vieillesse : FSV)

Contribution base - Generally, salary up to one SSC except for a 1.75% contribution on all salary. Bonuses excluded.

Benefit

Pensionable earning reference - 25 best annual wages (under the SSC)

Accrual rate – around 1.2%

Penalties for early retirement - 1.25% for each missing quarter

Bonuses for postponing retirement - 1.25% for each additional quarter

Valorisation of pensionable earnings - prices

Indexation of pensions in payment - prices

Maximum replacement rate - 50%

Taxes

Pension taxation - Pensions benefits can be cumulated with other income from work but within certain limits defined by each scheme. Pensions are liable to general social contributions (CSG and CRDS) and to two different health contributions: a

specific contribution for pensioners (Casa) and an additional contribution on complementary pensions (ARRCO, AGIRC, etc.). Pensioners with low revenue can benefit from a reduction or an exemption of CSG-CRDS and an exemption of Casa. In addition, pensions are subject to income taxation

Tax rates - CSG and CRDS : 7.1%; Casa : 0.3%

Additional features - Pensioners with low revenue can benefit from a reduction of CSG-CRDS (3.8% instead of 7.1%) if they are not liable for income taxation or from an exemption of CSG-CRDS and Casa if their revenue is under a ceiling (10,224€ for a single person in 2014). The average Tax rates in 2013 was 5.1% for income taxation and 5.8% for other taxes (CSG-CRDS-Casa).

2) Pension scheme: Complementary Pension scheme 'Agirc

Regulatory framework

Type – Points, mandatory, earnings related, non means-tested.

First law - Convention collective nationale de retraite et de prévoyance des cadres du 14 mars 1947

Current law - Accords national interprofessionel du 13 mars 2013 sur les retraites complémentaires

Coverage - Managers employed in private sector

Administrative organization - Agirc: Joint management between unions and employers; http://www.agirc.fr/

Qualifying condition

Minimum retirement age and contributory years - 57 with penalties (a 67% discount). No requirement on contributory years.

Retirement age linked to life expectancy - No

Statutory retirement age - 67[1]

Contributory period for full pension - 43 years under 67[2]

Additional features - [1] See private sector pension scheme.

[2] See private sector pension scheme.

Contribution

Contribution rate: Employers - 6.00% up to the SSC, plus 14.20% between one and four SSC, plus 12.90% between four and eight SSC (in 2014)

Contribution rate: Employees - 3.98% up to the SSC, plus 8.78% between one and four SSC, plus 7.88% between four and eight SSC (in 2014)

Fund (or any residual funding from the State) - No specific funds was set up to manage Agirc and Arrco future pension obligation: those schemes manage and invest their own reserve under prudential rules.

Contribution base - Salary up to eight SSC

Benefit

Pensionable earning reference - all wages (under 8 SSC)

Accrual rate - 1.3% (in 2014 for wages between 1 SSC and 4 SSC)

Point value - 0.4352 € in 2014

Point cost - 5.3075 € in 2014

Criteria for accumulation of points - Number of points = Benefit   Pensionable earning reference x (Contribution rate / 125%) / Point cost

Penalties for early retirement - Penalties depending on retirement age for people not eligible for a full rate pension : from 57% at 57 to 0 at 67 (starting from the generation 1956)

Valorisation of pensionable earnings - prices - 1%

Indexation of pensions in payment - prices - 1%

Taxes

Pension taxation - See private sector pension scheme.

Tax rates - CSG and CRDS : 7.1%; Casa : 0.3%; additional contribution on complementary pensions : 1% rate.

Additional features - See private sector pension scheme.

3) Pension scheme:Complementary Pension scheme 'Arrco

Regulatory framework

Type – Points, mandatory, earnings related, non means-tested.

First law - Accord national interprofessionnel de retraite complémentaire du 8 décembre 1961

Current law - Accords national interprofessionel du 13 mars 2013 sur les retraites complémentaires

Coverage - Private sector employees

Administrative organization - Arrco: Joint management between unions and employers http://www.arrco.fr.

Qualifying condition

Minimum retirement age and contributory years - 57[2] with penalties (a 67% discount). No requirement on contributory years.

Retirement age linked to life expectancy - No

Statutory retirement age - 67[1]

Contributory period for full pension - 43 years under 67[2]

Additional features - [1] See private sector pension scheme.

[2] See private sector pension scheme.

Contribution

Contribution rate: Employers - 5.78% up to the SSC, plus 13.38% between one and three SSC (in 2014)

Contribution rate: Employees - 3.85% up to the SSC, plus 8.95% between one and three SSC (in 2014)

Fund (or any residual funding from the State) - No specific fund was set up to manage Agirc and Arrco future pension obligation: those schemes manage and invest their own reserve under prudential rules.

Contribution base - Salary up to eight SSC

Benefit

Pensionable earning reference - all wages (under 3 SSC)

Accrual rate - 0.5% (in 2014 for wages below 1 SSC)

Point value - 1.2513 €in 2014

Point cost - 15.2589 €in 2014

Criteria for accumulation of points - Number of points = Benefit Pensionable earning reference x (Contribution rate / 125%) / Point cost

Penalties for early retirement - Penalties depending on retirement age for people not eligible for a full rate pension : from 57% at 57 to 0 at 67 (starting from the generation 1956)

Valorisation of pensionable earnings - prices - 1%

Indexation of pensions in payment - prices - 1%

Taxes

See agirc pension scheme.

4) Pension scheme: Public sector Pension scheme (central state)

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Loi n° 64-1339 du 26 décembre 1964

Current law - Loi n° 2014-40 du 20 janvier 2014 garantissant l'avenir et la justice du système de retraite

Coverage - Civil servants in state administration and military

Administrative organization - SRE: Parliament sets general guidelines for the civil-servant scheme and adopts the provisional budget proposed in Budget Bill. The French Ministry of Budget is responsible for the day-by-day management of the pension special purposes account. Website: www.pensions.bercy.gouv.fr/

Qualifying condition

Minimum retirement age and contributory years - 62, except for some specific categories such as police and military.

2 years of contributory period (otherwise CNAV pension), including for military (1)

Retirement age linked to life expectancy - No

Statutory retirement age - 67(2), except for some specific categories such as police and military.

Contributory period for full pension - 43 years under 67(3)

Special schemes - Specific categories such as police and military, also known as 'active' civil servants, derogates from the general rules: - for militaries no minimum age is required to retire (pension can be granted after 27 years of service for officers, 17 years for others) - for some hazardous categories the minimum retirement age is lower (e.g. 57, or 52 for police officers or sewer workers) and a 17 years of contributory period is required (4)

Additional features - (1): for military after the 1st of January 2015, since the 2013 reform (15 years of contributory period before). (2): since the 2010 reform. For the 1956 generation and the next ones. (3): since the 2013 reform. For the 1973 generation and the next ones. (4): after the 1st of January 2015, since the 2010 reform.

Contribution

Contribution rate: Employees - 9.14% (in 2014)

Contribution rate: Gov. - 74.28% (2014)

Fund (or any residual funding from the State) - Full State compensation each year

Contribution base - Only index-related salary (i.e. salary without bonuses and other emoluments)

Special scheme - Gov. **Contribution rate** at 126.07% for military (2014).

Benefit

Pensionable earning reference - wages of the last 6 months (without bonuses and other emoluments)

Accrual rate – around 1.2%

Penalties for early retirement - 1.25% for each missing quarter

Bonuses for postponing retirement - 1.25% for each additional quarter

Indexation of pensions in payment - prices

Maximum replacement rate - 75% [1]

Additional features - [1] Some bonuses (for children, for military...) can raise the rate up to 80%

Taxes

See private sector pension scheme

5) Pension scheme: Public sector Pension scheme (central state)

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Ordonnance n°45-993 du 17 mai 1945

Current law - Décret n° 2014-663 du 23 juin 2014 modifiant le décret n° 2003-1306 du 26 décembre 2003

Coverage - Civil servants in local administration or hospitals

Administrative organization - CNRACL : Parliament sets general guidelines and votes the annual social security budget for pensions. The board of directors of CNRACL (16 members with voting rights plus 2 consultative members) approves CNRACL's financial statements and operating budget, outlines social action policies for general-scheme retirees, and issues opinions on draft laws and decrees that could affect pensions. CNRACL is managed by Caisse des dépots et consignations : https://www.cdc.retraites.fr/portail/spip.php?page=rubrique&id_rubrique=121

Qualifying condition

See public sector pension scheme managed by SRE

Contribution

Contribution rate: Employers - 30.40% (2014)

Contribution rate: Employees - 9.14% (in 2014)

Contribution base - Only index-related salary (i.e. salary without bonuses and other emoluments)

Benefit

See public sector pension scheme managed by SRE

Taxes

See private sector pension scheme

DISABILITY

Pension scheme: Pension d'invalidité

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Ordonnance n° 45/2454 du 19 octobre 1945

Current law - Décret 85-1353 1985-12-17 art. 1 JORF 21 décembre 1985

Coverage - Private and public sector managers and employees

Administrative organization - CNAM: http://www.ameli.fr; RSI : http://www.rsi.fr/a-propos-du-rsi.html; CNAVPL : http://www.cnavpl.fr/la-cnavpl/presentation-de-la-cnavpl/; MSA : http://www.msa.fr/lfr

Qualifying condition

Minimum retirement age and contributory years - disability reducing capacity to work; age inferior to the minimum retirement age

Contributory period for full pension - 12 months

Contribution

Contribution rate: Employers - included in sickness contributions (13,10%)

Contribution rate: Employees - included in sickness contributions (1,75%)

Contribution base - Full salary

Benefit

Pensionable earning reference - 10 best annual wages

Indexation of pensions in payment - prices

Maximum replacement rate - 90%

Taxes

Pension taxation - Disability benefits and others revenues (from work or capital) are taxed via income taxation.

Tax rates - CSG and CRDS : 7.1%; Casa : 0.3%

Additional features – see old age schemes

2) Pension scheme: Rente Accident du Travail et Maladie Professionnelle

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - loi du 9 avril 1898

Current law - Décret 85-1353 1985-12-17 art. 1 JORF 21 décembre 1986

Coverage - Private and public sector managers and employees

Administrative organization - CNAM: http://www.ameli.fr;

RSI : http://www.rsi.fr/a-propos-du-rsi.html;

CNAVPL: http://www.cnavpl.fr/la-cnavpl/presentation-de-la-cnavpl/;

MSA : http://www.msa.fr/lfr

Qualifying condition

Minimum retirement age and contributory years - Disability reducing capacity to work due to work

Contributory period for full pension - None

Contribution

Contribution rate: Employers - depends on sector and size of the firms and number of accidents

Benefit

Pensionable earning reference - 12 last months

Indexation of pensions in payment - prices

Maximum replacement rate - 100%

Additional features - For low level of disability (under 10%), disability benefit is awarded as a cash settlements (between 410€ and 4,100€).

Taxes

Pension taxation - No taxation

3) Pension scheme: Pension de retraite anticipée pour inaptitude (public sector pension scheme)

Type - DB, mandatory, earnings related, non means-tested.

First law - Loi n° 64-1339 du 26 décembre 1964

Current law - Loi n° 2014-40 du 20 janvier 2014 garantissant l'avenir et la justice du système de retraite

Coverage - State civil servants

Administrative organization - SRE : www.pensions.bercy.gouv.fr/

Qualifying condition

Minimum retirement age and contributory years - Early retirement allowance for disability awarded for inability to work or after injury due to work if there is no opportunities of outplacement in another public employment ; documentary evidence required

Contributory period for full pension - No contributory period required for entitlement; no penalties for early retirement

Special schemes - Allowance granted is a graduated retirement benefit, with an additional benefit when inability is due to duties (rente viagère d'invalidité) (1); Disability due to military

services entitled to specific allowances (pension militaire d'invalidité)

Additional features - (1) Specific allowance is awarded when disability due to work or occupational disease is reducing temporarily capacity to work (allocation temporaire d'invalidité)

Contribution

Contribution rate: Employees - included in retirement contributions

Contribution rate: Government - included in retirement contributions

Contribution base - Only index-related salary (i.e. salary without bonuses and other emoluments)

Benefit

Pensionable earning reference - wages of the last 6 months (without bonuses and other emoluments)

Indexation of pensions in payment - prices

Maximum replacement rate - graduated retirement benefit [1] [2]

Special schemes - Amount increased if constant attendance is needed (except for militaries)

Additional features - [1] maximum rate of 75%;

[2] When disability rate is > 60% , pension minimum amount is based on 50% of last 6 months wages

Taxes

Pension taxation - Disability benefits and others revenues (from work or capital) are taxed via income taxation.

Tax rates - CSG and CRDS : 7.1%; Casa : 0.3%

Additional features - see old-age pension schemes

4) Pension scheme: Pension de retraite anticipée pour inaptitude (public sector Pension scheme)

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Ordonnance n°45-993 du 17 mai 1945

Current law - Décret n° 2014-663 du 23 juin 2014 modifiant le décret n° 2003-1306 du 26 décembre 2003

Coverage - Civil servants in local administration or hospitals

Administrative organization - CNRACL : https://www.cdc.retraites.fr/portail/spip.php?page= rubrique&id_rubrique=121

Qualifying condition

See public sector pension scheme managed by SRE

Contribution

Contribution rate: Employers - included in retirement contributions

Contribution rate: Employees - included in retirement contributions

Contribution base - Only index-related salary (i.e. salary without bonuses and other emoluments)

Benefit

See public sector pension scheme managed by SRE

Taxes

Pension taxation - Disability benefits and others revenues (from work or capital) are taxed via income taxation.

Tax rates - CSG and CRDS : 7.1%; Casa : 0.3%

Additional features - see old-age pension schemes.

SURVIVOR

1) Pension scheme: Private sector pensions scheme

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Loi n° 46-1146 du 22 mai 1946

Current law - Loi n° 2014-40 du 20 janvier 2014 garantissant l'avenir et la justice du système de retraite

Coverage - Private sector employees' husbands or spouses

Administrative organization - CNAV: https://www.lassuranceretraite.fr/cs/Satellite/PUBFooter/english-version?packedargs=null;

RSI : http://www.rsi.fr/a-propos-du-rsi.html;

CNAVPL: http://www.cnavpl.fr/la-cnavpl/presentation-de-la-cnavpl/;

MSA : http://www.msa.fr/lfr

Qualifying condition

Minimum retirement age and contributory years - 55

Retirement age linked to life expectancy - No

Additional features - For the surviving husband or spouse, even divorced or remarried ; no

Benefit

Maximum replacement rate - 54% of the husband/spouse pension ; the minimum yearly income of the surviving husband/spouse should not exceed 19822€ (single person) or 31716€ (couple)

Taxes

Pension taxation – See old-age private sector pension scheme

Tax rates - CSG and CRDS : 7.1% ; Casa : 0.3%

Additional features - see old-age private sector pension schemes

2) Pension scheme: Public sector Pension scheme (central state)

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Loi n° 64-1339 du 26 décembre 1964

Current law - Loi n° 2014-40 du 20 janvier 2014 garantissant l'avenir et la justice du système de retraite

Coverage - State civil servants' husbands or spouses

Administrative organization - www.pensions.bercy.gouv.fr.

Qualifying condition

Minimum retirement age and contributory years - No age condition

Retirement age linked to life expectancy - No

Additional features - Under certain conditions regarding the duration of the wedding, the presence of children, etc. ; for the surviving husband or spouse, divorced but not remarried.

Benefit

Maximum replacement rate - 50% of the husband/spouse pension

Taxes

Pension taxation - See old-age private sector pension scheme

Tax rates - CSG and CRDS : 7.1% ; Casa : 0.3%

Additional features - see old-age private sector pension schemes

3) Pension scheme: Public sector Pension scheme (central state)

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Ordonnance n°45-993 du 17 mai 1945

Current law - Décret n° 2014-663 du 23 juin 2014 modifiant le décret n° 2003-1306 du 26 décembre 2003

Coverage - Civil servants in local administration or hospitals

Administrative organization - CNRACL: https://www.cdc.retraites.fr/portail/spip.php?page=rubrique&id_rubrique=121

Qualifying condition

Minimum retirement age and contributory years - No age condition

Retirement age linked to life expectancy - No

Additional features - Under certain conditions regarding the duration of the wedding, the presence of children, etc. ; for the surviving husband or spouse, divorced but not remarried.

Benefit

Maximum replacement rate - 50% of the husband/spouse pension

Taxes

Pension taxation - See old-age private sector pension scheme

Tax rates - CSG and CRDS : 7.1%; Casa : 0.3%

Additional features - see old-age private sector pension schemes

MINIMUM PENSION

1) Pension scheme: Allocation de solidarité aux personnes âgées (ASPA) also called minimum vieillesse

Regulatory framework

Type - Minimum, non-earnings related, means-tested.

First law - Loi n°56-639 du 30 juin 1956 portant institution d'un fonds national de solidarité

Current law - Ordonnance n°2004-605 du 24 juin 2004

Administrative organization - FSV (Fonds de solidarité vieillesse): http://www.fsv.fr/

Qualifying condition

Minimum retirement age and contributory years - 65 (or 62 for disabled people), no requirement on contributory years

Retirement age linked to life expectancy - No

Statutory retirement age - 65

Special schemes - ASPA replaced previous social protection benefits (Allocation aux vieux travailleurs salarié - AVTS, majoration L814-2, allocation supplémentaire L 815-2, spéciale de l'article L814-1) which are still received by some pensioners.

Additional features - Maximum yearly income : 9,600€ (single person) or 14,904€ (couple) (2014).

Contribution

Fund (or any residual funding from the State) - The FSV receives a share of the CSG contribution (0.866pt on income, 0.886pt on other revenue). The FSV also receive additional financing from the CNAF and other additional contributions (forfait social, taxes on property income, etc.)

Benefit

Indexation of pensions in payment - Prices

Taxes

Pension taxation - Minimum pension is exempted from social contributions (CSG, CRDS and Casa) and from income taxation.

2) Pension scheme: Allocation supplémentaire d'invalidité (ASI)

Regulatory framework

Type - Minimum, voluntary, non earnings related, means-tested.

First law - Loi n°57-874 du 2 août 1957

Current law - Ordonnance n°2004-605 du 24 juin 2004

Coverage - people with a disability pension (included survivors disability pension)

Administrative organization - CNAM: http://www.ameli.fr; RSI: http://www.rsi.fr/a-propos-du-rsi.html; MSA: http://www.msa.fr/lfr CNAV: https://www.lassuranceretraite.fr/cs/Satellite/PUBFooter/english-version?packedargs=null

Qualifying condition

Minimum retirement age and contributory years - (1)

Special schemes - ASI complete the small disability pension

Additional features - (1) Maximum age : 65 (age required to benefit from ASPA); Maximum yearly income : 8,424.05 € (single person) or 14,755.32 € (couple)

Contribution

Fund (or any residual funding from the State) - Totally financed by the State through CNAM and CNAV directly or through the Fonds de solidarité invalidité (FSI)

Benefit

Indexation of pensions in payment - Prices

Taxes

Pension taxation - Minimum pension is exempted from social contributions (CSG, CRDS and Casa) and from income taxation.

Croatia

Public schemes

OLD AGE

Pension scheme: Mandatory PAYG pension insurance (I Pillar)

Regulatory framework

Type - Point system, mandatory, earnings related, non means-tested.

First law - Pension Insurance Act (Zakon o mirovinskom osiguranju) of 1998, OJ no. 102/98, as amended (in force from 1 January 1999).

Current law - Pension Insurance Act (Zakon o mirovinskom osiguranju), OJ no 157/13 (in force from 1 January 2014).

Coverage - all employees and self-employed persons

Administrative organization - Croatian Pension Insurance Institute http://www.mirovinsko.hr

Qualifying condition

Minimum retirement age and contributory years - 65/15

Retirement age linked to life expectancy - Not applicable

Statutory retirement age - The pensionable age in 2013: Men: 65 years;

Women: 60 years and 9 months.

The pensionable age for women is being gradually increased by 3 months every year from 1 January 2011 onwards, upon reaching 65 in 2030. As of 2038 the pensionable age (women and men) will be 67 after finishing a transitional period starting 2031, by rising age gradually 3 months per calendar year.

Contributory period for full pension - No concept of full pension

Special schemes - No special schemes for special categories of persons, but there are special regulations for special groups granting benefits under more favourable conditions (military officers, police officers and authorized officials, disabled war veterans.

Contribution

Contribution rate: **Employers** - None

Contribution rate: Employees - Persons insured only under the first pillar pension insurance:

Employee: 20% of gross earnings;

Self-employed: 20% of the defined insurance base;

Self-employed farmers: 20% of the defined insurance base if liable to pay income taxes; 10% of the same base if no income tax liability.

Persons insured under the first and second pillar pension insurance:

Employee: 15% of gross earnings to the first pillar and 5% to the second pillar.

Self-employed: 15% to the first pillar and 5% to the second pillar, of the defined insurance base;

Self-employed farmers: 15% of the defined insurance base to the first pillar and 5% of the same base to the second pillar insurance, if liable to pay income taxes; 5% of the same base to the first pillar and 5% to the second pillar if no income tax liability.

Fund (or any residual funding from the State) - The Government is committed to cover deficits.

Contribution base - Gross earnings (wages and salaries).

Minimum contribution base is HRK 2,779.35 (35% of average gross wage). Maximum contribution base is HRK 47,646.00 (600% of average gross wage).The Law on contributions prescribes the minimum contribution base for various categories of self-employed.

Special scheme - Additional contributions are paid by employers for employees in arduous and

unhealthy occupations (listed in special legislation), from 4.86% to 17.58% of the payroll to provide for the extension of insurance periods where 12 months of career is calculated as 14-18 months of the insurance period.

Period of maternity and parental leave in the first year of the child is covered and counted as insurance period, also in the case of unemployed persons. Unemployment spells in general are not included in insurance period with an exception of unemployed persons who fulfill age requirements for old age pension and who lack up to 5 years of qualifying period for old-age pension, are entitled to pension insurance.

Benefit

Pensionable earning reference – Full career (post 1970).

Accrual rate – Effective accrual rate is approximately 0.97% in 2013.

Point value - Current value in monthly terms: HRK 60.92 plus supplement of 27% (as in July 2013).

Adjustment is done every six months by adding 50% of increase in the consumer prices and 50% of the increase in national average gross wage in the preceding half year. As of January 1, 2015, adjustment will be provided according to variable formula which will depend on the trends of prices and wages (70:30, 50:50 or 30:70), whichever gives higher increase. There will be no change in the point value if adjustment rule results in negative figure.

Point cost - Average gross wage HRK 7,939 per month in 2013.

Criteria for accumulation of points - Those entitled to the first pillar pension only:

Personal points x pension factor x actual value of pension + pension supplement 27%.

Personal points: average value points x total insurance period x initial factor.

Value points: gross or net earnings of the person concerned in each calendar year divided by the national average gross or net annual earnings of all employed persons in the same year.

Average value points: total of value points divided by the respective period for which value points are taken into account (earnings history after 1970, which may be shorter than the total contribution period). Initial factor is 1 for all pensions except early pension and deferred old age pension.

Pension factor: 1 for old-age pension.

Actual value of pension: value of one personal point is determined twice annually by the Management Board of the Croatian Pension Insurance Institute (Hrvatski zavod za mirovinsko osiguranje) according to adjustment formula (indexation) defined by the Law.

Pension supplement is defined by a special statute (Law on the Supplement on Pension Based on Pension Insurance Act, OJ no. 79/07 and its amendments) and it stipulates increase of 27% for new pensions.

Those entitled to the first pillar and the second pillar pensions will receive benefit from the first pillar calculated according to the same rule for insurance period up to the start of the second pillar insurance, while for the period of two-pillar insurance their benefit from the first pillar (basic pension) will be calculated according to the same rule but multiplied by a factor which is a proportion of contributions paid to the first pillar in total mandatory contributions (currently ¾). Also, pension supplement is not applied in calculation of pension benefits from the first pillar for those insured in both mandatory pillars.

Penalties for early retirement - Permanent reduction of the amount of old-age pension as of 1 January 2014 varies between 0.10% to 0.34% per month of anticipation depending on the total duration of completed insurance periods, ranging from 35 to 40 years of insurance (from 31 to 38 years for women in 2014, which will gradually increase to 35-40 years by 2030). No reduction of the amount of early pension in case of persons age 60 with 41 year of contribution (women and men), and the same for persons unemployed for at least 2 years before completing the early pension requirements due to enterprise bankruptcy.

Bonuses for postponing retirement - Increase of 0.15% for each month of deferment. Maximum 9% increase for maximum 5 years of deferment. Bonus is awarded only for beneficiaries with 35 or more years of qualifying period completed.

Valorisation of pensionable earnings - The same rules as for adjustment of the point value.

Indexation of pensions in payment - The same rules as for adjustment of the point value.

Maximum replacement rate - There is no maximum replacement rate.

Sustainability factor/benefit linked to life expectancy - No automatic link to life expectancy is legislated

Special schemes - Adjustment of pensions in payment granted under more favourable conditions then the general pension system (special categories of persons) is condition of GDP growth (at least 2% over the last three consecutive quarters) and State Budget deficit (less than 3% over the same period).

Taxes

Pension taxation - The benefit are taxed, although with favourable treatment and therefore most of pension go untaxed in practice.

Tax rates - Pensioners with benefits higher than the economy-wide average net wage pay health insurance contribution of 3% of gross pensions. Remaining pensions are taxed according to general income tax rules, with the exception that Personal Tax Allowance is higher. Personal Tax Allowance is applied to all kinds of pensions (old-age, early, invalidity and survivors') in the amount of 3,400.00 HRK per month. (compared to HRK 2,200 in case of general taxation. Tax allowances relating to dependent family members are the same as for general income taxation. Tax base is the gross pension after deduction of health insurance contribution and personal tax allowance. The following rates are applied (the same as for general income taxation):

- 12% of the tax base up to 2,200.00 HRK per month,

- 25% of the tax base between 2,200.00 HRK and 8,800.00 HRK per month,

- 40% of amounts exceeding 8,800.00 HRK per month.

DISABILITY

Pension scheme: Mandatory PAYG pension insurance (I Pillar)

Regulatory framework

Type - Point system, mandatory, earnings related, non means-tested/

First law - Pension Insurance Act (Zakon o mirovinskom osiguranju) of 1998, OJ no. 102/98, as amended (in force from 1 January 1999).

Current law - Pension Insurance Act (Zakon o mirovinskom osiguranju), OJ no 157/13 (in force from 1 January 2014).

Coverage - all employees and self-employed persons

Administrative organization - Croatian Pension Insurance Institute http://www.mirovinsko.hr

Qualifying condition

Minimum retirement age and contributory years - Insurance record equal to one third of working life. Working life: the full number of years between the age of 20 (23 for persons with post-secondary qualifications and 26 for persons with university qualifications) and the day of disability. Persons aged below 30 or 35 years are entitled under more favorable conditions:

• up to 30 years: at least 1 year of insurance;

• 30 to 35 years: at least 2 years (1 year if graduated from university).

Changes in health must occur before age 65. There is no minimum qualifying period if disability is the result of a work injury or an occupational disease.

Contribution

Contribution rate: **Employers** - None

Contribution rate: Employees –

See old-age pension scheme.

Benefit

Pensionable earning reference - Annual wage of the individual is put in relation to the national annual average wage of all employed persons. The result is a value point for every year of working history. All the value points are then totalised and divided by the number of years for which they have been taken into account. The result is the average value point which is then used in the pension formula.

Criteria for accumulation of points - Above mentioned formula is equally applied to calculation of disability pension, including minimum and maximum pension. Initial factor for disability pension is 1. Pension factor in case of total disability is 1; in case of partial disability it amounts 0.8 if the person is unemployed or 0.5 if employed or self-employed. The total qualifying period for calculation of disability pension comprises of: actually completed insurance period and additional hypothetical period. Additional hypothetical period is determined as 2/3 of the period starting with the age of the person concerned on the date of contingency up to the fictive age of 55, plus ½ of the hypothetical period from the fictive age of 55 to the fictive age 60 (2,5 years). E.g., person became disabled at age 46 and completed the insurance period of 27 years, 7 months and 19 days. The additional hypothetical period for the amount of pension: (2/3 between the actual age at risk and age 55 = 6 years) + (½ from age 55 until age 60 = 2.5 years) = 8.5 years = 8 years and 6 months. The total period taken into account for the disability pension calculation thus would be 36 years, 1 month and 19 days.

Indexation of pensions in payment - The same as for old-age pension.

Sustainability factor/benefit linked to life expectancy - No automatic link to life expectancy is legislated

Additional features - If the disability was caused by a work injury or an occupational disease the general disability pension amount is based upon 40 years of coverage.

Taxes

Pension taxation - The benefit can be taxed.

Tax rates –See old age pension scheme.

SURVIVOR

Pension scheme: Mandatory PAYG pension insurance (I Pillar)

Regulatory framework

Type - Point system, mandatory, earnings related, non means-tested.

First law - Pension Insurance Act (Zakon o mirovinskom osiguranju) of 1998, OJ no. 102/98, as amended (in force from 1 January 1999).

Current law - Pension Insurance Act (Zakon o mirovinskom osiguranju), OJ no 157/13 (in force from 1 January 2014).

Coverage - all employees and self-employed persons

Administrative organization - Croatian Pension Insurance Institute http://www.mirovinsko.hr

Qualifying condition

Minimum retirement age and contributory years - The deceased was a pensioner, an occupational rehabilitation beneficiary, or insured person who had five years of contributory coverage or 10 years qualifying period, or met the qualifying period conditions for a disability pension. There is no minimum qualifying period if the death resulted from a work injury or an occupational disease. Eligible survivors are a widow(er) aged 50 or older, if she/he is younger than age 50, condition is that she/he is caring for eligible children, or with a disability (a woman who is widowed at age 45 becomes eligible at age 50); children (marital, extramarital, adopted, step-

children supported by the deceased) up to age 15 (age 18 if unemployed, age 26 if a student, no limit if disabled) and parents aged 60 if supported by the deceased, or younger than age 60 with general disability.

Statutory retirement age - Eligible survivors are a widow(er) aged 50 or older, if she/he is younger than age 50, condition is that she/he is caring for eligible children, or with a disability (a woman who is widowed at age 45 becomes eligible at age 50); children (marital, extramarital, adopted, step-children supported by the deceased) up to age 15 (age 18 if unemployed, age 26 if a student, no limit if disabled) and parents aged 60 if supported by the deceased, or younger than age 60 with general disability.

Contribution

Contribution rate: Employers - None

Contribution rate: See old-age pension scheme.

Employees

Contribution base - See old-age pension scheme.

Special scheme – **Contribution**s: See old-age pension scheme.

Benefit

Pensionable earning reference - Annual wage of the individual is put in relation to the national annual average wage of all employed persons

The result is a value point for every year of working history. All the value points are then totalised and divided by the number of years for which they have been taken into account. The result is the average value point which is then used in the pension formula.

Criteria for accumulation of points - Survivors' pension is defined according to the number of eligible family members (including the spouse). The pension is based upon the general invalidity or old-age pension the deceased would have been entitled to at the time of death. Personal points for survivors' pension are determined on the basis of value points for a qualifying period of at least 21 years. The survivors' pension is calculated as a

percentage of the pension to which the deceased would have been entitled, according to the number of eligible survivors:

• one survivor: 70%,

• two survivors: 80%,

• three survivors: 90%,

• four or more survivors: 100%.

Bonuses for postponing retirement - Benefits increase if a deceased person would have been entitled to a deferred pension. Increase of 0.15% for each month of deferment. Maximum 9% increase for maximum 5 years of deferment. Bonus is awarded only for beneficiaries with 35 or more years of qualifying period completed.

Indexation of pensions in payment - See old-age pension scheme.

Sustainability factor/benefit linked to life expectancy - No automatic link to life expectancy is legislated

Taxes

Pension taxation - See old-age pension scheme..

Tax rates - See old-age pension scheme.

MINIMUM PENSION

Pension scheme: Mandatory PAYG pension insurance (I Pillar)

Regulatory framework

Type - Point system, mandatory, earnings related, non means-tested.

First law - Pension Insurance Act (Zakon o mirovinskom osiguranju) of 1998, OJ no. 102/98, as amended (in force from 1 January 1999).

Current law - Pension Insurance Act (Zakon o mirovinskom osiguranju), OJ no 157/13 (in force from 1 January 2014).

Coverage - all employees and self-employed persons

Administrative organization - Croatian Pension Insurance Institute http://www.mirovinsko.hr

Qualifying condition

Minimum retirement age and contributory years - All pension beneficiaries whose calculated pensions are below the minimum pension are eligible, except pensioners who are employed. Applicable to all pensions (old-age, invalidity, survivors').

Statutory retirement age - Statutory retirement age and contributory years depend on type of pensions and are the same as for respective type of pensions.

Contribution

Contribution rate: Employers - None

Contribution rate: Employees - See old-age pension scheme.

Contribution base - See old-age pension scheme.

Special scheme - See old-age pension scheme.

Benefit

Pensionable earning reference - The same as for general PAYG pension insurance scheme (see above for old-age pensions).

Criteria for accumulation of points - Minimum pension is calculated in a similar way to other types of pension (old-age, disability, survivors) it does not depends on earnings but only on the insurance periods. Formula for minimum pension: actual value of minimum pension per year of insurance x insurance period in years x initial factor x pension factor for type of pension. The actual value of the minimum pension is HRK 59.05 (as of 1 July 2013). Initial factor and pension factor are defined in the same way as in calculation of old-age pensions.

Penalties for early retirement - Initial factor for early pension is 1 minus penalty for anticipation period. Pension factor for old-age and early

pension is 1. The penalization for one month of anticipation ranges from 0.10% to 0.34%, up to the maximum of 20.4% for 5 years of anticipation e.g., in the latter case, the initial factor would be 1+60 x (-0.34%) = 0.796.

Bonuses for postponing retirement - Increase of 0.15% for each month of deferment. Maximum 9% increase for maximum 5 years of deferment. Bonus is awarded only for beneficiaries with 35 or more years of qualifying period completed.

Indexation of pensions in payment - See old-age pension scheme.

Sustainability factor/benefit linked to life expectancy - No automatic link to life expectancy is legislated

Taxes Pension taxation - See old-age pension scheme.

Tax rates - See old-age pension scheme.

Private schemes

PRIVATE OCCUPATIONAL

Pension scheme: Mandatory fully funded defined-contribution (DC) scheme based on individual savings accounts (II pension pillar)

Regulatory framework

Type - DC, mandatory, earnings related, non means-tested.

First law - Act on Compulsory and Voluntary Pension Funds (Zakon o obveznim i dobrovoljnim mirovinskom fondovima) of 1999, OJ no. 49/99. Act on Pension Insurance Companies and Pensions Payment Based Upon the Individual Fully Funded Scheme (Zakon o mirovinskim osig-uravajućim društvima) of 1999, OJ no. 106/99.

Current law - Act on Compulsory Pension Funds (Zakon o obveznim mirovinskom fondovima) OJ no. 19/14 (in force from 20 February 2014). Act on Pension Insurance Companies (Zakon o mirovinskim osiguravajućim društvima) OJ no. 22/14 (in force from 27 February 2014).

Coverage - All persons younger than age 40 on January 1, 2002, and covered by mandatory PAYG pension insurance and persons who entered the labour force after January 1, 2002. Those aged 40 to 50 on January 1, 2002 who were already insured under the PAYG social insurance system could voluntarily join the two-pillar system until June 30, 2002. Since October 15, 2011, at the moment of retirement they may opt out from the second pillar scheme and remain in the first pillar scheme only, if the pension from the social insurance system would be more favourable than from the two-pillar system. In that case, pension savings from the individual account is transferred to the Croatian Pension Insurance Institute.

Administrative organization – There are four mandatory pension funds. Specialized management companies are obliged to run these funds and administer benefits from the second pillar. Central Registry of Affiliates (www.regos.hr) keeps the records on the members of mandatory pension funds, administers individual accounts of the members and shifts funds from individual accounts to the pension insurance company at the moment of retirement. Specialized pension insurance company administers payment of pensions from the second pillar.

Qualifying condition

Minimum retirement age and contributory years - The requirements for the entitlement to second pillar pension is the same as entitlement to the first pillar pensions – second pillar legislation does not provide for age and coverage requirements but they are defined by the first pillar legislation.

Statutory retirement age - The requirement for the entitlement to second pillar pension is the same as entitlement to the first pillar pension – second pillar legislation does not provide for age and coverage requirements but they are defined by the first pillar legislation.

Contribution

Contribution rate: Employers - None

Contribution rate: Employees - Employee: 15% of gross earnings to the first pillar and 5% to the second pillar. Self-employed: 15% to the first pillar and 5% to the second pillar, of the defined insurance base.

Self-employed farmers: 15% of the defined insurance base to the first pillar and 5% of the same base to the second pillar insurance, if liable to pay income taxes; 5% of the same base to the first pillar and 5% to the second pillar if no income tax liability.

Contribution base – The same as for general PAYG pension insurance scheme (see above for old-age pensions)

Special scheme - Additional contributions are paid by employers for employees in arduous and unhealthy occupations (listed in special legislation), from 1.25% to 4.51% of the payroll to provide for the extension of insurance periods where 12 months of career is calculated as 14-18 months of the insurance period.

Benefit

Pensionable earning reference - Not applicable.

Penalties for early retirement - Determined by the actuarial calculation

Bonuses for postponing retirement - Determined by the actuarial calculation

Valorisation of pensionable earnings – Not applicable

Indexation of pensions in payment - See old-age pension scheme.

Taxes

Contribution - Contribution to the private schemes (the II pension pillar) are not taxed and they are tax exempt.

Withdrawals - Pensions are subject to taxation.

Tax rate and description - See old-age pension scheme.

PRIVATE INDIVIDUAL

Pension scheme: Voluntary fully funded pension schemes (DC or DB scheme) can be open-ended or closed-ended scheme (III pension pillar)

Regulatory framework

Type - DC/DB, voluntary, non means-tested.

First law - Act on Compulsory and Voluntary Pension Funds (Zakon o obveznim i dobrovoljnim mirovinskom fondovima) of 1999, OJ no. 49/99. Act on Pension Insurance Companies and Pensions Payment Based Upon the Individual Fully Funded Scheme (Zakon o mirovinskim osiguravajućim društvima) of 1999, OJ no. 106/99.

Current law - Act on Voluntary Pension Funds (Zakon o dobrovoljnim mirovinskom fondovima) OJ no. 19/14 (in force from 20 February 2014). Act on Pension Insurance Companies (Zakon o mirovinskim osiguravajućim društvima) OJ no. 22/14 (in force from 27 February 2014).

Coverage - Any person residing in the Republic of Croatia can join the 3rd pillar voluntary pension scheme. Open-ended pension schemes accommodate any individual, whilst closed-ended pension schemes accommodate workers employed by a sponsor employer, members of trade unions or members of self-employed persons´ associations.

Administrative organization - There is a number of pension funds that are managed by specialized companies. Specialized pension insurance company administer payment of pensions from the third pillar.

Qualifying condition

Minimum retirement age and contributory years - The requirement for the entitlement to 3rd pillar pension is not linked to the 1st pillar. A voluntary pension fund member can acquire his/her rights from the voluntary pension scheme only after turning 50 years of age, or earlier if disabled or deceased.

Statutory retirement age - The requirement for the entitlement to 3rd pillar pension is not linked to

the 1st pillar. A voluntary pension scheme member can acquire his/her rights from the voluntary pension scheme only after turning 50 years of age.

Contribution

Contribution rate: Employers – Voluntary contribution amount is determined by the collective agreement or the statue provisions relevant to the sponsor association for close-ended scheme.

Contribution rate: Employees - For open-ended schemes the members choose their contribution levels in agreement with the pension company.

Benefit

Pensionable earning reference - Not applicable. Benefits in the DC schemes are not based on previous earnings

Penalties for early retirement - Determined by the actuarial calculation

Bonuses for postponing retirement - Determined by the actuarial calculation

Valorisation of pensionable earnings -

Not applicable

Taxes

Contribution - Contribution to the voluntary pension fund are not tax deducted for individuals, but there are some state incentives for individuals and tax deductions for employers.

Tax rate and description - The state provides for 15% incentives to payments of up to HRK 5,000 in one calendar year. Voluntary pension savings are incentivised by the government through tax advantages for the employer. Employers paying voluntary pension fund premiums (III pension pillar) for and with the consent of their workers are free form paying Income tax up to the amount of HRK 500 a month, i.e. the total amount of HRK 6,000 a year. Freelance taxpayers are also exempted from paying Income tax up to HRK 500 a month, i.e. the total amount of HRK 6,000 a year for paid premiums to voluntary pension insurance, paid for their workers or for themselves.

Returns on investment and fund accumulation - Returns on investment and fund accumulation are not taxed.

Withdrawals - The members shall pay the Income tax at the rate of 12% of the amount of paid premiums for which no Income tax was paid and which were recognized as tax allowances. Members who did not use the tax based on these premiums do not have to pay the Income tax when retiring or when receiving the payment.

Tax rate and description - The same as above.

Italy

Public schemes

OLD AGE

1) Pension scheme: Public sector employees

Regulatory framework

Type - 1. NDC: workers insured after 1995; 2. DB: workers with at least 18 years of contribution at the end of 1995; 3. Mixed (DB and NDC): workers with less than 18 years of contribution at the end of 1995. All schemes mandatory, earnings related and non means-tested (except for the topping-up to the minimum pension under DB and mixed regimes. The minimum pension accounts for 6,441 euro per year, in 2013).

First law - Royal decree 70/1895.

Current law - Law 214/2011.

Coverage - Public sector employees.

Administrative organization - INPS (Istituto Nazionale della Previdenza Sociale - National Social Security Institute).

Qualifying condition

Minimum retirement age and contributory years - Contribution requirements regardless of age, in 2014:

42 years and 6 months for men;

41 years and 6 months for women.

Contribution requirements are indexed to changes in life expectancy. The newly insured after 1995 are also allowed to retire earlier than SRA, up to a maximum of three years, as long as they have matured 20 years of contributions and a pension not inferior to 1,200 euro per month in 2012 (2.8 times the old-age allowance, in 2012). Such a threshold is indexed with the five-year average of nominal GDP. A penalty is applied to the quota of pension calculated according to the DB method, which accounts for 1% at the age of 61, 2% at the age of 60 and then increased by 2 pp each year below 60.

Retirement age linked to life expectancy - From 2013, the SRA, the contribution requirements for early pensions regardless of age and the age requirement for early pensions under the NDC regime are all indexed to changes in life expectancy every three years (every 2 years as of 2021).

Statutory retirement age - In 2014, the SRA is: 66 years and 3 months for men (all sectors) and women in the public sector; 63 years and 9 months for female employees in the private sector; 64 years and 9 months for the female self-employed. The SRA of women in the private sector is gradually aligned to that of other workers by 2018. In all cases, 20 years of contributions are also required. For the newly insured after 1995, a pension of at least 1.5 times the old age allowance is also required. The SRA is indexed to changes in life expectancy. According to a specific legislative provision, the SRA must be at least 67 in 2021. Based on the official demographic projections, such a target may be achieved in advance through the periodic indexation to changes in life expectancy.

Contrib. period for full pension: - NDC: no upper limit; DB: 40 years.

Special schemes - Special schemes, envisaging lower eligibility requirements, are foreseen for the armed forces, the police and the firemen.

Contribution

Contribution rate: Employers - 33% of which about 2/3rd paid by the employer. It also covers disability and survivors' pensions.

Contribution rate: Employees - 33% of which about 1/3rd paid by the employee. It also covers disability and survivors' pensions.

Contribution rate: Government - Does not apply.

Fund (or any residual funding from the State) - Residual funding: pension expenditure exceeding contributions.

Contribution base - Gross wage.

Benefit

Pensionable earning reference - 1. NDC: full career; 2. DB: last monthly wage, for the contribution period up to 1992 and last 10-year wages, thereafter; 3. Mixed: last monthly wage, for the contribution period up to 1992 and gradual increasing, for the contribution period 1993-1995. For the contribution period after 1995, see NDC.

Accrual rate - 1. NDC: product of the contribution rate and the transformation coefficients, i.e. the percentages to be applied to the total lifelong contributions to calculate the first annual amount of pension. Based on actuarial equivalence, they are inversely correlated with the retirement age, in the age bracket 57-70; 2. DB: generally 2% of the reference wage (average of pensionable earnings).

Penalties for early retirement - Percentages implicitly imposed by actuarial equivalence (3-4% per year) from the age of 57 to the age of 70.

Bonuses for postponing retirement - Percentages implicitly imposed by actuarial equivalence (3-4% per year) from the age of 57 to the age of 70.

Valorisation of pensionable earnings - 1. NDC: nominal GDP (5-year moving average); 2. DB: prices; 3. Mixed (DB and NDC): prices for the DB component, nominal GDP for NDC component.

Indexation of pensions in payment - Pensions are indexed to price inflation. The percentage of indexation is differentiated by pension amount. Such percentages are: 100% of the inflation rate for the amount of pension up to three times the minimum pension; 90% for the amount between three and five times the minimum; 75% for the amount above five times the minimum. For the five-year period 2012-2016, Law 2014/2011 and subsequent legislative interventions have somewhat reduced the percentages of indexation, for the pensions above three times the minimum.

Maximum replacement Rate - 1. NDC: no upper limit; 2. DB: 80%; 3. Mixed (DB and NDC): 80% for the DB component, no upper limit for the NDC component.

Sustainability factor/benefit linked to life expectancy - Three-year (two-year, as of 2021) update of transformation coefficients according to changes in mortality rates; three-year (two-year, as of 2021) indexation of the eligibility requirements to changes in life expectancy.

Taxes

Pension taxation - All pensions are taxed as labour-income, allowing for detractions inversely correlated to the income level. Pension income below 7,500 euro per year are tax-exempt (no tax-area). In 2013, total revenue on public pensions accounted for about 18% of total expenditure. Contributions paid to the public pension system are fully deductible from taxable income.

Tax rates - Pensions are taxed as labour income (see before). They are subject to the progressive tax rates foreseen by the general income tax system.

2) Pension scheme: Private sector employees (AGO)

Regulatory framework

Type - See public sector employees pension scheme.

First law - Decree law 603/1919.

Current law - See public sector employees pension scheme.

Coverage - Private sector employees.

Administrative organization - See public sector employees pension scheme.

Qualifying condition

See public sector employees pension scheme.

Special schemes - Special schemes, envisaging lower eligibility requirements, are foreseen for the insured involved in arduous works.

Contribution

See public sector employees pension scheme.

Benefit

See public sector employees pension scheme except for the following

Pensionable earning reference - NDC: full career; DB: last 5-year wages, for the contribution period up to 1992 and last 10 years, thereafter; Mixed: last-5 year wages, for the contribution period up to 1992 and gradual increasing, for the contribution period 1993-1995. For the contribution period after 1995, see NDC.

Taxes

See public sector employees pension scheme.

3) Pension scheme: Self-employed (AGO)

Regulatory framework

Type - See public sector employees pension scheme.

First law - Farmers: Law 1047/1957; Artisan: Law 463/1959; Shopkeepers: Law 613/1966.

Current law - See public sector employees pension scheme.

Coverage - Self-employed.

Administrative organization - See public sector employees pension scheme.

Qualifying condition

See public sector employees pension scheme.

Contribution

Contribution rate: Employees - Around 22.2% in 2014, gradually increasing to 24% in 2018. It also covers disability and survivors' pensions.

Contribution rate: Government See public sector employees pension scheme.

Fund (or any residual funding from the State) - See public sector employees pension scheme.

Contribution base - Labour income.

Benefit

See public sector employees pension scheme except for the following

Pensionable earning reference - 1. NDC: full career; 2. DB: last 10-year wages, for the contribution period up to 1992 and last 15 years, thereafter; 3. Mixed (DB and NDC): last 10-year wages, for the contribution period up to 1992 and gradual increasing, for the contribution period 1993-1995. For the contribution period after 1995, see NDC.

Taxes

See public sector employees pension scheme.

4) Pension scheme: Atypical workers

Regulatory framework

Type - NDC: new workers insured after 1995. Mandatory, earnings related and non means-tested (except for the topping-up to the minimum pension under DB and mixed regimes. The minimum pension accounts for 6,441 euro per year, in 2013).

First law - Law 335/1995.

Current law - See public sector employees pension scheme.

Coverage - Atypical workers (parasubordinate workers and freelancers without a dedicated pension scheme).

Administrative organization - See public sector employees pension scheme.

Qualifying condition

See self-employed pension scheme.

Contribution

Contribution rate: Employers - 28% in 2014, gradually increasing to 33%, in 2018. Such rates are reduced to 22%, in 2014, and 24%, in 2016, if the insured are pensioners or contributors to other public pension schemes. In case of parasubordinate

workers, about 2/3rd of the contribution rate is paid by the employers. It also covers disability and survivors' pensions.

Contribution rate: Employees - 28% in 2014, gradually increased to 33%, in 2018. Such rates are reduced to 22%, in 2014, and 24%, in 2016, if the insured are pensioners or contributors to other public pension schemes. In case of parasubordinate workers, about 1/3rd of the contribution rate is paid by the employees. It also covers disability and survivors' pensions.

Contribution rate: Government - See public sector employees pension scheme.

Fund (or any residual funding from the State) - See public sector employees pension scheme

Contribution base - Labour income.

Benefit

Pensionable earning reference - NDC: full career.

Accrual rate - NDC: product of the contribution rate and the transformation coefficients, i.e. the percentages to be applied to the total lifelong contributions to calculate the first annual amount of pension. Based on actuarial equivalence, they are inversely correlated with the retirement age, in the age bracket 57-70.

Penalties for early retirement - See public sector employees pension scheme.

Bonuses for postponing retirement - See public sector employees pension scheme.

Valorisation of pensionable earnings: - NDC: nominal GDP (5-year moving average).

Indexation of pensions in payment - See public sector employees pension scheme.

Maximum replacement rate - NDC: no upper limit.

Sustainability factor/benefit linked to life expectancy - See public sector employees pension scheme.

Taxes

See public sector employees pension scheme.

5) Pension scheme: a) Professionals under Legislative decree 503/1992 (schemes setup before 1996); b) Professionals under Legislative decree 103/1996 (schemes setup after 1996).

Regulatory framework

Type – a) DB or Mixed (DB and NDC); b) NDC. Both are mandatory, earnings related, non means-tested.

First law – a) Laws establishing various schemes were adopted from 1919 (Notaries) to 1971 (Labour consultants); b) Legislative decree 103/1996.

Current law - a) Legislative decree 509/94; b) Legislative decree 103/96.

Coverage – Professionals.

Administrative organization - Various social security institutions for different categories of professionals.

Qualifying condition

Qualifying conditions depend on the scheme.

Contribution

Contribution rate: Employers - Depending on the scheme.

Contribution rate: Employees - Depending on the scheme.

Contribution rate: Government - Does not apply.

Fund (or any residual funding from the State) - Does not apply.

Contribution base - Labour income and (to a lesser extent) turnover.

Benefit

Pensionable earning reference - a) DB or Mixed: depending on the scheme; b) NDC: full career.

Accrual rate - Depending on the scheme.

Penalties for early retirement - Depending on the scheme.

Bonuses for postponing retirement - Depending on the scheme.

Valorisation of pensionable earnings - Depending on the scheme.

Indexation of pensions in payment - Depending on the scheme. Generally, price inflation.

Maximum replacement Rate - Depending on the scheme.

Taxes

See public sector employees pension scheme.

in the last five years. After the 1984-reform (Law 222/84), entitlements only depend on mental and physical impairments without considering labour market conditions.

Retirement age linked to life expectancy – Does not apply.

Statutory retirement age - Does not apply.

Contrib. period for full pension: - Does not apply.

Contribution

No specific contribution rate. See the corresponding old-age pension schemes.

Benefit

See the corresponding old-age pension schemes.

Taxes

S See the corresponding old-age pension schemes.

DISABILITY

Pension scheme: Disabled people (all workers)

Regulatory framework

Type - See the corresponding old-age pension schemes.

First law - Generally, the same as the corresponding old age schemes.

Current law - See the corresponding old-age pension schemes.

Coverage - Disabled people insured to the public pension system.

Administrative organization - See the corresponding old-age pension schemes.

Qualifying condition

Minimum retirement age and contributory years - 5 years of contribution, 3 of which accrued

SURVIVOR

Pension scheme: Survivors' pension

Regulatory framework

Type - See the corresponding old-age pension schemes.

First law - Generally, the same as the corresponding old-age pension schemes.

Current law - See the corresponding old-age pension schemes..

Coverage - Surviving spouse (widows/widowers) and depending children (up to 18 or 26, if students).

Administrative organization - See the corresponding old-age pension schemes.

Qualifying condition

Minimum retirement age and contributory years - 15 years of contribution, or alternatively, 5 years of contribution 3 of which accrued in the last five years.

Retirement age linked to life expectancy – Does not apply.

Statutory retirement age - Does not apply.

Contrib. period for full pension: - Does not apply.

Contribution

No specific contribution rate. See the corresponding old-age pension schemes..

Benefit

Pensionable earning reference - As for old age and early pensions, in case of survivors of deceased workers.

Accrual rate - Surviving spouse (widows/widowers): 60% of the deceased's pension (or calculated pension, in case the deceased has not retired yet). Surviving spouse with one or more children: 60% is increased to 80% and 100% (maximum level), respectively. A survivor's pension cannot be accumulated with other income sources for 25%, 40% or 50% of its amount if the survivor's total income exceeds, respectively, 3, 4 or 5 times the minimum pension.

Penalties for early retirement - As for old age and early pensions, in case of survivors of deceased workers.

Bonuses for postponing retirement - As for old age and early pensions, in case of survivors of deceased workers.

Valorisation of pensionable earnings - As for old age and early pensions, in case of survivors of deceased workers.

Indexation of pensions in payment - As for old age and early pensions.

Maximum replacement rate - 60% for the surviving spouse (widow/widower); 100% in case of children.

Sustainability factor/benefit linked to life expectancy - As for old age and early pensions.

Taxes

See the corresponding old-age pension schemes..

MINIMUM PENSION

Pension scheme: Old age allowance (social pension if awarded before 1996)

Regulatory framework

Type - Flat rate, mandatory, non-earnings related, means-tested (personal income not exceeding the benefit itself and couple's income (if married) not exceeding twice the benefit).

First law - Law 335/95 (Law 153/69).

Current law - See the corresponding old-age pension schemes..

Coverage - Elderly population (a minimum number of years of continuous residence is required).

Administrative organization – See the corresponding old-age pension schemes..

Qualifying condition

Minimum retirement age and contributory years - The minimum retirement age is 65 years and 3 months in 2014, increasing by 1 year in 2018, and then fully aligned to the SRA of the public pension system. Contribution requirement does not apply.

Retirement age linked to life expectancy - From 2013, the minimum retirement age is indexed to changes in life expectancy every three years (every 2 years as of 2021).

Statutory retirement age - Does not apply.

Contrib. period for full pension: - Does not apply.

Contribution

Contribution rate: Employers - Does not apply.

Contribution rate: Employees - Does not apply.

Contribution rate: Government - Does not apply.

Fund (or any residual funding from the State) - Fully financed by the State.

Contribution base - Does not apply.

Benefit

Pensionable earning reference - Does not apply.

Accrual rate – Accrual rate does not apply. The old age allowance accounts for an annual amount of 5,750 euro in 2013. Social assistance additional lump sums are foreseen to supplement the old age allowance to given income thresholds, depending on age and marital status (single/married). For those over 70's, the income thresholds account for 8,214 euro (personal income) and 13,964 euro (couple's income), in 2013. Considering the additional income provided through the social purchase card (carta acquisti) yearly financed by the State, such thresholds are further increased up to 8,694 euro and 14,924 euro, respectively, which may be regarded as the minimum income guaranteed to the elderly.

Penalties for early retirement – Does not apply.

Bonuses for postponing retirement – Does not apply.

Valorisation of pensionable earnings – Does not apply.

Indexation of pensions in payment – Price inflation.

Maximum replacement Rate – Does not apply.

Sustainability factor/benefit linked to life expectancy - Three-year (two-year, as of 2021) indexation of the minimum age requirement to changes in life expectancy.

Taxes

See the corresponding old-age pension schemes.

Cyprus

Public schemes

OLD AGE

1) Pension scheme: General Social Insurance Scheme

Regulatory framework

Type - DB – point system, mandatory, earnings related, non means-tested

First law - Social Insurance Law 31 of 1956

Current law - Social Insurance Law N.193(I)/ 2012

Coverage - Universal (all Types of employment)

Administrative organization - Social Insurance Services - www.mlsi.gov.cy/sid

Qualifying condition

Minimum retirement age and contributory years - At age 63 with at least 33.25 basic insurance points. At age 65 with at least 14.85 basic insurance points

Retirement age linked to life expectancy - Legislated

Statutory retirement age - Age 65 - It changes every 5 years in line with changes in life expectancy to be applied in 2018 and the first revision will cover the period 2018-2023

Contributory period for full pension - 49.5 years at age 65

Contribution

Contribution rate: Employers - 7.8% of earnings up to maximum insurable earnings (MIE)

Contribution rate: Employees - 7.8% of earnings up to maximum insurable earnings (MIE)

Contribution rate: Government - 4.6% of earnings up to MIE

Fund (or any residual funding from the State) - Reserve fund with a value of €7.5bn as at 30.06.2014

Contribution base - Gross earnings up to MIE of €54.396 in 2013

Benefit

Pensionable earning reference - Full insurance period

Accrual rate - 1.5%

Point value - Basic Insurable Earnings (BIE): €9.068 in 2013

Penalties for early retirement - Reduction of 0.5% per month

Bonuses for postponing retirement - Increase of 0.5% per month

Valorisation of Point value - Wage indexation

Indexation of pensions in payment - Basic part: wage indexation. Supplementary part: price indexation

Maximum replacement rate - 60% of MIE

Sustainability factor/benefit linked to life expectancy – n/a.

Taxes

Pension taxation - Pension income is subject to income tax

Tax rates - Same with those applied to the working income

2) Pension scheme: Government Employee Pension scheme

Regulatory framework

Type - DB – final salary for service before 1.1.2013 and career average salary for service after 1.1.2013, mandatory, earnings related, non means-tested

First law - CAP.288

Current law - L.216(I)/2012

Coverage - Public Officers

Administrative organization - Puplic Admimistration and Personnel Department www.mof.gov.cy/papd

Qualifying condition

Minimum retirement age and contributory years - At age 45/48 for officers being hired prior/after 30.6.2005 with at least 5 years of service

Retirement age linked to life expectancy - Legislated

Statutory retirement age - 64 in 2014; 64.5 in 2015; and 65 from 2016 onwards - It changes every 5 years in line with changes in life expectancy to be applied in 2018 and the first revision will cover the period 2018-2023

Contributory period for full pension - 33.33 years

Contribution

Contribution rate: Employers - Balance of cost

Contribution rate: Employees - 5% of gross earnings

Contribution base - Full gross earnings

Benefit

Pensionable earning reference - Final salary for service period before 1.1.2013 and career average salary for service period after 1.1.2013

Accrual rate - 1.5%

Penalties for early retirement - Actuarially cost neutral reductions

Indexation of pensions in payment - 50% of price indexation

Maximum replacement rate - 50% of final salary

Sustainability factor/benefit linked to life expectancy - n/a.

Taxes

Pension taxation - Pension income

Tax rates - Same with those applied to the working income

Private schemes

PRIVATE OCCUPATIONAL

Pension scheme: Semi-state and private sector employee/self-employed Pension schemes

Regulatory framework

Type - DB

Qualifying condition

Minimum retirement age and contributory years - 58-60; 5-30 years

Statutory retirement age - 63-65

Contributory period for full pension - 30-40 years

Benefit

Pensionable earning reference - Varies

Accrual rate - 1.5%

Indexation of pensions in payment - Varies

Maximum replacement rate - Varies

Sustainability factor/benefit linked to life expectancy - n/a.

PRIVATE INDIVIDUAL

Private sector

Type - DC

Latvia

Public schemes

OLD AGE

Pension scheme: State Pension scheme

Regulatory framework

Type - NDC, earnings related, non means-tested. Mandatory social insurance scheme for all employees and self-employed; Voluntary: persons who have reached 15 years of age, whose permanent place of residence is Latvia, who has not reached retirement age and who are not socially insured; spouse of a self-employed person who has not reached retirement age

First law - Law on State pensions (2/11/1995)

Current law - Law on State pensions (2/11/1995)

Coverage - All socially insured persons

Administrative organization - State Social Insurance Agency (www.vsaa.lv)

Qualifying condition

Minimum retirement age and contributory years - Normally – 62 years and 3 months in 2014, increases gradually every year by 3 months until reaching 65 years in 2025 ; Included early retirement schemes, where minimum retirement age – 50; Contrib. years for rights - 15 from 2014; 20 from 2025

Retirement age linked to life expectancy - The old age pension formula contains the indicator linked to the life expectancy.

Statutory retirement age - 62 years and 3 months in 2014, increases gradually every year by 3 months until reaching 65 years in 2025. Opportunity to retire 2 years before the normal retirement age, if person's insurance record is 30 years or more.

Contributory period for full pension - 15 from 2014; 20 from 2025 – for old age pension rights

Special schemes - Service Pension scheme (financed from the state budget) for special categories (Judges, Diplomats ect.)

Contribution

Contribution rate: Employers - Total contribution amount for pension capital (20% from earnings) is devided between 1st and 2nd tiers. Contribution rate for 1st tier = 20% -, if no participant of 2nd tier; 16% in 2014 - if participant of 2nd tier; 15% in 2014 and 14% from 2016.

Contribution base - The maximum amount of the object of contributions shall be EUR 46 400 in 2014; The minimum annual amount of the object of contributions for a self-employed person and a voluntarily insured person shall be 12 minimum monthly wages

Benefit

Pensionable earning reference - Full contribution period

Accrual rate - **Contribution** wage sum index

Penalties for early retirement - 50% of the full pensions paid until normal retirement age. Full amount is restored after reaching normal retirement age

Valorisation of pensionable earnings - **Contribution** wage sum index

Indexation of pensions in payment - Actual consumer price index (CPI) and 25% of contribution wage sum growth expected to use for pension indexation from 2014, as well as a ceiling of indexed part of pension's amounts defined. In 2014 the ceiling on indexed part of pensions amount is expected at -285 EUR, but starting from 2015 – the indexed part of the pension amount is expected not higher than 50% of previous year's average contribution wage. However, pensions for persons with I group of disability, for politically repressed persons and for liquidators of the Chernobyl nuclear disaster will be indexed in full amount.

Sustainability factor/benefit linked to life expectancy - Indexation of pension capital with contribution wage sum index; The old age pension

formula contains the indicator linked to the life expectancy.

Special schemes - An amount of service pension depends on length of service and average monthly wage in the definite time period (last 3-5 years)

Taxes

Pension taxation - Pensions granted before 1/1/1996 are not subject to taxation. Pensions granted or recalculated after 1/1/1996 are subject to taxation.

Tax rates - Tax exemption limit is €2,820 per year.

Special schemes - Tax exemption limit is €2,820 per year.

DISABILITY

Pension scheme: State Pension scheme

Regulatory framework

Type - NDC, earnings related, non means-tested. Mandatory social insurance scheme for all employees and self-employed; Voluntary: persons who have reached 15 years of age, whose permanent place of residence is Latvia, who has not reached retirement age and who are not socially insured; spouse of a self-employed person who has not reached retirement age

First law - Law on State pensions (2/11/1995)

Current law - Law on State pensions (2/11/1995)

Coverage - Socially insured persons below retirement age (not included unemployment benefit receivers)

Administrative organization - State Social Insurance Agency (www.vsaa.lv)

Qualifying condition

Minimum retirement age and contributory years - Minimum contributory years for rights - 3 years

Contributory period for full pension - Minimum contributory years for rights - 3 years

Contribution

Contribution rate: Employers - 3.21% in 2014 of the total contribution rate (34.09%) is divided considering specific weight of expenditure

Benefit

Pensionable earning reference - Average monthly wage of the insured person for any consecutive 36 months in the previous five years before the granting of the disability pension.

Indexation of pensions in payment - Actual consumer price index (CPI) and 25% of contribution wage sum growth expected to use for pension indexation from 2014, as well as a ceiling of indexed part of pension's amounts defined. In 2014 the ceiling on indexed part of pensions amount is expected at -285 EUR, but starting from 2015 – the indexed part of the pension amount is expected not higher than 50% of previous year's average contribution wage. However, pensions for persons with I group of disability, for politically repressed persons and for liquidators of the Chernobyl nuclear disaster will be indexed in full amount.

Taxes

Pension taxation - Pensions are subject to taxation.

Tax rates - Tax exemption limit is €2,820 per year. Additional tax exemption for person with disability: categories I & II - €1,848 per year; category III - €1,440 per year.

SURVIVOR

Pension scheme: State Pension scheme

Regulatory framework

Type - NDC, earnings related, non means-tested. Mandatory social insurance scheme for all employees and self-employed; Voluntary: persons who have reached 15 years of age, whose

permanent place of residence is Latvia, who has not reached retirement age and who are not socially insured; spouse of a self-employed person who has not reached retirement age

First law - Law on State pensions (2/11/1995)

Current law - Law on State pensions (2/11/1995)

Coverage - All socially insured persons

Administrative organization - State Social Insurance Agency (www.vsaa.lv)

Qualifying condition

Minimum retirement age and contributory years - No minimum contributory period

Contribution

Contribution rate: Employers - 14.09% in 2014 of the total contribution rate (34.09%) is divided considering specific weight of expenditure

Benefit

Pensionable earning reference - Full contribution period

Accrual rate - Full contribution period

Indexation of pensions in payment - Actual consumer price index (CPI) and 25% of contribution wage sum growth expected to use for pension indexation from 2014, as well as a ceiling of indexed part of pension's amounts defined. In 2014 the ceiling on indexed part of pensions amount is expected at -285 EUR, but starting from 2015 – the indexed part of the pension amount is expected not higher than 50% of previous year's average contribution wage. However, pensions for persons with I group of disability, for politically repressed persons and for liquidators of the Chernobyl nuclear disaster will be indexed in full amount.

Sustainability factor/benefit linked to life expectancy - Indexation of pension capital with contribution wage sum index

Taxes

Pension taxation - Pensions are subject to taxation.

Tax rates - Tax exemption limit is €2,820 per year.

MINIMUM PENSION

Pension scheme: State public benefit

Regulatory framework

Type - Fixed amount, non earnings related, non means-tested

First law - Law on State Social Allowances (31/10/2002)

Current law - Law on State Social Allowances (31/10/2002)

Coverage - Latvian citizens, non-citizens, aliens and stateless persons to whom a personal identity number has been granted and who permanently reside in the territory of Latvia

Administrative organization - State Social Insurance Agency (www.vsaa.lv)

Qualifying condition

Minimum retirement age and contributory years - 5 years after normal retirement age

Statutory retirement age - 5 years after normal retirement age

Additional features - A State social security benefit shall be granted to a person who does not have the right to receive a State pension

Benefit

Pensionable earning reference - State Social Security Benefit €63.04

Private schemes

PRIVATE INDIVIDUAL

1) Pension scheme: State funded Pension scheme (2nd pillar)

Regulatory framework

Type - DC, earnings related. Mandatory for those who were born after July 1, 1971 and voluntary for those who were born from July 2, 1951 to July 1, 1971 (inclusive)

First law - Law on State Funded Pensions; adopted on February 17, 2000; first edition was in force from July 1, 2001 to December 3, 2002

Current law - Law on State Funded Pensions; current edition is in force from April 29, 2014 to December 31, 2014

Coverage - socially insured persons

Administrative organization - Administrative function: The State Social Insurance Agency; http://www.vsaa.lv

Regulating and monitoring function: Financial and Capital Market Commission; http://fktk.lv/en/

Qualifying condition

Minimum retirement age and contributory years - as in State compulsory unfunded pension scheme (1st pillar)

Retirement age linked to life expectancy - as in State compulsory unfunded pension scheme (1st pillar)

Statutory retirement age - as in State compulsory **unfunded Pension scheme** (1st pillar)

Special schemes - not applicable

Contribution

Contribution rate: Employers - Total contribution amount for pension capital (20% from earnings) is divided between 1st and 2nd pillar. In 2013 and 2014 contributions to 2nd pillar are 4%, in 2015 - 5% and in 2016 - 6%.

Contribution base - The maximum amount of the object of contributions shall be EUR 46 400 in 2014; The minimum annual amount of the object of contributions for a self-employed person and a voluntarily insured person shall be 12 minimum monthly wages

Benefit

Pensionable earning reference - full career

Accrual rate - rate of return on investment

Indexation of pensions in payment - if capital added to 1st pillar then as in State compulsory unfunded pension scheme (1st pillar)

Contribution

Exempt

Taxes

Withdrawals - Taxed

Tax rate and description - PIT 24%

Pension scheme: Private voluntary Pension scheme (3rd pillar)

Regulatory framework

Type - DC, voluntary, earnings related.

First law - Law on Private Pension Funds; first edition was in force from July 1, 1998 to September 24, 1998

Current law - Law on Private Pension Funds; current edition is in force from July 3, 2014 to December 20, 2014

Coverage - depends on fund (open or closed)

Administrative organization - Financial and Capital Market Commission; http://fktk.lv/en/

Qualifying condition

Statutory retirement age - from the age of 55, for some professions it is allowed before (38-50)

Contribution

Contribution rate: Employers - voluntary, subject to tax refunds

Contribution rate: Employees - voluntary, subject to tax refunds

Contribution rate: Government - none

Benefit

Accrual rate - rate of return on investment

Taxes

Contribution - Exempt (taxable, if payments into the private pension funds exceed 10% of the annual taxable income)

Tax rate and description - Not applicable (PIT 24%, if taxable)

Returns on investment and fund accumulation - Taxed

Tax rate and description - PIT 10% (on income from capital)

Withdrawals - Exempt

Tax rate and description - Not applicable

Special schemes - The payments made by an employer into the private pension funds are also deductible from the amount of the monthly income provided such payments do not exceed 10% of the monthly gross salary; withdrawals are taxable at the rate of 24%.

Lithuania

Public schemes

OLD AGE

Pension scheme: State social insurance pensions scheme

Regulatory framework

Type – DB, mandatory, earnings related, non means-tested.

First law – law on State social insurance pensions, 1994-07-18

Current law - law on State social insurance pensions, 2014-01-31

Coverage - employed and self-employed

Administrative organization - State Social Insurance Fund Board under the Ministry of Social Security and Labor http://www.sodra.lt/en

Qualifying condition

Minimum retirement age and contributory years - statutory retirement age minus 5 years (in case of early retirement) with minimum 30 years of contribution; minimum contributory period -15 years

Retirement age linked to life expectancy - not linked

Statutory retirement age - w61/m63; increased annually by 4 months for women and by 2 months for men; the rule applies also to early retirement; 65 in 2060

Contributory period for full pension - 30

Special schemes - special schemes are complementary to the main scheme and are paid mainly from the statutory pension age to specific groups: scientists, judges, meritorious persons and casualties; qualifying conditions for officials and military personnel scheme is 20 years of service

Contribution

Contribution rate: Employers – 23.3%

Contribution rate: Employees - 3% (1% for participant in the private second pillar)

Contribution base - salary or part of income for self-employed (rules vary)

Special scheme - special schemes are complementary to the main scheme and are paid from the state budget

Additional features - contributions can be shift to the II pillar: 2% in 2014- 2019; 3.5% since 2020.

Benefit

Pensionable earning reference - pensionable earnings of 5 best years until 1994 and 25 best years after 1994 or 25 best years after 1994

Accrual rate - 0.5% for earnings related part (reduced proportionally to the tariff of contributions to private pension accumulation) + non earnings related pension part

Penalties for early retirement - 0.4% for every month remaining until retirement

Bonuses for postponing retirement - 0.67% per month or 8% per year

Valorisation of pensionable earnings - discretionary

Indexation of pensions in payment - discretionary

Special schemes - Officials and Military Personnel State pension for service is calculated according to average wage of 12 months during 5 best consequent years of service with accrual rate of 1% and is not indexed. Pensions for meritorious persons and casualties are calculated according to state pension base that is indexed discretionary.

DISABILITY

Pension scheme: State social insurance pensions scheme

Regulatory framework

Type – DB, mandatory, earnings related, non means-tested.

First law – law on State social insurance pensions, 1994-07-18

Current law - law on State social insurance pensions, 2014-01-31

Coverage - employed and self-employed

Administrative organization - State Social Insurance Fund Board under the Ministry of Social Security and Labour http://www.sodra.lt/en

Qualifying condition

Minimum retirement age and contributory years - depends on age

Retirement age linked to life expectancy - not linked

Contrib. period for full pension - depends on age

Special schemes - in the officials and military personnel scheme the requirements for a length of service are not determined if disability is as a result of service, otherwise - 5 years.

Contribution

Contribution rate: Employers – 23.3%

Contribution rate: Employees - 3% (1% for participant in the private second pillar)

Contribution base - salary or part of income for self-employed (rules vary)

Special scheme - special schemes are complementary to the main scheme and are paid from the state budget

Benefit

Pensionable earning reference - pensionable earnings of 5 best years until 1994 and 25 best years after 1994 or 25 best years after 1994

Accrual rate - 0.5% for earnings related part (not reduced proportionally to the tariff of contributions to private pension accumulation) + non earnings related pension part

Special schemes - Officials and Military Personel State pension for service is calculated according to average wage of 12 months during 5 best consequent years of service with accrual rate of 0.5%, 1% or 1.2% depending on disability level and is not indexed.

SURVIVOR

Pension scheme: State social insurance pensions scheme

Regulatory framework

Type – DB, mandatory, earnings related for orphans and non earning related for widows/-ers, non means-tested.

First law – law on State social insurance pensions, 1994-07-18

Current law - law on State social insurance pensions, 2014-01-31

Coverage - employed and self-employed

Administrative organization - State Social Insurance Fund Board under the Ministry of Social Security and labour http://www.sodra.lt/en

Qualifying condition

Minimum retirement age and contributory years - statutory retirement age or disability for widows/-ers

Special schemes - no minimum age requirement for spouse in special schemes

Contribution

Contribution rate: Employers – 23.3%

Contribution rate: Employees - 3% (1% for participant in the private second pillar)

Special scheme - special schemes are paid from the state budget

Benefit

Indexation of pensions in payment - discretionary

Additional features - basic amount of state social insurance widows/-ers pension (20,27 EUR) is paid for widow/-er and 50% from the deceased pension - for orphan.

Private schemes

PRIVATE INDIVIDUAL

1) Pension scheme: Mandatory private scheme

Regulatory framework

Type – DC, quasi mandatory, earnings related, non means-tested

First law - Law on reform of the pension system, 03-12-2002

Current law - Law on reform of the pension system, 14-11-2012

Coverage - employed and self-employed

Administrative organization - State Social Insurance Fund Board under the Ministry of Social Security and Labor (http://www.sodra.lt/en) is collecting contributions, private pension funds are managing investment phase, life insurance company - payout phase.

Qualifying condition

Minimum retirement age and contributory years - statutory retirement age minus 5 years in case of early retirement in the public system

Statutory retirement age - according to statutory retirement age

Contribution rate: Employees - 2% + 1% additionally in 2014-2015; 2% + 2% additionally since 2016; 3.5%+2% additionally since 2020

Contribution rate: Government - 1% as a state subsidy from the country's average wage of the year before last in 2014-2015; 2% since 2016

Contribution base - salary or part of income for self-employed (rules vary)

Benefit

Pensionable earning reference - pensionable earnings of full career of private pension accumulation + state subsidy since 2014

Sustainability factor/benefit linked to life expectancy - annuity factor; non in case of lump sum payment

Taxes

Contribution - taxed

Tax rate and description - 15% personal income tax

2) Pension scheme: Non mandatory private scheme

Regulatory framework

Type – DC, voluntary, earnings related, non means-tested

First law – Law on the supplementary voluntary accumulation of pensions, 03-06-1999

Current law - Law on the supplementary voluntary accumulation of pensions, 20-12-2012

Coverage - any person

Administrative organization - private pension funds are managing investment phase, life insurance company - payout phase.

Benefit

Pensionable earning reference - full career of private pension accumulation

Sustainability factor/benefit linked to life expectancy - annuity factor; non in case of lump sum payment

Taxes

Contribution - exempt, if accumulation period is not less than 5 years and withdrawal is made not earlier than 5 years before the statutory retirement age

Tax rate and description - 15% personal income tax

Luxemburg

Public schemes

OLD AGE

Pension scheme: General and special Pension schemes

Regulatory framework

Type - DB, mandatory, Earnings related and non earnings related parts, non means-tested.

First law - law of 6 may 1911 on old-age and disability insurance (general scheme)

Current law - law of 21 December 2012 on the reform of the pension insurance

Coverage - general scheme: employed and self-employed people, special scheme: civil servants

Administrative organization - general scheme: Caisse nationale d'assurance pension (www.cnap.lu), special scheme: e.g. Administration du personnel de l'Etat (ape.public.lu)

Qualifying condition

Minimum retirement age and contributory years - 57 with 40 years of contribution

Retirement age linked to life expectancy - no

Statutory retirement age - 65 years

Contributory period for full pension – 40 years

Special schemes - no

Additional features - none

Contribution

Contribution rate: Employers - 8%

Contribution rate: Employees - 8%

Contribution rate: Government - 8%

Fund (or any residual funding from the State) - buffer fund of at least 1.5 times the amount of annual benefits (general Pension scheme)

Contribution base - gross salary including benefits and excluding overtime pay, min. threshold: smw, max threshold: 5 times smw

Special scheme - special scheme: no max threshold

Additional features - none

Benefit

Pensionable earning reference - full career

Accrual rate - scaled from 1.85% in 2012 to 1.6% in 2052

Penalties for early retirement - none

Bonuses for postponing retirement - annual increase of accrual rate scaled from 0,02% in 2012 to 0,04% in 2052

Valorisation of pensionable earnings - wage indexation up to fourth year preceding retirement

Indexation of pensions in payment - wage indexation if sufficient financial resources available (contributions > expenditures), otherwise cost of living indexation only

Maximum replacement rate - 417% of smw (min. rep rate of 90% of smw for full career)

Sustainability factor/benefit linked to life expectancy - not applicable

Special schemes - special scheme: no max replacement rate

Additional features - none

Taxes

Pension taxation - yes

Tax rates - scaled tax rates specific to pension income, contributions to health insurance and long-term care insurance

DISABILITY

See old-age pension scheme except for the following characteristics

Qualifying condition

Minimum retirement age and contributory years - 1 year of contribution in the course of 3 years preceding disability

Retirement age linked to life expectancy - not applicable

Statutory retirement age - not applicable

Contributory period for full pension - not applicable

SURVIVOR

See old-age pension scheme except for the following characteristics

Regulatory framework

First law - law of 17 december on social insurance code (general scheme)

Qualifying condition

Minimum retirement age and contributory years - 1 year of contribution in the course of 3 years preceding death

Retirement age linked to life expectancy - not applicable

Statutory retirement age - not applicable

Contributory period for full pension - not applicable

MINIMUM PENSION

See old-age pension scheme except for the following characteristics

Benefit

Maximum replacement rate - 90% of smw for full career

Hungary

Public schemes

OLD AGE

1) Pension scheme: Old age pension

Regulatory framework

Type – DB, mandatory, earnings related, non means-tested.

First law - Act LXXXI of 1997 on Social Security Pension Benefits

Current law - Act LXXXI of 1997 on Social Security Pension Benefits

Coverage - all sectors, insured persons who acquire at least 15 service years

Administrative organization - Central Administration of National Pension Insurance

Qualifying condition

Minimum retirement age and contributory years - statutory retirement age is the minimum retirement age (details please see below); minimum contributory years 15 for partial pension, 20 for full pension

Retirement age linked to life expectancy - No

Statutory retirement age - 62 for those who were born before 1952,

62.5 for those who were born in 1952;

63 for those who were born in 1953,

63.5 for those who were born in 1954,

64 for those who were born in 1955,

64.5 for those who were born in 1956,

65 for those who were born in 1957 or later.

Contributory period for full pension - 20 years

Contribution

Contribution rate: Employers - 27%

Contribution rate: Employees - 10%

Fund (or any residual funding from the State) - No

Contribution base - gross income, no contribution ceiling

Special scheme - special possibilities for self-entrepreneurs, e.g. fix amounts for the total cost of "tax and contributions"; in case of childcare the amounts of benefits and allowances do not ruin the average income of whole carrier

Benefit

Pensionable earning reference - All income from 1988

Accrual rate - not linear, average is 2%/year

Penalties for early retirement - No early retirement from 2012.

Bonuses for postponing retirement - 0.5%/month

Valorisation of pensionable earnings - net wage index

Indexation of pensions in payment - 100% CPI

Maximum replacement rate - No maximum, though some limits are used during the pension calculation (degressivity; insured cannot gain further accrual rate above 50 service year)

Sustainability factor/benefit linked to life expectancy - No.

Taxes

No taxes on pension.

2) Pension scheme: General early pension (advanced early pension)

Not part of the Pension System and are financed from the National Family and Social Policy Fund; (no new eligibility from 2012, but the earlier acquired rights are enforceable), to become closed system

Regulatory framework

Type – DB, mandatory, earnings related, non means-tested.

First law - Act LXXXI of 1997 on Social Security Pension Benefits

Current law - Act CLXVII of 2011 on the termination of early retirement pension, on benefits prior to retirement age and on benefits for the official members of the armed forces

Coverage - No more general early retirement available in the future, but the earlier acquired rights are enforceable. In case of women, the last cohort, who could receive the so-called "benefit prior to the retirement", were born in 1953. They will also reach their relevant "Statutory retirement age" (63) in 2016. In case of men, the last cohort, who could have received pre-retirement benefit, were born in 1951. They reached their relevant statutory retirement age (62) in 2013.

Administrative organization - Central Administration of National Pension Insurance

Qualifying condition

Minimum retirement age and contributory years - In 2011: 59 for women borned in 1952 and 1953 and 60 for men (minimum contributory age 37 years). No new eligibility from 2012.

Retirement age linked to life expectancy - No

Statutory retirement age - No new eligibility from 2012.

Contributory period for full pension - No new eligibility from 2012.

Contribution

Contribution rate: Employers – 27%

Contribution rate: Employees – 10%

Fund (or any residual funding from the State) - No

Contribution base - gross income, no contribution ceiling

Special scheme - special possibilities for self-entrepreneurs, e.g. fix amounts for the total cost of "tax and contributions; in case of childcare the amounts of benefits and allowances do not ruin the average income of whole carrier

Benefit

Pensionable earning reference - All income from 1988

Accrual rate - not linear, average is 2%/year

Penalties for early retirement - No. In case of men who were born in 1951, a reduced sum benefit was calculated (maximum 8.4% reduction depending on the missing years to the statutory retirement age).

Valorisation of pensionable earnings - net wage index

Indexation of pensions in payment - 100% CPI

Maximum replacement rate - No maximum, though some limits are used during the pension calculation (degressivity).

Sustainability factor/benefit linked to life expectancy - No.

Taxes

No taxes on pension.

3) Pension scheme: Women with 40 years real contribution period

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Act LXXXI of 1997 on Social Security Pension Benefits

Current law - Act LXXXI of 1997 on Social Insurance Pension

Coverage - Available for those women, regardless of age, who has gained at least 40 years eligibility period. Eligibility period means any period gained with gainful activity (work) or benefits connected to child raising or nursing fee. At least 32 years of gainful activity is needed; or 30 years of gainful activity in case of nursing fee. Necessary gainful period (32 years) is decreased by 1 year after every child raised in the household for women raising 5 or more children, altogether maximum 7 years this case. In case of these pensions, women are entitled for full pension benefits, benefits are not reduced.

Administrative organization - Central Administration of National Pension Insurance

Qualifying condition

Minimum retirement age and contributory years - Minimum contributory period: 40 years (only work and childcare together; see more information in the description of "Coverage")

Retirement age linked to life expectancy - No

Statutory retirement age - No

Contributory period for full pension - 40 year (included the working years and max. 8 childcare years)

Contribution

Contribution rate: Employers – 27%

Contribution rate: Employees – 10%

Fund (or any residual funding from the State) - No

Contribution base - gross income, no contribution ceiling

Special scheme - special possibilities for self-entrepreneurs, e.g. fix amounts for the total cost of "tax and contributions"; in case of childcare the amounts of benefits and allowances do not ruin the average income of whole carrier

Benefit

Pensionable earning reference - All income from 1988

Accrual rate - not linear, average is 2%/year

Penalties for early retirement - No penalty.

Valorisation of pensionable earnings - net wage

Indexation of pensions in payment - 100% CPI

Maximum replacement rate - No maximum, though some limits are used during the pension calculation (degressivity).

Sustainability factor/benefit linked to life expectancy - No.

Taxes

No taxes on pension.

4) Pension scheme: Miners, artists, mayors, MPs, MEPs benefit;

Not part of the Pension System and are financed from the National Family and Social Policy Fund; (no new eligibility from 2012); to become closed system

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Government Decree 150/1991 and 5/1992

Current law - Act CLXVII of 2011 on the termination of early retirement pension, on

benefits prior to retirement age and on benefits for the official members of the armed forces

Coverage - Who were entitled to miners' or artists' pension, or pension for mayors (polgármesteri nyugdíj), pension for Members of the European Parliament (MEPs) *(EP képviselők nyugdíja)* pension for Members of the Parliament (MPs) *(országgyűlési képviselők nyugdíja)* before 2012, receive the so called "benefit prior to retirement". In case of miners and artists no more rights can be acquired, but the earlier acquired rights are enforceable. In case of mayors, MPs and MEPs no more new entrants, thus their scheme is a closed system.

Administrative organization - Central Administration of National Pension Insurance

Qualifying condition

Retirement age linked to life expectancy - No

Contribution

Contribution rate: Employers – 27%

Contribution rate: Employees – 10%

Fund (or any residual funding from the State) - No

Contribution base - gross income, no contribution ceiling

Special scheme - special possibilities for self-entrepreneurs, e.g. fix amounts for the total cost of "tax and contributions"; in case of childcare the amounts of benefits and allowances do not ruin the average income of the whole carrier

Benefit

Pensionable earning reference - All income from 1988

Accrual rate - not linear, average is 2%/year

Penalties for early retirement - No penalty.

Valorisation of pensionable earnings - net wage

Indexation of pensions in payment - 100% CPI

Maximum replacement rate - No maximum, though some limits are used during the pension calculation (degressivity).

Sustainability factor/benefit linked to life expectancy - No.

Taxes

No taxes on pension.

5) Pension scheme: Working in hazardous jobs;

Not part of the Pension System and are financed from the National Family and Social Policy Fund; (no new eligibility from 2015, but the earlier acquired rights can be enforceable); to become closed system

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested.

First law - Act LXXXI of 1997 on Social Insurance Pension

Current law - Act CLXVII of 2011 on the termination of early retirement pension, on benefits prior to retirement age and on benefits for the official members of the armed forces

Coverage - Insured working in hazardous jobs. But no more possibility to gain eligibility years from 2015

Administrative organization - Central Administration of National Pension Insurance

Qualifying condition

Minimum retirement age and contributory years - Minimum contributory years in hazardous jobs: 10 for man, 8 for women. If somebody reaches this minimum, he/she is entitled to get benefits prior to retirement. Every 5 years (4 years for women) spent in hazardous jobs gives 1 year allowance. No more eligibility from 2015

Retirement age linked to life expectancy - No

Contributory period for full pension - 20 years; Minimum contributory years in hazardous jobs: 10 for man, 8 for women

Contribution

Contribution rate: Employers – 27%

Contribution rate: Employees – 10%

Fund (or any residual funding from the State) - No

Contribution base - gross income, no contribution ceiling

Special scheme - special possibilities for self-entrepreneurs, e.g. fix amounts for the total cost of "tax and contributions"; in case of childcare the amount of benefits and allowances do not ruin the average income of the whole carrier

Benefit

Pensionable earning reference - All income from 1988

Accrual rate - not linear, average is 2%/year

Penalties for early retirement - No penalty.

Valorisation of pensionable earnings - net wage

Indexation of pensions in payment - 100% CPI

Maximum replacement rate - No maximum, though some limits are used during the pension calculation (degressivity).

Sustainability factor/benefit linked to life expectancy - No.

Taxes

No taxes on pension.

6) Pension scheme: Armed forces benefits;

Not part of the Pension System and are financed from the National Family and Social Policy Fund; (no new eligibility from 2012, but the earlier acquired rights can be enforceable); closed system

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested

First law - Act XLIII of 1996 on Official Members of the Armed Forces and Act XCV of 2011 on Official Members of Hungarian Army

Current law - Act CLXVII of 2011 on the termination of early retirement pension, on benefits prior to retirement age and on benefits for the official members of the armed forces

Coverage - Members of armed forces, but no new entrants from 2012. Those who got army pension benefit before 2012, can receive "benefit for members of army forces".

Administrative organization - Central Administration of National Pension Insurance

Qualifying condition

Minimum retirement age and contributory years - No new eligibility from 2012

Retirement age linked to life expectancy - No

Contribution

Contribution rate: Employers – 27%

Contribution rate: Employees – 10%

Fund (or any residual funding from the State) - No

Contribution base - gross income, no contribution ceiling

Special scheme - special possibilities for self-entrepreneurs, e.g. fix amounts for the total cost of "tax and contributions"; in case of childcare benefits and allowances

Benefit

Pensionable earning reference - All income from 1988

Accrual rate - not linear, average is 2%/year

Penalties for early retirement - No penalty.

Valorisation of pensionable earnings - net wage

Indexation of pensions in payment - 100% CPI

Maximum replacement rate - No maximum, though some limits are used during the pension calculation (degressivity).

Sustainability factor/benefit linked to life expectancy - No.

Taxes

No taxes on pension.

7) Pension scheme: Early pension subsidized by the employer;

Not part of the Pension System and are financed from the National Family and Social Policy Fund; no new entrants from 2012; closed system

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested

First law - Act LXXXI of 1997 on Social Security Pension Benefits

Current law - Act CLXVII of 2011 on the termination of early retirement pension, on benefits prior to retirement age and on benefits for the official members of the armed forces

Coverage - If there was an agreement before 2012, that early retirement pension financed by the employer (maximum 5 years), the insured can get the so called "benefit prior to retirement".

Administrative organization - Central Administration of National Pension Insurance

Qualifying condition

Minimum retirement age and contributory years - 57 (but no new entrants from 2012)

Retirement age linked to life expectancy - No

Statutory retirement age - 57

Contribution

Contribution rate: Employers – 27%

Contribution rate: Employees – 10%

Fund (or any residual funding from the State) - No

Contribution base - gross income, no contribution ceiling

Special scheme - special possibilities for self-entrepreneurs, e.g. fix amounts for the total cost of "tax and contributions"; in case of childcare the amounts of benefits and allowances do not ruin the average income of the whole carrier

Benefit

Pensionable earning reference - All income from 1988

Accrual rate - not linear, average is 2%/year

Penalties for early retirement - No penalty.

Valorisation of pensionable earnings - net wage

Indexation of pensions in payment - 100% CPI

Maximum replacement rate - No maximum, though some limits are used during the pension calculation (degressivity).

Sustainability factor/benefit linked to life expectancy - No.

Taxes

No taxes on pension.

DISABILITY

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested

First law - Act LXXXI of 1997 on Social Security Pension Benefits

Current law - Act CXCI of 2011 on Benefits for persons with changed working capacity and amendments of certain acts

Coverage - Those disabled person, who fulfil the minimum requirements are eligible for disability or rehabilitation benefit.

Administrative organization - National Office for Rehabilitation and Social Affairs

Qualifying condition

Minimum retirement age and contributory years - The minimum contributory years depends on the age of becoming disabled or rehabilitated

Retirement age linked to life expectancy - No

Statutory retirement age - No

Contributory period for full pension - The minimum contributory years depends on the age of becoming disabled or rehabilitated

Contribution

Contribution rate: Employers – 27%

Contribution rate: Employees – 10%

Fund (or any residual funding from the State) - No

Contribution base - gross income, no contribution ceiling

Special scheme - special possibilities for self-entrepreneurs, e.g. fix amounts for the total cost of "tax and contributions"; in case of childcare the amounts of benefits and allowances do not ruin the average income of the whole carrier

Benefit

Pensionable earning reference - All income from 1988

Accrual rate - not linear, average is 2%/year

Penalties for early retirement - No penalty.

Valorisation of pensionable earnings - net wage

Indexation of pensions in payment - 100% CPI

Maximum replacement rate - There are limitations, the minimum and maximum amount of disability and rehabilitation benefits based on the individuals' health status (seriousity of disability) and their possibilities for rehabilitation.

Sustainability factor/benefit linked to life expectancy - No.

Taxes

No taxes on pension.

SURVIVOR

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested

First law - Act LXXXI of 1997 on Social Security Pension Benefits

Current law - Act LXXXI of 1997 on Social Security Pension Benefits

Coverage - widow(er)s, orphans

Administrative organization - Central Administration of National Pension Insurance

Qualifying condition

Retirement age linked to life expectancy - No

Contribution

Contribution rate: Employers – 27%

Contribution rate: Employees – 10%

Fund (or any residual funding from the State) - No

Contribution base - gross income, no contribution ceiling

Special scheme - special possibilities for self-entrepreneurs, e.g. fix amounts for the total cost of "tax and contributions"; in case of childcare the amounts of benefits and allowances do not ruin the average income of the whole carrier

Benefit

Pensionable earning reference - All income from 1988

Accrual rate - not linear, average is 2%/year

Penalties for early retirement - No penalty.

Valorisation of pensionable earnings - net wage

Indexation of pensions in payment - 100% CPI

Maximum replacement rate - No maximum, though some limits are used during the pension calculation (degressivity).

Sustainability factor/benefit linked to life expectancy - No.

Taxes

No taxes on pension.

MINIMUM PENSION (Old-age social allowance for those who have no right for pension)

Regulatory framework

Type - social allowance, mandatory, non earnings related, means-tested

First law - Act III of 1993 on Social Governance and Social Benefits

Current law - Act III of 1993 on Social Governance and Social Benefits

Coverage - Those who hadn't acquired pension eligibility and have no other income.

Administrative organization - Local governments

Qualifying condition

Minimum retirement age and contributory years - same as old age pensionNo minimum contributory years.

Retirement age linked to life expectancy - No

Statutory retirement age - same as old age pension

Contributory period for full pension - No minimum contributory period is needed. It is not a pension benefit. Those who couldn't reach the minimum 15 contributory years for pension and fulfil the other conditions (no income from other sources), can get this allowance.

Benefit

Pensionable earning reference - Not taken into account. Those who are not eligible for pension can get this allowance, the amount depends on their age, marital status, income for other sources.

Indexation of pensions in payment - No indexation.

Maximum replacement rate - Fixed amount

Taxes

No taxes on pension.

Private schemes

PRIVATE OCCUPATIONAL

Regulatory framework

Type - DB or DC, voluntary, earnings related, non means-tested.

First law - Act CXVII of 2007 on Occupational Retirement Provisions and Institutions

Current law - Act CXVII of 2007 on Occupational Retirement Provisions and Institutions

Coverage - Voluntary scheme, currently in very minor extent (only one occupational private pension fund exists).

Administrative organization - Occupational pension funds can be established by employers, banks, insurers or investment companies. Supervisor: Hungarian National Bank's Supervisory Department

Qualifying condition

Minimum retirement age and contributory years - same as old age pension

Retirement age linked to life expectancy - No

Statutory retirement age - same as old age pension

Contributory period for full pension - waiting periods can be defined

Contribution

Contribution rate: Employers - depends on the employers' decision

Contribution rate: Employees - depends on the employers' decision whether additional employees' fee have to be paid or not

Fund (or any residual funding from the State) - Funded system, no residual funding from the state.

Contribution base - The payment depends on the employers' decision.

Benefit

Pensionable earning reference - in DC system accumulated amount

Penalties for early retirement - No early retirement from 2012.

Indexation of pensions in payment - No rules.

Maximum replacement rate - No.

Sustainability factor/benefit linked to life expectancy - No.

Taxes

Contribution - Employers' payment: tax on occupational pension contribution is lower than tax on income (but maximum until the amount of 50% of minimum wage)

Returns on investment and fund accumulation - As a general rule, no tax on returns. Though, if the money is withdrawn earlier and the individual do not meet the minimum period requirements, returns will be taxed.

Withdrawals - No taxes on pension benefit, if the benefit is provided at/after retirement and the employee joined the scheme at least 10 years before. (If the employee joined the fund before 2013, at least 3 years.) In case of disability the pension benefit is tax-free.

PRIVATE INDIVIDUAL

1) Pension scheme: Voluntary privately managed pension funds (ex-Mandatory)

Regulatory framework

Type - DC, voluntary, earnings related, non means-tested.

First law - Act LXXXII of 1997 on Private Pensions an Private Pension Funds

Current law - Act LXXXII of 1997 on Private Pensions an Private Pension Funds

Coverage - Those, who entering the labour market before 2010 and chose to remain in private pension system. Less than 2% of total number of employees are the member of this scheme.

Administrative organization - Supervisor: Hungarian National Bank's Supervisory Department

Qualifying condition

Minimum retirement age and contributory years - same as old age pension

Retirement age linked to life expectancy - No

Statutory retirement age - same as old age pension

Contribution

Contribution rate: Employees - Voluntarily. Pension funds can define the amount of minimum fee.

Fund (or any residual funding from the State) - Funded system, no residual funding from the state.

Contribution base - The payment depends on the employees' decision.

Benefit

Pensionable earning reference - accumulated amount

Penalties for early retirement - No early retirement from 2012.

Indexation of pensions in payment - minimum CPI

Maximum replacement rate - No.

Sustainability factor/benefit linked to life expectancy - No.

Taxes

Returns on investment and fund accumulation - If the pension benefit will be provided at retirement, no taxes on payment. The pension benefit can be provided only at retirement.

Tax rate and description - If the pension benefit will be provided at retirement, no taxes on payment.

Withdrawals - If the pension benefit will be provided at retirement, no taxes on payment.

Tax rate and description - If the pension benefit will be provided at retirement, no taxes on payment.

2) Pension scheme: Voluntary Pension Fund

Regulatory framework

Type - DC, voluntary, earnings related, non means-tested

First law - Act XCVI of 1993 on Voluntary Mutual Insurance Funds

Current law - Act XCVI of 1993 on Voluntary Mutual Insurance Funds

Coverage - Individuals who voluntarily joined any pension funds. Almost one third of the total number of employees is the members of this scheme.

Administrative organization - Supervisor: Hungarian National Bank's Supervisory Department

Qualifying condition

Minimum retirement age and contributory years - same as old age pension

Retirement age linked to life expectancy - No

Statutory retirement age - same as old age pension

Contribution

Contribution rate: Employers - depends on the employers' decision

Contribution rate: Employees - depends on the employees' decision

Contribution rate: Gov. - Tax allowance can be received. 20% of the amount of employees' payment can be transferred to the individual account. For more information, please, see the taxation part.

Fund (or any residual funding from the State) - Funded system, no residual funding from the state.

Contribution base - The payment depends on the employers' and employees' decision.

Benefit

Pensionable earning reference - accumulated amount

Penalties for early retirement - No early retirement from 2012.

Indexation of pensions in payment - No rules.

Maximum replacement rate - No.

Sustainability factor/benefit linked to life expectancy - No.

Taxes

Contribution - Employers' payment: tax on voluntary pension contribution is lower than tax on income (but maximum until the amount of 50% of minimum wage). Employees' payment: the amount of tax allowance is 20% of the paid amount, though there is a limit for the allowance. The amount of tax allowance won't be paid in cash, but will be transferred to the individual's pension fund account.

Returns on investment and fund accumulation - If the pension (lump-sum payment, annuity) will be provided at/after retirement, no taxes on payment. The individual can receive pension benefit after a waiting period (10 years), though in this case the amount will be taxed (excluding the returns).

 Tax rate and description - If the pension (lump-sum payment, annuity) will be provided at/after retirement, no taxes on payment. The individual can receive pension benefit after a waiting period (10 years), though in this case the amount will be taxed (excluding the returns).

Withdrawals - The individual can receive pension benefit after a waiting period (10 years), though in this case the amount will be taxed (excluding the returns). Payment debited on the account after 2007 can be withdrawn after the waiting period with tax obligatory.

Tax rate and description - Payment debited on the account after 2007 can be withdrawn after the waiting period with tax obligatory. Though the taxed part of the total amount decreases every year by 10%. 2 years after the waiting period the tax-free part of the total amount is 10%, and 11 years after the waiting period, the total amount is free of taxes.

Malta

Public schemes

OLD AGE

1) Pension scheme: Contributory scheme

Regulatory framework

Type - Main scheme 2/3 Pension scheme (TTP) but Old age pensions include also: National minimum pension (NMP); increased national minimum pension (INMP); Retirement Pension (RP) increased retirement pension (IRP); and decreased national minimum pension (DNMP). The principle underpinning retirement pensions in Malta is DB. All mandatory. Earnings related pension schemes - TTP, NMP, INMP, IRP.

Non-earnings related: RP. All non means-tested

First law - Social Security Act, Chapter 318 of the Laws of Malta

Current law - Social Security Act, Chapter 318 of the Laws of Malta

Coverage - The Contributory Scheme is universal since it practically covers all strata of the Maltese society. Within this scheme, employees, self-occupied and self-employed persons acquire social insurance rights through the payment of a weekly contribution as laid down by the Social Security Act.

Administrative organization - Department of Social Security, www.family.gov.mt

Qualifying condition

Minimum retirement age and contributory years - Following the 2007 pension reform, a person who has reached the age of 61yrs but has not yet reached pension age, may after reaching 61yrs claim a pension in respect of retirement if such person is no longer gainfully occupied. In this case, it is necessary that since the 18th birthday the claimant has had a total of:

- 2,080 (or 40 yrs) paid or credited contributions for those born on or after 1 Jan 1962, or

- 1,820 (or 35 yrs) paid or credited contributions for those born during 1952-1961.

Statutory retirement age - With the pension reform, males and females 62+ in 2014, 63+ in 2019, 64+ in 2023 and 65+ in 2027.

Contributory period for full pension - Following the 2007 Pension reform, the period of contribution is as follows:

- 30 yrs for those born on or before 31 Dec 1951;

- 35 yrs for those born during 1952-1961;

- 40 yrs for those born on or after 1 Jan 1962

Contribution

Contribution rate: Employers - Class 1 contribution: 10% of the basic salary of the employee

Contribution rate: Employees - Class 1 contribution: 10% of the basic salary of the employee

Class 2 contr.: self-employed pays 15% of the annual income that is subject to the same ceiling that applies for employees1

Contribution rate: Government - Class 1 contribution: 10% of the basic salary of the employee

Class 2 contribution: Government. pays 7.5% of the annual income that is subject to the same ceiling that applies for employees1

Benefit

Pensionable earning reference - Prior to the pension reform, the pension for employees was determined on the basis of the yearly average of the basic wage during the best 3 yrs of the last 10 yrs, while the pension for the self-occupied persons worked out on the basis of the best 10 yrs. Following the 2007 pension reform, the pension is determined as follows:

1. Born between 1953 and 1955, the yearly average of the best 3 yrs of the last 11 yrs for

employees and the best 10 yrs in the last 11 yrs for self-employed

2. Born between 1956 and 1958, the yearly average of the best 3 yrs in the last 12 yrs for employees and the best 10 yrs in the last 12 yrs for self-employed

3. Born between 1959 and 1961, the yearly average of the best 3 yrs in the last 13 yrs for employees and the best 10 yrs in the last 13 yrs for self-employed

4. Born on or after 1/1/1962, for both employees and self-employed, by taking yearly average of the basic wage/salary/net income/net earnings during the best 10 calendar years within the last 40 years preceding retirement or invalidity.

Bonuses for postponing retirement - New legislation was introduced in 2008 through which persons of pensionable age under the age of 65 are now able to work without losing their pension entitlements, irrespective of the amount of earnings and irrespective of their age.

Valorisation of pensionable earnings - Pensionable earnings are valorised on the basis of the Cost of Living Adjustment (COLA).4

Indexation of pensions in payment - Persons born before 1 January 1962 (including present retirees) have their pension updated by COLA and on the basis of increases in wages presently awarded through collective bargaining to the occupation or salary scale previously occupied by the person in retirement.

Following the 2007 pension reform, persons born on or after the 1 January 1962 have their pension updated annually by such sum that corresponds to 70% of the increase in the national average wage and 30% of the inflation rate as published by the NSO.

Maximum replacement rate - Expressing the Maximum Pension as a proportion of the average wage in 2013:

Maximum pensionable income5 as a share of the current average wage (Source: LFS 2013).

In 2013 the highest rate of two-thirds pension was €226.04 per week, expressed as a % of the Average Wage: MRR = 74.1%

Taxes

Pension taxation - There is no difference in the general income tax regime between employees and pensioners. In the budget for 2014, it was announced that:

(i) pensioners whose pension does not exceed the national minimum wage are not taxable while the COLA is tax exempt for minimum wage earners and pensioners alike;

(ii) pensioners who are also self-employed on a part-time basis benefit from a preferential income tax rate of 15% on their income as long as it does not exceed the minimum income on which they pay the lowest rate of social security contribution.

2) Pension scheme: Non contributory scheme

Regulatory framework

Type - Means tested minimum pension for those who do not qualify for a contributory retirement pension - non-contributory age pension (AP). Means-tested

First law - Social Security Act, Chapter 318 of the Laws of Malta. The means test is regulated according to the Second Schedule of the Act, which is attached as Appendix H. This Schedule is divided into eight parts, each part according to the

type of Assistance, Allowance, Pension, or benefit being tested.

Current law - Social Security Act, Chapter 318 of the Laws of Malta. The means test is regulated according to the Second Schedule of the Act, which is attached as Appendix H. This Schedule is divided into eight parts, each part according to the type of Assistance, Allowance, Pension, or benefit being tested.

Coverage - In the Non Contributory Scheme, the basic requirement is that the conditions of the means test are satisfied.

Administrative organization - Department of Social Security, www.family.gov.mt

Qualifying condition

Minimum retirement age and contributory years - Unemployed persons who are residents in Malta, over 60 and do not qualify for a contributory retirement pension because they do not have the minimum number of contributions paid or credited, may be entitled to a non-contributory age pension if they satisfy the capital and income means test.

Statutory retirement age - Persons who attain retirement age may become eligible to an Age Pension.

Contributory period for full pension - Under this Type of scheme the main rule is that: a person who is married and who did not contribute enough to be eligible for the minimum pension would receive no social security benefit and would rely on the income of the spouse. On the other hand, a single person with a poor contributory record would be eligible for a non-contributory old-age pension, subject to satisfying the means-testing criteria.

Benefit

Indexation of pensions in payment - As from 2008, pensions under this category are indexed on the basis of current law that is full indexation to COLA

Maximum replacement rate - Under the non-contributory Old-Age pension scheme the rate depends on whether the pensioner is married or single, whereby in 2013:

• A married couple where both qualify for a pension under the Social Security Act would have a highest rate of €130.00 per week;

• A married couple where only one of the spouses qualifies for a pension under the Social Security Act would have the highest rate of €84.62 per week; and

• Widowed, single persons or a married person where the spouse is in receipt of a State Financed Residential Service in terms of the Social Security

Act would have the highest rate of €102.23 per week.

Taxes

Pension taxation – See the contributory pension scheme.

3) Pension scheme: Treasury Pension (public occupational pension scheme)

Regulatory framework

Type - A DB Pension scheme open for Public Officers who joined the Public Service of Malta prior to 15th January 1979. Closed to new members. Earnings related, non means-tested.

First law - Pensions Ordinance, Chapter 93 of the Laws of Malta

Current law - Chapter 93

Administrative organization - Treasury Department, Ministry for Finance

Qualifying condition

Minimum retirement age and contributory years - Minimum Retirement Age 60 years and with 30 years of service. In the case of members appointed to the Police Force, Armed Forces of Malta, and Correction Officers on or after attaining the age of 55 years or if they have completed 25 years' service in the Force;

Retirement age linked to life expectancy - No

Statutory retirement age - Minimum retirement age 60 years and for members appointed to the Police Force, Armed Forces of Malta, and Correction Officers on or after attaining the age of 55 years

Taxes

Pension taxation – See the contributory pension scheme.

DISABILITY

Regulatory framework

Type - Disability pensions include: national minimum invalidity pension (NMIP); invalidity pension (IP); increased invalidity pension (IIP); decreased national invalidity pension (DNIP). Mandatory, non earnings related, non means-tested.

First law - Social Security Act, Chapter 318 of the Laws of Malta

Current law - Social Security Act, Chapter 318 of the Laws of Malta

Administrative organization - Department of Social Security, www.family.gov.mt

Qualifying condition

Minimum retirement age and contributory years - Contributory Invalidity Pensions are awarded to persons who have at least paid 250 contributions and are suffering from a medical condition which according to the medical board of the Social Security Department renders them as permanently incapable for any full-time and/or any part-time employment. Such persons must be incapable for work (suffering from their medical condition) for at least six months prior to their claim and in continuous employment and/or registering for work for at least one year.

Benefit

Indexation of pensions in payment - Regime is similar to that for retirement pensions

Taxes

Pension taxation – See the contributory pension scheme.

SURVIVOR

1 Pension scheme: Contributory Scheme

Regulatory framework

Type - National minimum widows' pension (NMWP); survivors pension (SRP); early survivors pension (ESRP); ; widows pension (WP); mandatory, Earnings Related: NMWP, SRP, ESRP, Non-earnings related: WP. Non means-tested

First law - Social Security Act, Chapter 318 of the Laws of Malta

Current law - Social Security Act, Chapter 318 of the Laws of Malta

Administrative organization - Department of Social Security, www.family.gov.mt

Qualifying condition

Minimum retirement age and contributory years - Contributory Widow's Pensions are awarded to widows whose spouse had paid not less than 156 contributions and to widows where their spouse died as a result of a personal injury during the course of their duties (employment).

A widow's pension is also payable in full without any deductions if widow is carrying out a full-time gainful occupation and, where a widow re-marries, a flat rate widow's pension will be due.

Contribution

Contribution rate: Employers - Class 1 contribution: 10% of the basic salary of the employee

Contribution rate: Employees - Class 1 contribution: 10% of the basic salary of the employee

Class 2 contribution: self-employed pays 15% of the annual income that is subject to the same ceiling that applies for employees1

Contribution rate: Government - Class 1 contribution: 10% of the basic salary of the employee

Class 2 contribution: Government pays 7.5% of the annual income that is subject to the same ceiling that applies for employees1

MINIMUM PENSION

Minimum Pensions are being covered under the non-contributory scheme illustrated above.

Netherlands

Public schemes

OLD AGE

Pension scheme: Social security pensions (AOW)

Regulatory framework

Type - 'points': number of years residing in NL; one year equals 2% benefit accumulation (DB). Mandatory, benefit is non-Earnings related (flat rate); contribution is earnings related, non means-tested.

First law - Algemene ouderdomswet 1957

Current law - Algemene ouderdomswet 2011

Coverage - all living or working in NL

Administrative organization - public agency - SVB

Qualifying condition

Minimum retirement age and contributory years - 65 + 2m in 2014, gradually raised to 67 in 2023, and linked to life expectancy after 2023. 50 yrs of residency required for full benefit

Retirement age linked to life expectancy - Legislated, effective after 2023

Statutory retirement age - 65 + 2m in 2014, gradually raised to 67 in 2023, and linked to life expectancy after 2023

Contributory period for full pension - 50 years of residency

Contribution

Contribution rate: Employees - 17,9% on first two tax brackets, with a deduction that takes account of tax credits

Contribution rate: Government - Government supplements shortfall between expenditure and funds raised by the 17,9% tax levy on first two tax brackets

Fund (or any residual funding from the State) - not applicable

Contribution base - First two tax brackets of labour income (which run from zero to approx. 33 thousand euro)

Special scheme - no contribution taken from people over the official retirement age

Benefit

Pensionable earning reference - flat-rate benefit for those over official retirement age

Accrual rate - 2% per year of residency in NL

Penalties for early retirement - early retirement is not possible

Bonuses for postponing retirement - later retirement is not possible

Valorisation of pensionable earnings - earned labour income is used for determining contribution, not for benefit

Indexation of pensions in payment - wages

Maximum replacement rate - depends on earlier labour income, on average 30%

Sustainability factor/benefit linked to life expectancy – life-long benefit is guaranteed and not to be reduced if life expectancy increases

Taxes

Pension taxation - the Social security pension (AOW) is taxable income

Tax rates - general income **Tax rates** for elderly apply (with marginal rates of 18%, 24%, 42% and 52% for earnings up to respectively 20,000; 34,000; 56,000, and over)

DISABILITY

1) Pension scheme: WIA-IVA (100% labour disability)

Regulatory framework

Type - Benefit level is defined (DB) and depends on previous earnings. Mandatory, earnings related, non means-tested.

First law - Wet op de arbeidsongeschiktheidsverzekering 1966

Current law - Wet werk en inkomen naar arbeidsvermogen (WIA) 2005

Coverage - all those working for employers

Administrative organization - public agency - UWV

Qualifying condition

Minimum retirement age and contributory years - Minimum retirement age is not applicable

Retirement age linked to life expectancy - not applicable

Contributory period for full pension - income-related benefit till pension age no relation with contribution period

Contribution

Contribution rate: Employers - contribution is risk related

Contribution rate: Employees - no employee contribution

Contribution rate: Government - Government supplements shortfall between expenditure and funds raised by the employer contribution

Fund (or any residual funding from the State) - not applicable

Contribution base - employer contribution is calculated over gross wage sum of firm and is higher if more WIA cases have come forward in firm

Benefit

Pensionable earning reference - Earnings related benefit for employees

Valorisation of pensionable earnings - earned labour income is used for determining benefit

Maximum replacement rate - 70 - 100% (first year) and 75% (later years)

Sustainability factor/benefit linked to life expectancy - not applicable

Taxes

Pension taxation - the IVA is taxable income

Tax rates - general income **Tax rates** for employees apply (with marginal rates of 36%, 42% and 52% for earnings up to respectively 20,000; 56,000, and over)

2) Pension scheme: WIA - WGA (less than 100% labour disability)

Regulatory framework

Type - Benefit level is defined (DB) and depends on previous earnings. Mandatory, earnings related, non means-tested

First law - Wet op de arbeidsongeschiktheidsverzekering 1966

Current law - Wet werk en inkomen naar arbeidsvermogen (WIA) 2005

Coverage - all those working for employers

Administrative organization - public agency - UWV

Qualifying condition

Minimum retirement age and contributory years - Minimum retirement age is not applicable

Retirement age linked to life expectancy - not applicable

Contributory period for full pension - income-related benefit - duration depends on contribution period (in general each year in employment = one month of benefit)

Contribution

Contribution rate: Employers - contribution is risk related

Contribution rate: Employees - no employee contribution

Contribution rate: Government - Government supplements shortfall between expenditure and funds raised by the employer contribution

Fund (or any residual funding from the State) - not applicable

Contribution base - employer contribution is calculated over gross wage sum of firm and is higher if more WIA cases have come forward in firm

Benefit

Pensionable earning reference - Earnings related benefit for employees - level relates to degree of inability to work

Penalties for early retirement - not applicable

Bonuses for postponing retirement - not applicable

Valorisation of pensionable earnings - earned labour income and degree of inability to work is used for determining benefit

Indexation of pensions in payment - not applicable

Maximum replacement rate - 70 - 100% (first yr) -replacement rate in later years depends on degree of inability to work

Sustainability factor/benefit linked to life expectancy - not applicable

Taxes

Pension taxation - the WGA is taxable income

Tax rates - general income **Tax rates** for employees apply (with marginal rates of 36%, 42% and 52% for earnings up to respectively 20,000; 56,000, and over)

SURVIVOR

Pension scheme: Algemene Nabestaanden wet (ANW)

Regulatory framework

Type - general subsistence level. Mandatory, benefit is non-Earnings related for orphans; it is Earnings related for surviving spouses, not means tested

First law - Algemene Weduwen- en Wezenwet (AWW) 1959

Current law - ANW 1996

Coverage - all living or working in NL

Administrative organization - public agency - SVB

Qualifying condition

Minimum retirement age and contributory years - not applicable

Retirement age linked to life expectancy - not applicable

Statutory retirement age - not applicable

Contributory period for full pension - not applicable

Contribution

Contribution rate: Employees - 0.6%

Contribution rate: Government - Government supplements shortfall between expenditure and contributions

Fund (or any residual funding from the State) - not applicable

Contribution base - contribution calculated over first 33,000 euro income

Benefit

Pensionable earning reference - benefit is non-Earnings related for orphans; it is Earnings related for surviving spouses

Accrual rate - not applicable

Indexation of pensions in payment - minimum subsistence level is reviewed on annual basis

Taxes

Non taxable income

MINIMUM PENSION

Pension scheme: Wet Werk en Bijstand

Regulatory framework

Type - general subsistence level, mandatory, earnings related, both benefit and contribution, means-tested.

First law - Algemene bijstand wet 1965

Current law - Wet Werk en Bijstand 2004

Coverage - all living or working in NL

Administrative organization - local governments

Contribution

Contribution rate: Government - paid from general tax revenues

Contribution base - paid from general tax revenues

Benefit

Pensionable earning reference - earnings and means tested at household level

Indexation of pensions in payment - minimum subsistence level is reviewed on annual basis

Sustainability factor/benefit linked to life expectancy - if no other means available life long benefit is guaranteed

Taxes

Non taxable income

Private schemes

PRIVATE OCCUPATIONAL

1) Pension scheme: Supplementary private pensions

Based on employer-employee agreement, quasi-Mandatory -hundreds / 1000's of Pension schemes exist, this describes the average

Regulatory framework

Type - Pension funds, typically offering DB pension plans. Participation is mandatory if one works for a firm offering a Pension scheme. Contributions are earnings related and paid for by employer and by employee - benefits are Earnings related as well. Non means-tested

First law - Pensioen en spaarfondsenwet 1954

Current law - Pensioenwet 2007, Wet verplichte deelneming in een bedrijfstakpensioenfonds 2000, wet loonbelasting 1964, Wet op de collectieve arbeidsovereenkomst (1927), wet op het algemeen verbindend verklaren (1937)

Coverage - employees working in firms where pension schemes are offered - This includes 90-95% of employees

Administrative organization - Pension funds, typically

Qualifying condition

Minimum retirement age and contributory years - ±60

Retirement age linked to life expectancy - free choice of retirement age between 60 and 70

Statutory retirement age - not applicable

Contributory period for full pension - full career

Special schemes - Occupational pension schemes can vary in details and are based on social partner agreement reflecting special needs and features as required by employer and employee

Additional features - Occupational pension schemes can vary in details and are based on social partner agreement reflecting special needs and features as required by employer and employee

Contribution

Contribution rate: Employers - ± 16% of gross earnings minus contribution-exempt part of income

Contribution rate: Employees - ± 8% of gross earnings minus contribution-exempt part of income

Fund (or any residual funding from the State) - a buffer fund exists, no state commitment exists to cover deficits, some employers however do cover deficits. Pension benefit levels and indexation depend on fund value to value of future liabilities ratio

Contribution base - overall labour income

Special scheme - Occupational pension schemes can vary in details and are based on social partner agreement reflecting special needs and features as required by employer and employee

Additional features - Occupational pension schemes can vary in details and are based on social partner agreement reflecting special needs and features as required by employer and employee

Benefit

Pensionable earning reference - Pension benefit is typically calculated as cumulative accrual rate (± 2% * number of years in employment) related to average annual earnings

Accrual rate - ± 2% per year in employment (percentage is calculated as to include AOW benefit)

Penalties for early retirement - ± 8 % per year of earlier exit

Bonuses for postponing retirement - ± 8 % per year of later exit

Valorisation of pensionable earnings - overall labour income

Indexation of pensions in payment - wages/prices

Maximum replacement rate - depends on earlier labour income, on average 30 to 40% - together with AOW-benefit this adds up to 60-70%

Sustainability factor/benefit linked to life expectancy - benefit amount is linked to life expectancy and in general depends on ratio of fund value to value of future pension entitlements

Special schemes - Occupational pension schemes can vary in details and are based on social partner agreement reflecting special needs and features as required by employer and employee

Additional features - Occupational pension schemes can vary in details and are based on social partner agreement reflecting special needs and features as required by employer and employee

Taxes

Contribution - ± 16% + 8% = 24% of gross earned income minus contribution-exempt income; all contributions are tax exempt

Tax rate and description - the supplementary pension benefit is taxable income

Returns on investment and fund accumulation - returns on investment and fund accumulation are tax exempt

Withdrawals - withdrawals (pension benefits) are taxed

Tax rate and description - general income **Tax rates** for elderly apply (with marginal rates of 18%, 24%, 42% and 52% for earnings up to respectively 20,000; 34,000; 56,000, and over)

2) Pension scheme: Supplementary private pensions

Based on employer-employee agreement, quasi-Mandatory -hundreds / 1000's of Pension schemes exist, this describes the average one

Regulatory framework

Type - Private insurance firms, typically offering DC pension plans. Participation is mandatory if one works for a firm offering a Pension scheme. Contributions are earnings related and paid for by employer and by employee - benefits are Earnings related as well. Non means-tested

First law - as above

Current law - as above + Wet op het financieel toezicht 2007

Coverage - employees working in firms where **Pension scheme**s are offered - This includes 90-95% of employees

Administrative organization - Private insurance firms, typically

Qualifying condition

Minimum retirement age and contributory years - ±60

Retirement age linked to life expectancy - free choice of retirement age between 60 and 70

Statutory retirement age - not applicable

Contributory period for full pension - full career

Special schemes - Occ pension schemes can vary in details and are based on social partner agreement reflecting special needs and features as required by employer and employee

Additional features - Occupational pension schemes can vary in details and are based on social partner agreement reflecting special needs and features as required by employer and employee

Contribution

Contribution rate: Employers - ± 16% of gross earnings minus contribution-exempt part of income

Contribution rate: Employees - ± 8% of gross earnings minus contribution-exempt part of income

Fund (or any residual funding from the State) - no fund

Contribution base - overall labour income

Special scheme - Occupational Pension schemes can vary in details and are based on social partner agreement reflecting special needs and features as required by employer and employee

Additional features - Occupational Pension schemes can vary in details and are based on social partner agreement reflecting special needs and features as required by employer and employee

Benefit

Pensionable earning reference - Benefit is not defined.

Accrual rate - not applicable

Penalties for early retirement - ± 8 % per year of earlier exit

Bonuses for postponing retirement - ± 8 % per year of later exit

Valorisation of pensionable earnings - overall labour income

Indexation of pensions in payment - wages/prices

Maximum replacement rate - depends on earlier labour income, on average 30 to 40% - together with AOW-benefit this adds up to 60-70%

Sustainability factor/benefit linked to life expectancy - benefit amount depends on value of capital build up during career and annuity rate

Special schemes - Occupational pension schemes can vary in details and are based on social partner agreement reflecting special needs and features as required by employer and employee

Additional features - Occupational pension schemes can vary in details and are based on social partner agreement reflecting special needs and features as required by employer and employee

Taxes

Contribution - ± 16% + 8% = 24% of gross earned income minus contribution-exempt income; all contributions are tax exempt

Tax rate and description - the supplementary pension benefit is taxable income

Returns on investment and fund accumulation - returns on investment and fund accumulation are tax exempt

Withdrawals - withdrawals (pension benefits) are taxed

Tax rate and description - general income **Tax rates** for elderly apply (with marginal rates of 18%, 24%, 42% and 52% for earnings up to respectively 20,000; 34,000; 56,000, and over)

PRIVATE INDIVIDUAL

Pension scheme: Supplementary private pensions

Voluntary individual participation -hundreds / 1000's of Pension schemes exist, this describes the average

Regulatory framework

Type - Private insurance firms, typically offering DC pension plans. Voluntary, non earnings related, non means-tested.

First law - various laws relating to audit and supervision of financial institutions

Current law - Wet op het financieel toezicht 2007, wet inkomensbelasting 2001

Coverage - voluntary individual participation

Administrative organization - Private insurance firms

Qualifying condition

Minimum retirement age and contributory years - ±60

Retirement age linked to life expectancy - free choice of retirement age between 60 and 70

Statutory retirement age - not applicable

Contributory period for full pension - participation 'necessary' only if AOW + occupational private pensions add up to less than 70% replacement rate

Special schemes - schemes can vary in details and are based on private agreement with insurance firms

Contribution

Contribution rate: Employers - none

Contribution rate: Employees - whatever is agreed between individual client and insurance firm

Fund (or any residual funding from the State) - not applicable

Contribution base - not applicable

Special scheme - schemes can vary in details and are based on private agreement with insurance firms

Benefit

Pensionable earning reference - Benefit is not defined.

Accrual rate - not applicable

Penalties for early retirement - ± 8 % per year of earlier exit

Bonuses for postponing retirement - ± 8 % per year of later exit

Valorisation of pensionable earnings - not applicable

Indexation of pensions in payment - whatever is agreed between individual client and insurance firm

Maximum replacement rate - This scheme is typically used to build up pension entitlements missing elsewhere in order to add up to 70%

Sustainability factor/benefit linked to life expectancy - life long benefit is guaranteed after the benefit has started the pay-out phase - during the accumulation phase however, longer life expectancy tends to reduce benefit levels

Special schemes - whatever is agreed between individual client and insurance firm

Taxes

Contribution - contributions are tax exempt if and only if participant has built up pension entitlements in AOW + occ private pensions adding up to less than 70% replacement rate

Tax rate and description - if contributions are not tax exempt they will be paid out of net incomes

Returns on investment and fund accumulation - returns on investment and fund accumulation are tax exempt

Tax rate and description - not applicable

Withdrawals - withdrawals (pension benefits) are taxed

Tax rate and description - general income **Tax rates** for elderly apply (with marginal rates -- see cell above)

Austria

Public schemes

OLD AGE

1) Pension scheme: Regular Old-Age Pension

Regulatory framework

Type - DB, earnings-related, non means-tested

First law - Allgemeines Sozialversicherungsgesetz (ASVG), Gewerbliches Sozialversicherungsgesetz (GSVG), Freiberuflich Selbständigen-Sozialversicherungsgesetz (FSVG), Bauern-Sozialversicherungsgesetz (BSVG), Pensionsgesetz (PG, central government civil servants), own laws at state government level

Current law - Allgemeines Pensionsgesetz (APG), Pensionsgesetz (PG), own laws at state government level

Administrative organisation - Pensionsversicherungsanstalt (www.pensionsversicherung.at), Versicherungsanstalt öffentlich Bediensteter (http://www.bva.at/)

Qualifying condition

Qualifying condition, minimum retirement age and contributory years - Statutory retirement age, min. 15 insurance years (thereof 7 years of contribution)

Retirement age linked to life expectancy - No

Statutory retirement age (private sector) - 60 years (women), 65 years (men), retirement age for women will be gradually raised to 65 years from 2024 to 2033

Statutory retirement age (public sector) - 65 years (women and men)

Contributory period for full pension - Defined benefit formula: "45-65-80" (45 = contribution years, 65 = retirement age, 80 = 80% of average life-time earnings)

Contribution

Contribution rate: Employers - Blue and white-collar staff: 12.55%, self-employed: 18.5%, self-employed in the liberal professions: 20%, farmers: 16.5% (17% as of 2015)

Contribution rate: Employees - Blue and white-collar staff: 10.25%, civil servants: 11.75%

Contribution rate: Government - Self-employed: 5.30%, farmers: 6.80%, civil servants: 12.55%

Fund (or any residual funding from the State) - The federal budget covers the deficits in public pension schemes (Bundesbeitrag). The deficits are financed by general taxation. The federal budget also covers (equalising) minimum pension income ("Ausgleichszulagen"), compensatory periods ("Ersatzzeiten"), the government contribution rates and the federal civil servants' pensions incl. teachers administered by the states ("Landeslehrer") and some public enterprises (railways, post, telecommunication). The budgets of states and municipalities comprise the pension expenditures of their civil servants.

Contribution base - Contributions are levied on gross salaries and deducted from these before personal income tax (ASVG), income tax assessment notice as Contribution base (GSVG/FSVG), unit values of agricultural enterprises (BSVG)

Benefit

Pensionable earning reference - 2010: 22 best years, 2011: 23 best years,…, 2028: 40 best years, …, 2060: 40 best years

Accrual rate - 1.78% per year

Bonuses for postponing retirement - 4.2% per year (max. 12.6%)

Valorisation of pensionable earnings - Benchmark: average insured wage

Indexation of pensions in payment - Benchmark: CPI

Maximum replacement Rate - 80% (can potentially increase for people working beyond the statutory retirement age)

Sustainability factor/benefit linked to life expectancy - Not legislated, but regular reporting

Taxes

Pension taxation - Pension benefits are subject to personal income tax and health insurance contributions

2) Pension scheme: Corridor Pension scheme (early retirement pension)

Refer to the regular old-age pension schemes except for what specified below

Minimum retirement age and contributory years - 62 years (women), 62 years men (for women this gets relevant only by 2028), required insurance years will be gradually raised from 38.5 years in 2014 to 40 years in 2017

Penalties for early retirement - 5.1% deduction per year before the regular retirement age (for persons born after 1.1.1955)

3) Pension scheme: Early old-age pension for long-term contributors - "Hacklerregelung" (early retirement pension)

Refer to the regular old-age pension schemes except for what specified below

Minimum retirement age and contributory years - 57 years (women born after 1.1.1959), 62 years (men born after 1.1.1954); retirement age for women will be gradually raised to 62, required contribution years **-** men 45, for women it will be gradually raised from 42 to also 45

4) Pension scheme: Heavy worker regulation - "Schwerarbeitspension" (early retirement pension)

Refer to the regular old-age pension schemes except for what specified below

Minimum retirement age and contributory years - 60 years (women), 60 years (men), for women this gets relevant only by 2024, minimum requirement of insurance years: 45, at least 10 years of "hard labour" (list of professions) within 20 years before retirement

Penalties for early retirement - 1.8% deduction per year before the regular retirement age (for persons born after 1.1.1955)

5) Pension scheme: Early old-age pension with a long period of insurance - "Vorzeitige Alterspension bei langer Versicherungsdauer" (early retirement pension)

Refer to the regular old-age pension schemes except for what specified below

Minimum retirement age and contributory years - 59 (women), 64 (men) - after 1.1.2014, required insurance years will be gradually raised from 38.5 years in 2014 to 40 years in 2017, retirement age will also be gradually raised until the statutory retirement age is reached (therefore this option will phase out by 2017)

DISABILITY

Pension scheme: Invalidity and occupational disability pensions

Regulatory framework

Type DB, earnings related, non means-tested

First law - Allgemeines Sozialversicherungsgesetz (ASVG), Gewerbliches Sozialversicherungsgesetz (GSVG), Freiberuflich Selbständigen-Sozialversicherungsgesetz (FSVG), Bauern-Sozialversicherungsgesetz (BSVG),

Pensionsgesetz (PG, central government civil servants), own laws at state government level

Current law - Allgemeines Pensionsgesetz (APG), Pensionsgesetz (PG), own laws at state government level

Coverage - All sectors

Administrative organisation - Pensionsversicherungsanstalt (www.pensionsversicherung.at), Versicherungsanstalt öffentlich Bediensteter (http://www.bva.at/)

Qualifying condition

Minimum retirement age and contributory years - New law: 50 years (women and men), min. 180 contribution months or 300 insurance months, old law: also for people below the age of 50, also temporary invalidity pension

Retirement age linked to life expectancy - No

Additional features - New law: only in case of permanent invalidity, persons born in 1964 or later will receive unemployment benefits instead of invalidity pensions (reintegration/rehabilitation instead of temporary invalidity pension)

SURVIVOR

Pension scheme: Widow/widower and orphans pension

Administrative organisation - Pensionsversicherungsanstalt (www.pensionsversicherung.at), Versicherungsanstalt öffentlich Bediensteter (http://www.bva.at/)

MINIMUM PENSION

Pension scheme: No legal minimum pension but minimum income ("Ausgleichszulage")

Additional features - If individual pension claims are lower than legally defined thresholds, gap is closed by federal budget contributions

Poland

Public schemes

OLD AGE

1) Pension scheme: General Pension System

Regulatory framework

Type - NDC / DB, mandatory, earnings related, non means-tested.

First law - 1998 NDC

Current law - 2013

Coverage - public and private sector, employees and self employed

Administrative organization - Social Insurance Institution (ZUS)

Qualifying condition

Minimum retirement age and contributory years - 65 years for men and 60 for women;

DB - contributory years 25 years for men and 20 years for women; NDC- contributory years not relevant,

In 2060: 65 years for men and 62 for women; contributory years 40 for men and 35 for women

Retirement age linked to life expectancy - not legislated

Statutory retirement age - 65 years for men and 60 for women since 01.01.2013 increase of statutory pension by one month every 4 months.

In 2060: 67+ for men after 2020 and for women after 2040

Contributory period for full pension – DB: contributory years 25 years for men and 20 years for women; NDC: not relevant

Contribution

Contribution rate: Employers - 9.76%

Contribution rate: Employees - 9.76%

Fund (or any residual funding from the State) - Demographic Reserve Found

Contribution base - After exceeding 30 times of forecasted monthly for self-employed 60% of average wage in the economy with some exclusions average wage in national economy for given budgetary year wages are no subject to contributions

Benefit

Pensionable earning reference - In NDC (full career), in DB (10 consecutive years from 20 years or 20 years from full career)

Accrual rate - After OFE reform: 0.86% (for persons with FDC pillar) 1.01% for persons with only NDC pillars. Before the reform: 0.66%

Valorisation of pensionable earnings - DB not relevant; wage fund growth in NDC 1, GDP growth in NDC 2 (in subaccount)

Indexation of pensions in payment - CPI + at least 20% of real wage growth in national economy

Taxes

Pension taxation - Benefits are taxed. Benefit can be cumulated with other income from work

Tax rates - According to general taxation rules, excluding tax deductible expenses; tax rates: 18% and 32%

Special schemes - Not relevant

Additional features - Not relevant

2) Pension scheme: Bridging Pensions

Regulatory framework

Type – NDC, mandatory, earnings related, non means-tested

First law - 2008

Current law - 2012

Coverage - employees working in special conditions or character, who worked in these conditions at least one day before 2009

Administrative organization - Social Insurance Institution (ZUS)

Qualifying condition

Minimum retirement age and contributory years - 65 years for men and 55 for women; contributory years 25 years for men and 20 years for women including at least 15 years in special character or special conditions - temporary solution, only for those employed in special conditions or character before 2009 year.

Retirement age linked to life expectancy - not legislated

Statutory retirement age - 65 years for men and 55 for women

Contributory period for full pension - 25 years for men and 20 years for women

Contribution

Contribution rate: Employers - additional 1.5%

Contribution base - After exceeding 30 times of forecasted monthly average wage in national economy for given budgetary year wages are no subject to contributions

Benefit

Pensionable earning reference - full career

Valorisation of pensionable earnings - wage fund growth

Indexation of pensions in payment - CPI + at least 20% of real wage growth in national economy

Taxes

See the general pension scheme

3) Pension scheme: Miners

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested

First law - 1998

Current law - 2013

Coverage - miners

Administrative organization - Social Insurance Institution (ZUS)

Qualifying condition

Minimum retirement age and contributory years - no minimum retirement age; 25 contributory years

Retirement age linked to life expectancy - not legislated

Contributory period for full pension - 25 years

Contribution

Contribution rate: Employers - 9.76%

Contribution rate: Employees - 9.76%

Fund (or any residual funding from the State) - Demographic Reserve Found

Contribution base - After exceeding 30 times of forecasted monthly for self-employed

60% of average wage in the economy with some exclusions average wage in national economy for given budgetary year wages are no subject to contributions

Benefit

Pensionable earning reference - In NDC (full career), in DB (10 consecutive years from 20 years or 20 years from full career)

Accrual rate - After OFE reform: 0.86% (for persons with FDC pillar) 1.01% for persons with only NDC pillars. Before the reform: 0.66%

Valorisation of pensionable earnings - DB not relevant; wage fund growth in NDC 1, GDP growth in NDC 2 (in subaccount)

Indexation of pensions in payment - CPI + at least 20% of real wage growth in national economy

Taxes

See the general pension scheme

4) Pension scheme: Farmer's Pension System

Regulatory framework

Type - DB, mandatory, non-earnings related (contributions are flat), non means-tested

First law - 1990

Current law - 2012

Coverage - farmers

Administrative organization - Agricultural Social Insurance Fund (KRUS)

Qualifying condition

Minimum retirement age and contributory years - 65 years for men and 60 years for women & 25 contributory years or 60 years for men and 55 for women & 30 contributory years

In 2060: 65 years for men and 62 for women; contributory years 40 for men and 35 for women

Retirement age linked to life expectancy - not legislated

Statutory retirement age - 65 years for men and 60 years for women since 01.01.2018 increase of statutory pension by one month every 4 months

In 2060: 67+ for men after 2020 and for women after 2040

Contributory period for full pension - 25 years

Contribution

Contribution rate: Employers - 10% of general minimum pension (one contribution to old-age and disability benefits)

Benefit

Pensionable earning reference - flat contribution

Valorisation of pensionable earnings - not relevant

Indexation of pensions in payment - CPI + at least 20% of real wage growth in national economy

Taxes

See the general pension scheme

5) Pension scheme: Security Provision Systems

Regulatory framework

Type - DB, mandatory, non-earnings related (based on last wage), non means-tested

First law - 1994

Current law - 2012

Coverage - army, police, judges, prosecutors etc

Administrative organization - Ministry of Internal Affairs, Ministry of National Defence, ministry of Justice

Qualifying condition

Minimum retirement age and contributory years - Employed before 01.01.2013: no minimum age, 15 contributory years.

In case of judges and prosecutors: 60 years for men and 55years for women and 30 and 25 contributory years

In 2060: In case of Armed Services: 55 years and 25 of contributory years;

Judges and Prosecutors 65 years for men and 62 years for women; and 40 and 35 contributory years

Retirement age linked to life expectancy - not legislated

Statutory retirement age - Not relevant. In case of judges and prosecutors 65 years for men and 60 years for women since 01.01.2018 increase of statutory pension by one month every 4 months

In 2060: 55

In case of Judges and Prosecutors: 67 (for M after 2020, for F after 2040); In case of Armed Services - not relevant

Contributory period for full pension - 28.5 years

Benefit

Pensionable earning reference - In general: full pension - 75% of last wage

Valorisation of pensionable earnings - not relevant

Indexation of pensions in payment - CPI + at least 20% of real wage growth in national economy. In case of judges and prosecutors: wage growth in national economy

Taxes

See the general pension scheme

DISABILITY

1) Pension scheme: General Pension System

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested

Current law - 2013

Coverage - public and private sector, employees and self employed

Administrative organization - Social Insurance Institution

Qualifying condition

Minimum retirement age and contributory years - No minimum age; 5 contributory years (if below 30 years old then 1-4 contributory years)

Contribution

Contribution rate: Employers - 6.5%

Contribution rate: Employees - 1.5%

Contribution base - After exceeding 30 times of forecasted monthly for self-employed - 60% of average wage in the economy with some exclusions average wage in national economy for given budgetary year wages are no subject to contributions

Benefit

Pensionable earning reference - 10 consecutive years from 20 years or 20 years from full career

Valorisation of pensionable earnings - not relevant

Indexation of pensions in payment - CPI + at least 20% of real wage growth in national economy

Taxes

See the general pension scheme

2) Pension scheme: Farmer's Pension System

Regulatory framework

Type - DB, mandatory, non-earnings related – (contributions are flat), non means-tested

Current law - 2013

Coverage - farmers

Administrative organization - Agricultural Social Insurance Fund (KRUS)

Qualifying condition

Minimum retirement age and contributory years - No minimum age; 5 contributory years (if below 30 years old then 1-4 contributory years)

Contribution

Contribution rate: Employers - 10% of general minimum pension (one contribution to old-age and disability benefits)

Benefit

Pensionable earning reference - flat contributions

Valorisation of pensionable earnings - not relevant

Indexation of pensions in payment - CPI + at least 20% of real wage growth in national economy

Taxes

See the general pension scheme

3) Pension scheme: Security Provision Systems

Regulatory framework

Type - DB, mandatory, Non-earnings related (based on last wage), non means-tested

First law - 1994

Current law - 2012

Coverage - army, police, judges, prosecutors etc

Administrative organization - Ministry of Internal Affairs, Ministry of National Defence, ministry of Justice

Qualifying condition

Minimum retirement age and contributory years - not relevant

Benefit

Pensionable earning reference - In general: full pension - 75% of last wage

Valorisation of pensionable earnings - not relevant

Indexation of pensions in payment - CPI + at least 20% of real wage growth in national economy. In case of judges and prosecutors: wage growth in national economy

Taxes

See the general pension scheme

SURVIVOR

Pension scheme: General Pension System

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested

Current law - 2013

Coverage - public and private sector, employees and self employed

Administrative organization - Social Insurance Institution

Qualifying condition

Minimum retirement age and contributory years - children till reaching the age of 16 years or 25 years (in case of learning children) and widow/widower who at the moment of his/her spouse's death reached the age of 50 years or was incapable of work

Retirement age linked to life expectancy - Not relevant

Benefit

Pensionable earning reference - The survivor's person is payable at the following rates:

- For one entitled person – 85% of benefit that would be payable to the person deceased,

- For two entitled persons – 90% of benefit that would be payable to the person deceased,

- For three entitled persons – 95% of benefit that would be payable to the person deceased.

Valorisation of pensionable earnings - not relevant

Indexation of pensions in payment - CPI + at least 20% of real wage growth in national economy

Taxes

See the general pension scheme

2) Pension scheme: Farmer's Pension System

Regulatory framework

Type - DB, mandatory, non-earnings related – (contributions are flat), non means-tested

Current law - 2013

Coverage - farmers

Administrative organization - Agricultural Social Insurance Fund (KRUS)

Qualifying condition

Minimum retirement age and contributory years - children till reaching the age of 16 years or 25 years (in case of learning children) and widow/widower who at the moment of his/her spouse's death reached the age of 50 years or was incapable of work

Contribution

Contribution rate: Employers - 10% of general minimum pension (one contribution to old-age and disability benefits)

Contribution base - flat contributions

Benefit

Pensionable earning reference - flat contributions

Valorisation of pensionable earnings - not relevant

Indexation of pensions in payment - CPI + at least 20% of real wage growth in national economy

Taxes

See the general pension scheme

3) Pension scheme: Security Provision Systems

Regulatory framework

Type - DB, mandatory, Non-earnings related (based on last wage), non means-tested

First law - 1994

Current law - 2012

Coverage - army, police, judges, prosecurors etc

Administrative organization - Ministry of Internal Affairs, Ministry of National Defence, ministry of Justice

Qualifying condition

Minimum retirement age and contributory years - not relevant

Benefit

Pensionable earning reference - In general: full pension - 75% of last wage

Valorisation of pensionable earnings - not relevant

Indexation of pensions in payment - CPI + at least 20% of real wage growth in national economy. In case of judges and prosecutors: wage growth in national economy

Taxes

See the general pension scheme

MINIMUM PENSION

1) Pension scheme: General Pension System

Regulatory framework

Type - DB/NDC, mandatory, earnings related

Coverage - public and private sector, empoyees and self employed

Administrative organization - Social Insurance Institution

Qualifying condition

Minimum retirement age and contributory years – 65 years for men and 60 for women (in line with retirement age); contributory years: 25 years for men and 20 years for women(25 in 2060)

Statutory retirement age - 65 years for men and 60 for women (in line with retirement age); contributory years since 01.01.2013 increase of statutory pension by one month every 4 months

Contribution

Contribution rate: Employers - 9.76%

Contribution rate: Employees - 9.76%

Contribution base - After exceeding 30 times of forecasted monthly average wage in national economy for given budgetary year wages are no subject to contributions

Benefit

Pensionable earning reference - full career

Valorisation of pensionable earnings - wage fund growth in NDC 1, GDP growth in NDC 2 (in subaccount,)

Indexation of pensions in payment - CPI + at least 20% of real wage growth in national economy

Additional features -

Taxes

See the general pension scheme

2) Pension scheme : Farmer's Pension System

Regulatory framework

Type – DB, mandatory, Non-earnings related (contributions are flat), non means-tested

Current law - 2013

Coverage - farmers

Administrative organization - Agricultural Social Insurance Fund (KRUS)

Qualifying condition

Minimum retirement age and contributory years - 65 years for men and 60 for women (in line with retirement age)

Statutory retirement age - 65 years for men and 60 for women F since 01.01.2013 increase of statutory pension by one month every 4 months

Contribution

Contribution rate: Employers - 10% of general minimum pension (one contribution to old-age and disability benefits)

Benefit

Pensionable earning reference - flat contributions

Valorisation of pensionable earnings - not relevant

Indexation of pensions in payment - CPI + at least 20% of real wage growth in national economy

Taxes

See the general pension scheme

Private schemes

PRIVATE OCCUPATIONAL

Pension scheme: Occupational Pension Plans

Regulatory framework

Type - DC, voluntary, earnings related, non means-tested

First law - 2004

Current law - 2014

Coverage - All employees

Administrative organization - Private Institutions supervised by The Polish Financial Supervision Authority (PFSA)

Qualifying condition

Minimum retirement age and contributory years - at 55 with granted a right to pension

Retirement age linked to life expectancy - Not relevant

Statutory retirement age - 60

Contributory period for full pension - Not relevant

Contribution

Contribution rate: Employers - up to 7% of employee's wage

Contribution rate: Employees - Voluntary but annual sum of contributions is not allowed to exceed 4.5 times of forecasted monthly average wage in national economy for given budgetary year

Contribution base - The basic premium (employer's side) is not included in the remuneration, which is the basis for determining the mandatory social insurance contributions. Additional contribution (employee's side) is deducted from their salary after tax.

Additional features - Few forms of occupational pensions funds exist

Benefit

Pensionable earning reference - Years of payments

Penalties for early retirement - Not relevant

Valorisation of pensionable earnings - market rate of return

Taxes

Contribution - Exempt

Returns on investment and fund accumulation - Exempt

Withdrawals - Exempt

Tax rate and description - Not relevant

Special schemes - Not relevant

Additional features - Not relevant

PRIVATE INDIVIDUAL

Pension scheme: Open Pension Funds (OFE)

Regulatory framework

Type - DC, mandatory (but future contribution voluntary since 2014), earnings related, non means-tested

First law - 1998

Current law - 2013

Coverage - Only for participants of General Pension System

Administrative organization - General Pension Societies

supervised by The Polish Financial Supervision Authority (PFSA)

Qualifying condition

Minimum retirement age and contributory years – 65years for men and 60 years for women

In 2060: 65years for men and 62 years for women;

40 and 35 contributory years

Retirement age linked to life expectancy - Not relevant

Statutory retirement age - 65years for men and 60 years for women since 01.01.2013 increase of statutory pension by one month every 4 months

In 2060: 67 years for both men and women (Men after 2020, women after 2040)

Contributory period for full pension - Not relevant

Contribution

Contribution rate: Employers – 2.8% (2.92% since 2014)

Contribution base - After exceeding 30 times of forecasted monthly average wage in national economy for given budgetary year wages are no subject to contributions

Benefit

Pensionable earning reference - full career

Penalties for early retirement - Not possible

Bonuses for postponing retirement - according to accrual formula

Valorisation of pensionable earnings - market rate of return

Indexation of pensions in payment - CPI + at least 20% of real wage growth in national economy.

Taxes

Contribution - Exempt

Returns on investment and fund accumulation - Exempt

Withdrawals - Not allowed. (pension benefit out of OFE is taxed according to general taxation rules, see the general pension system).

Tax rate and description - Not relevant

Special schemes - Not relevant

Additional features - Not relevant

Portugal

Public schemes

OLD AGE

Pension scheme: General contributory (social insurance) scheme: old-age and early pensions

Regulatory framework

Type - DB. Portugal has an earnings-related public pension scheme with a means-tested safety net. Compulsory social insurance scheme financed by contributions, covering the active population (employees and self-employed) with earnings-related pensions depending on registered earnings and on the duration of contribution career. Voluntary insurance for certain groups.

First law - **First law**: 1935 (1919 legislation not implemented).

Current law - Decree-law- no.167-E/2013, December 31st: introduce changes in the general scheme concerning old-age and incapacity.

Coverage - Social insurance: Active Population (Employed persons and self-employed)

Administrative organization - Ministry of Solidarity, Employment and Social Security (http://www.portugal.gov.pt) provides general supervision through the State Secretariat for Solidarity and Social Security. Social Security Institute (http://www4.seg-social.pt) administers the program through the National Pension Centre.

Qualifying condition

Minimum retirement age and contributory years - 66 years in 2014 and 2015 & 15 contributory years. After 2014, the standard retirement age will vary according to the average life expectancy at the age of 65.

Retirement age linked to life expectancy - According with legislation approved in December 2013, Portugal has increased the pensionable age to 66 years (entered into force in 2014) and after 2014 on, the standard retirement age will vary

according to the average life expectancy at the age of 65.

Statutory retirement age - 66 years old. After 2014, the legal age for access to old-age pension varies with the evolution of life expectancy at 65 years old, and the legal age for access to old-age pension will be the legal retirement age in 2014 plus the number of months determined by applying the following formula: Mn= $\sum_{i=2015}^{n}(EMVi - 2 -$ EMVi − 3) x 12 x $\frac{2}{3}$ *(in mont*hs, where n the year when pension begins, EMV is the average life expectancy at the age of 65). According EUROPOP2013, the legal retirement age in 2060 will be 68.8 years.

Contributory period for full pension - **Contribution**s paid for 40 years.

Special schemes - Certain occupations, being considered painful or stressful nature, have different conditions for access to old-age pension. For example, miners, seamen, professional fishing, air traffic controllers, dancers, port workers…

Contribution

Contribution rate: Employers - 23.75%

Contribution rate: Employees - 11.00%

Fund (or any residual funding from the State) - Social Security Trust Fund

Contribution base - Overall rate for the systems of social security (with the exception of accidents at work and occupational diseases): the employee's rate is 11% of gross earnings and the employer's rate is on payroll.

The self-employed person: pays 29.6% on reference income (or 34.75% when has a gross annual income of €3,593.31 or has management functions). The self-employed person chooses the reference income used to calculate contributions from a range of one to 11 times the Public Support Index. The Public Support Index is €419.22 a month.

There is no ceiling.

In what concerns benefits (pensions), under the Economic and Financial Adjustment Programme, a special solidarity contribution was introduced in 2010, being reformulated/adjusted over the years. This measure was suspended this year as Constitutional Court considered that the measure had to be exceptional and temporary in order to be considered constitutional.

Special scheme - Reduced contributions for certain activities and employers, in particular for non-profit-organisations, and for certain groups as for young people looking for their first job, and for the employment of disabled people (employer contribution of disabled persons is 11.9%; for worker seeking his/her first employment and long-term unemployment, employers are exempt from paying in the first 36 months; for workers in training, employers are exempt from paying in the formation duration to a maximum limit of 12 months; pre-retired employees with suspension of work, 8.6% for employees and 18.3% for employers; working old-age retired persons, 7.5% for employees and 16.4% for employers; working disabled retired persons, 8.9% for employees and 19.3% for employers).

Additional features - Periods of sickness, maternity, unemployment, military service, compensation for inherent work risks, periods during which jury service is performed, periods spent caring for the children, periods in the Resistance are considered as contributory period. Contributions for unemployment spell and maternity leave included in the overall contribution. Of the total 34.75% of gross earnings contributed by the insured person and employer, 20.21% finances old-age benefits, 4.29% finances disability benefits, and 2.44% finances survivor benefit. The insured's contributions also finance sickness and maternity, occupational disease, and unemployment benefits.

Benefit

Pensionable earning reference - If enrolled in Social Security until December 31, 2001 (transition period): 10 out of 15 + full career; from 2002: full career (up to the limit of 40). Benefits: determining factors - Number of insurance years; Average monthly earnings during the entire insurance period; Factor of financial sustainability (related to the average life expectancy evolution).

Reference earnings are calculated as the average monthly earnings for all years of **Coverage**, up to 40 years. For a transitional period, pensions are calculated according to the former method (2% of average annual earnings for the best 10 calendar years out of the last 15 years multiplied by the total number of qualifying calendar years) or the current method of full career. The total pension amount is adjusted according to average life expectancy, when applicable.

Accrual rate - 2-2.3% (set according to the number of years with earnings registration and the amount of reference earnings)

Penalties for early retirement - The Early retirement Pension is suspended during the Economic and Financial Adjustment Programme, except for unemployed persons (under specific conditions or incapacity beneficiaries). Accordingly with legislation, a person which had become unemployed at the age 57 or more; had completed the contributory period, exhausted the unemployment benefit and is still unemployed, could claim the old age pension in the age of 62, without penalty. However, a person which had become unemployed at the age 52 or more, with at least 22 years of contribution; had completed the contributory period, exhausted the unemployment benefit and is still unemployed, could claim the old age pension in the age of 57, with a penalty of 0,5% by each month of anticipation until the 62 years. Early pension is also granted in cases of hard or unhealthy work.

Bonuses for postponing retirement - Pension increased by the application of a bonus to the amount according to the general formula: $1 + y$, where y is a global bonus rate, obtained by multiplying the monthly rate by the number of contribution months fulfilled between the legal retirement age and the month on which the pension begins, with an upper limit set at the age of 70 years.

The monthly bonus rate varies between 0.33% and 1% according to the number of contribution years fulfilled on the on which the pension begins.

Valorisation of pensionable earnings - Consumer Price Index (CPI). Earnings taken into account for calculation are adjusted according to the consumer price index (excluding housing).

This rule does not apply to earnings registered between 1/1/2002 and 31/12/2011; in this case there is an actualisation to the index obtained by weighting 75% of the consumer price index (excluding housing) and 25% of the improvement wage index. The actualisation index cannot exceed the consumer price index (excluding housing), increased by 0.5%.

Indexation of pensions in payment - CPI & GDP & Pension amount.

Increased as a rule once a year taking into account the evolution of the Gross Domestic Product and of the Consumer Price Index (excluding housing) with specific favourable rules for the lowest pensions. Under the Economic and Financial Adjustment Programme, only minimum pensions have been adjusted.

Sustainability factor/benefit linked to life expectancy - According with the decree-law n° 167-E/2013, the sustainability factor of a given year results from the relationship between average life expectancy at age 65, recorded in 2000 or in 2006, depending on whether old-age or disability, and that it turns out that in the year before the early retirement pension, or the when the invalidity pension becomes an old age pension.

It is applied to old age pensions begun until December 31, 2013, to old age pensions began in 2014 and awarded before the legal age of entitlement to pension, to old age pensions to the date on which the disability pension (absolute and relative) less than 20 years, became an old age pension.

The Sustainability factor to be applied to old-age pensions begun in 2014 and assigned before the legal age of entitlement to pension is in 2014 0,8766, which corresponds to a reduction effect on the calculation of pension of 12.34%. The sustainability factor applicable to disability pensions assigned for a period not exceeding 20 years, that became old-age pension in 2014, is 0.9457, which corresponds to a reducing effect on the calculation of pension of 5.43%.

Additional features - Pensioners who continue to work and pay contributions are entitled to accrued pension (pension increased by 1/14 of 2% of the total earnings registered per year).

Taxes

Pension taxation - Old-age pension benefits are subject to taxation. The pension income is included in gross total income of the household of the pensioner that comprise wages, pensions and property income. Some automatic deductions are made according the type of income of the taxpayer (dependent worker, retirement pension) and the composition of the household. In what concerns accumulation with income from work: it is possible with limits on early retirement.

Tax rates - For pensions to €22,500, taxation is applied for an annual income starting at €4,104. For pensions above 22,500€, taxation is applied for an annual income starting at €4,104 less 20% between the pension and €22,500€ For pensions above €43,020, income tax is applied on total pension amount. Pensions are subject to an withholding tax determined according to the value of the pension and the family situation of each pensioner. In 2014 withholding taxes are published in ministerial order no. 706 A/2014, January 15th. Adding there is a special solidarity contribution of 3.5% to pensions between €1,350 and €1,800. To pensions between €1,800 and €3,750 is paid 3.5% over €1,800 and 16% over the remaining pension. To pensions above €3,750 is paid a contribution of 10%.

Additional features - Pension incomes are included in gross total income of the household of the pensioner that comprise wages, pensions and property income. To gross total income of the household of pensioner are made some automatic deductions according to the type of income of the taxpayer (dependent worker, retired) and the composition of the household resulting in the taxable income. On this taxable income is applied a tax rate, according to income brackets. If this amount is less or equal to €1,911, no tax payment is due. Otherwise, to this amount could be deducted, with a ceiling, some kind of expenditure (on health, education, on repayment of home loans) as well as the tax benefits.

2) Pension scheme: RESSAA (Spec. Soc. Sec. Scheme for Agriculture Workers) scheme: old-age, disability, survivor

Regulatory framework

Type - Closed scheme (no new pensioners expected). A special social security scheme for agricultural assets (RESSAA), which was created in 1985 and which is closed to new participants since 1986. This regime, governed by Decree-Law no. 81/85 of March 28th aimed at the integration in the social security system of the employees in farms, farmers and their family, assuming a clearly transient nature, as its main objective was the gradual integration of these workers in the general social security scheme.

First law - Decree-law no. 391/72; Decree-law no. 81/85 of March 28th

Taxes

Pension taxation - See General contributory scheme.

3) Pension scheme: CGA (Pension scheme for civil servants hired until Dec. 2005) - old age, disability, survivors[145]

Regulatory framework

Type - DB, mandatory, earnings related and non means-tested

First law - Retirement statute (Decree-law no. 498/72, December 9th)

Current law - Retirement statute, Law no. 60/2005, December 29th, Law no.52/2007, August 31st, Law no.11/2014, March 6th

Coverage - Civil servants and teaching staff of cooperative and private education institutions appointed until 2005 December 31st

---

[145] CGA has two different types of pensions: retirement and survivor. Both old-age and disability pensions are retirement pensions, so they share almost all of the scheme rules. Also membership for retirement purposes implies automatically survivor pension membership. Minimum pensions are part of retirement and survivor pension arrangements.

Administrative organization - Caixa Geral de Aposentações, I.P. (CGA) (http://www.cga.pt)

Qualifying condition

Minimum retirement age and contributory years - Early retirement possible as long as at least 30 years of contributions at age 55 years

Retirement age linked to life expectancy - **Statutory retirement age** (not early retirement age) linked to life expectancy

Statutory retirement age - 66 years (for each complete year the career above 40 years at the age of 65 years, the retirement age is reduced in 4 months, limited to 65 years). After 2014, the legal age for access to old-age pension varies with the evolution of life expectancy at 65 years old, and is the legal age for access to old-age pension will be the legal retirement age in 2014 plus the number of months determined by applying the following formula: $Mn = \sum_{i=2015}^{n}(EMVi - 2 - EMVi - 3) \, x \, 12 \, x \, \frac{2}{3}$ *(in months*, where n the year when pension begins, EMV is the average life expectancy at the age of 65). According EUROPOP2013, the legal retirement age in 2060 will be 68.8 years.

Contributory period for full pension - 40 years

Special schemes - Military and police staff and magistrates

Contribution

Contribution rate: Employers - 23.75%

Contribution rate: Employees - 11% (of that 8% finances old-age pension and 3% survivors' pensions)

Contribution rate: Gov. - Whatever needed to cover the gap between revenue and expenditure (the Ministry of Finances ensures the permanent financial balance of the pension scheme)

Contribution base - All forms of salary. In what concerns benefits (pensions), under the Economic and Financial Adjustment Programme, a special solidarity contribution was introduced in 2010, being reformulated/adjusted over the years. This

measure was suspended this year as Constitutional Court considered that the measure had to be exceptional and temporary in order to be considered constitutional.

Additional features - Periods of sickness, maternity, unemployment, military service, compensation for inherent work risks, periods during which jury service is performed, periods spent caring for the children, periods in the Resistance are considered as contributory period.

Benefit

Pensionable earning reference – 80% of last wage of 2005 (with valorization) + full career (transition period)

Accrual rate - Between 2% and 2.3% (set according to the number of years with earnings registration and the amount of reference earnings)

Penalties for early retirement - 0.5% per month under statutory age

Bonuses for postponing retirement - From 0.33% up to 1% per month depending on contributory length

Valorisation of pensionable earnings - Consumer Price Index (CPI)

Indexation of pensions in payment - CPI & GDP & Pension amount

Maximum replacement rate - 0.9

Sustainability factor/benefit linked to life expectancy - For pensions granted under the statutory age only; 2014: 12.34% cut (sustainability factor = life expectancy 2000 / life expectancy year i – 1, where i is the first year of the pension)

Taxes

See general contributory pension scheme.

DISABILITY

1) Pension scheme: Social pensions: disability (means tested)

Regulatory framework

Type – non earning related (income tested), Social disability pensions - means tested

First law - Decree-law no. 160/80, May 27th (establishes a scheme for the provision of social security to those who do not belong the contributory system)

Current law - Law no. 3-B/2010, April 28th; Decree-law no. 167-E/2013, December 31st

Coverage - Beneficiaries not covered by any system of (compulsory) social protection or who do not have enough contributions to Social Security in order to qualify for the disability pension under the general scheme.

Administrative organization - Ministry of Solidarity, Employment and Social Security (http://www.portugal.gov.pt) provides general supervision through the State Secretariat for Solidarity and Social Security. Social Security Institute (http://www4.seg-social.pt) manages the program.

Qualifying condition

Minimum retirement age and contributory years - 18 years old & <3 of contributory years

Statutory retirement age - 18 years old

Additional features - Only in case of permanent disability. Include people enrolled in a compulsory social protection scheme for more than the minimum contributory period but with a calculated amount of the disability pension lesser than the social disability pension.

Benefit

Pensionable earning reference - Income tested. The value of the pension is established by legislation.

Indexation of pensions in payment - Consumer Price Index (CPI) & GDP & Pension amount

Special schemes - There are some exceptions in what concerns the value of the pension for some specific diseases defined by law.

Taxes

Pension taxation - Invalidity pensions are subject to taxation. The difference on taxation depends on the person condition (disabled or not and on the degree of disability) and not in the nature of income (work, old-age, disability or survivor pension, etc.). The income amount subject to the income tax rate of an disabled persons (person with a permanent incapacity with a disability degree of 60%) is deducted by 4 times the Social Support Index (4*€419,22). Person with a degree of disability higher or equal to 90% can deducted more 4 times the Social Support Index and an Armed forces' disabled taxpayers can deducted farther 1 time the Social Support Index. Disability person could also deduct to the tax amount 30% of rehabilitation expenditures (with no limit) and 25% of life insurance premiums and contributions to mutual associations (with a certain ceiling).

Tax rates - See tax rates of general contributory scheme old-age pension and Taxes Pension taxation of disability social pension.

Additional features - See Tax rates of general contributory scheme old-age pension.

2) Pension scheme: General contributory (social insurance) scheme: disability pensions

Regulatory framework

Type - DB. Compulsory social insurance scheme financed by contributions covering the active population (employees and self-employed), with earnings-related pensions depending on registered earnings and the duration of contribution career. Earnings related and non means-tested

First law - **First law**: 1935

Current law - Decree-law no. 167-E/2013, December 31st: introduce changes in the general scheme concerning old-age and incapacity.

Coverage - Compulsory insurance for the active population (employees and self-employed). Voluntary insurance for certain groups.

Administrative organization - Ministry of Solidarity, Employment and Social Security (http://www.portugal.gov.pt) provides general supervision through the State Secretariat for Solidarity and Social Security. Social Security Institute (http://www4.seg-social.pt) manages the program.

Qualifying condition

Minimum retirement age and contributory years - **Relative invalidity**: Contributions paid or credited for 5 years. **Absolute invalidity**: Contributions paid or credited for 3 years.

For an invalidity due to certain chronic diseases (e.g. HIV, cancer, multiple sclerosis), the law provides for a qualifying period of three years (120 days of registered earnings are required for a year to be considered).

Contributory period for full pension - 40 years

Additional features - **Relative invalidity**: Any worker who, before reaching retirement age, becomes unable to earn more than one third of a normal wage, as a result of a permanent incapacity due to an illness or accident not covered by the specific legislation on accidents at work and occupational diseases. **Absolute invalidity**: Complete and permanent incapacity to carry out any working activity.

Contribution

Contribution rate: Employers - 23.75%

Contribution rate: Employees - 11.00%

Fund (or any residual funding from the State) - Social Security Trust Fund

Contribution base - See old-age pension on General contributory scheme.

Special scheme - See old-age pension on General contributory scheme.

Additional features - See old-age pension on General contributory scheme.

Benefit

Pensionable earning reference - If enrolled in Social Security until December 31, 2001 (transition period): 10 out of 15 + full career; from 2002: full career (up to the limit of 40). Reference earnings: average monthly wage of all contribution years for a period limited to 40 years. In case of a longer period, the 40 highest wages are taken into account. Reference earnings=E/N x 14, where E is the sum of all earnings, N is number of years of the contributory career.

Earnings taken into account for calculation are adjusted according to the consumer price index (excluding housing). This rule does not apply to earnings registered between 1/1/2002 and 31/12/2011; in this case there is an actualisation to the index obtained by weighting 75% of the consumer price index (excluding housing) and 25% of the improvement wage index. The actualisation index cannot exceed the consumer price index (excluding housing), increased by 0.5%.

For invalidity as a result of certain chronic diseases reference earnings taken into account correspond to R/42, where R is the sum of earnings received over the three calendar years with the highest earnings within the last 15 years of registered earnings.

Accrual rate - 2-2.3%

Valorisation of pensionable earnings - Consumer Price Index excluding housing

Indexation of pensions in payment - CPI & GDP & Pension amount

Sustainability factor/benefit linked to life expectancy - According with de decree-law no. 167-E/2013, the sustainability factor of a given year results from the relationship between average life expectancy at age 65, recorded in 2000 or in 2006, depending on whether old-age or disability pension. The sustainability factor is turned out in

the year before the early retirement pension, or when the invalidity pension becomes an old age pension. The sustainability factor applicable to disability pensions assigned for a period not exceeding 20 years, that became old-age pension in 2014, is 0.9457, which corresponds to a reducing effect on the calculation of pension of 5.43%.

Special schemes - There are some exceptions in what concerns the value of the pension, for some specific diseases defined by law.

Taxes

Pension taxation - See disability social pension.

Tax rates - See disability social pension.

Additional features - See disability social pension.

3) Pension scheme: CGA disability pensions([146])

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested

First law - Statute of retirement (Decree-law no. 498/72, December 9th)

Current law - Statute of retirement, Law no. 60/2005, December 29th, Law no. 52/2007, August 31st, Law no. 11/2014, March 6th

Coverage - Civil servants and teaching staff of cooperative and private education institutions appointed until 2005 December 31st

Administrative organization - Caixa Geral de Aposentações, I.P. (CGA)

([146]) CGA has two different types of pensions: retirement and survivor. Both old-age and disability pensions are retirement pensions, so they share almost all of the scheme rules. Also membership for retirement purposes implies automatically survivor pension membership. Minimum pensions are part of retirement and survivor pension arrangements.

Qualifying condition

Minimum retirement age and contributory years - No minimum retirement age but at least 5 years of contributory period (and a permanent disability to work)

Contributory period for full pension - 40 years

Special schemes - War disabled military have indemnity pensions adjusted according salaries and tax exempt. Occupational diseases and work accidents have special pensions (not retirement)

Contribution

Included in the old age pension

Benefit

Pensionable earning reference - last wage of 2005 (with valorization) + full career (transition period)

Accrual rate - Between 2% and 2.3% (set according to the number of years with earnings registration and the amount of reference earnings)

Penalties for early retirement - No penalties

Bonuses for postponing retirement - No bonuses

Valorisation of pensionable earnings - Consumer Price Index (CPI)

Indexation of pensions in payment - CPI & GDP & Pension amount

Maximum replacement rate - 90%

Sustainability factor/benefit linked to life expectancy - 2014: 12.34% (sustainability factor = life expectancy 2000 / life expectancy year i − 1, where i is the first year of the pension)

Taxes

See disability social pension scheme.

SURVIVOR

1) Pension scheme: General contributory (social insurance) scheme: survivor pensions

Regulatory framework

Type – DB, mandatory, earnings related, means tested in the case of widow(er)' Social pension or orphan's Social Pension

First law - **First law**: 1935

Current law - Decree-law no. 167-E/2013, December 31st: introduce changes in the general scheme concerning old-age and incapacity.

Coverage - Compulsory insurance for all employees and self-employed. (Entitled Persons: surviving spouse, divorced former spouse, surviving partner, children, parents dependant on the deceased) Voluntary insurance for certain groups.

Administrative organization - Ministry of Solidarity, Employment and Social Security (http://www.portugal.gov.pt) provides general supervision through the State Secretariat for Solidarity and Social Security. Social Security Institute (http://www4.seg-social.pt) manages the program through the National Pension Centre.

Qualifying condition

Minimum retirement age and contributory years - 3 contributory years (for the pension producer)

Contributory period for full pension - 40 years

Additional features - If the spouse or ex-spouses has less than 35 years old, she/he can only receive the pension for 5 years or until descendants are entitled. The pension entitlement ends when the spouse remarries. Children and adopt descendant can only receive the pension until 18 years old or 25 years old if he/she are a student or 27 years if are a post-graduation, a master or Phd degree student; grand-children can receive until 16 years old or while receiving child benefit; step-child until 18 years old; disabled persons do not have a time limit.

Contribution

Contribution rate: Employers - 23.75% (for the pension producer)

Contribution rate: Employees - 11% (for the pension producer)

Fund (or any residual funding from the State) - Social Security Trust Fund

Contribution base - See old age general contributory scheme

Special scheme - See old age general contributory scheme

Additional features - See old age general contributory scheme

Benefit

Pensionable earning reference - The value of the survivor's pension is a percentage of the value of the pension that the deceased was receiving or was entitled to receive based on past contributions on the date of death (spouses and ex-spouses - if one 60%; if more than one 70%; relatives in descending line - if one 20%, if two 30%, if 3 or more 40% (the percentage double if there are not entitled spouses or ex spouses); relatives in ascending line - if one 30%, if two 50%, if 3 or more 80%).

Valorisation of pensionable earnings - Consumer Price Index (CPI) (for the pension producer)

Indexation of pensions in payment - CPI & GDP & Pension amount

Additional features - Relatives in ascending and descending line cannot accumulate with disability and old-age pensions.

Taxes

See general contributory pension scheme.

2) Pension scheme: CGA: survivor pensions([147])

Regulatory framework

Type - DB, mandatory, earnings related and non means-tested.

First law - Statute of Survivor Pensions (Decree-law no. 142/73, March 31st)

Current law - Statute of Survivor Pensions, Law no. 60/2005, December 29th

Coverage - Legal heirs of CGA current pensioners and active members of the retirement scheme

Administrative organization - Caixa Geral de Aposentações, I.P. (CGA) (http://www.cga.pt)

Qualifying condition

Minimum retirement age and contributory years - No minimum age for heirs (maximum age of 18 for non-disabled children and grandchildren) but at least 5 years of contributory period (for the pension producer)

Contribution

Contribution rate: Employers - Included in the old-age contribution rate

Contribution rate: Employees - Of the total of the contribution rate for the scheme (11%), 3% finances survivors benefit

Benefit

Pensionable earning reference - 50% of retirement pension value is divided among legal heirs

Indexation of pensions in payment - Same rule as retirement pensions

---

([147]) CGA has two different types of pensions: retirement and survivor. Both old-age and disability pensions are retirement pensions, so they share almost all of the scheme rules. Also membership for retirement purposes implies automatically survivor pension membership. Minimum pensions are part of retirement and survivor pension arrangements.

Sustainability factor/benefit linked to life expectancy - Survivor pensions have no sustainability factor (only retirement pensions)

Additional features - The general social security regime of survivors' pensions is applied to pensions paid to contributors of CGA enrolled after September 1, 1993, unless the death had happened until December 31, 2005.

Taxes

See General contributory pension scheme.

Statutory retirement age - legal retirement age (66 years old in 2014 and 2015)

Benefit

Indexation of pensions in payment - not automatically indexed

Additional features - Benefit amount in 2014: one twelfth between the difference of the beneficiary annual income and €4,909.

Taxes

See general contributory pension scheme.

MINIMUM PENSION

1) Pension scheme: Other social assistance: social supplement for the elderly (means tested)

Regulatory framework

Type - Means tested (income tested) and non-earnings related,

First law - Decree-law no. 232/2005, December 29th - creates the social supplement for the elderly.

Current law - Law no. 3/B 2010, April 28th (changes the means tested conditions)

Coverage - Elderly low-income residents in Portugal aged longer than the standard age of entitlement to old-age general social security pension, i.e. 66 years (in 2014 and 2015).

Administrative organization - Ministry of Solidarity, Employment and Social Security (http://www.portugal.gov.pt) provides general supervision through the State Secretariat for Solidarity and Social Security. Social Security Institute (http://www4.seg-social.pt) administers the program through the National Pension Centre.

Qualifying condition

Minimum retirement age and contributory years – legal retirement age (66 years old in 2014 and 2015)

2) Pension scheme: Social pensions: old age (means tested)

Regulatory framework

Type - Means tested (income tested) and non-earnings related

First law - Decree-law no. 217/74 and Legislative order no. 59/77

Current law - Law no. 3-B/2010, April 28th

Coverage - Beneficiaries not covered by any system of (compulsory) social protection or who do not have enough contributions to Social Security in order to qualify for the social pension under the general scheme.

Administrative organization - Ministry of Solidarity, Employment and Social Security (http://www.portugal.gov.pt) provides general supervision through the State Secretariat for Solidarity and Social Security. Social Security Institute (http://www4.seg-social.pt) administers the program.

Qualifying condition

Minimum retirement age and contributory years - legal retirement age (66 years old in 2014 and 2015) & <15 contributory years

Statutory retirement age - legal retirement age (66 years old in 2014 and 2015)

Additional features - Portuguese citizen or citizen of the European Union countries, Cape Verde, Canada, Australia, who lives in Portugal and is not covered by any mandatory social protection system or if being enrolled in a mandatory social protection scheme has not completed the minimum period of contributions required or when the monthly amount of the pension is lower than the social pension

Benefit

Indexation of pensions in payment - Consumer Price Index (CPI) & GDP

Taxes

See general contributory pension scheme.

3) Pension scheme: CGA: old age (non means tested)([148])

Regulatory framework

Type – Mandatory, earnings related and non means-tested

First law - Deliberation no. 51/73, March 1st

Current law - Ministerial order no. 378-B/2013, December 31st

Coverage - All CGA pensioners (retirement and survivor pension)

Administrative organization - Caixa Geral de Aposentações, I.P. (CGA) (http://www.cga.pt)

Contribution

Included in pension (retirement or survivor) arrangement

([148]) CGA has two different types of pensions: retirement and survivor. Both old-age and disability pensions are retirement pensions, so they share almost all of the scheme rules. Also membership for retirement purposes implies automatically survivor pension membership. Minimum pensions are part of retirement and survivor pension arrangements.

Benefit

Indexation of pensions in payment - Every year new minimums are established

Additional features - The minimal amount is defined according the number of contributory years.

Taxes

See General contributory pension scheme

Private schemes

PRIVATE OCCUPATIONAL

1) Pension scheme: First pillar DB schemes for the banking sector

Regulatory framework

Type – DB, earnings related and mandatory

Current law - Decree-Law no. 12/2006, January 20th (as amended), which regulates pension funds and pension fund management entities; Decree-Law no. 54/2009, March 2, which established the enrolment of the banking sector' new employees into the Social Security system, closing these schemes to new entrants; Decree-Law no. 1-A/2011, January 3rd, following which the remaining banking sector employees were inscribed in the Social Security system for the purpose of future service regarding retirement benefit; Decree-Law no. 127/2011, December 31st, which established the enrolment of most banking entities' current beneficiaries into the Social Security system.

Coverage – Employed. (Closed scheme in what concerns new workers since 2009 (new pensioners are expected, but new workers are compulsorily registered under the social security schemes since 2009)).

Administrative organization - The Pension schemes are financed through pension funds (financing vehicles), which are autonomous entities without legal personality, managed by pension fund management entities. These

management entities can be pension fund management companies or life insurance companies.

Qualifying condition

Minimum retirement age and contributory years - 40 years of service before 65 years old or 35 years of service with over 60 years old

Statutory retirement age - See Public Schemes

Contributory period for full pension - Minimum 35 years

Contribution

Contribution rate: Employers - Variable (it depends for instance on the funding level of the pension fund)

Contribution rate: Employees - 5%

Benefit

Pensionable earning reference - According to the values defined in the banking sector collective agreement.

Accrual rate - First 10 contributory years, employees are entitled to 20% of a fixed salary level. Then, this percentage is increased by 3 to 4 p.p., according to the number of contributory years, until it reach 100%.

Penalties for early retirement - As benefits depend on the years of service penalties for early retirement are implicitly reflected in the formula

Valorisation of pensionable earnings - Rule not established

Indexation of pensions in payment - Linked to the indexation of salaries for active members

Maximum replacement rate - Not defined

Taxes

Contribution - Taxed

Tax rate and description - Taxation of employee contributions. Taxable income up to EUR 7,000

per year: 20 per cent of employee contributions are tax-deductible up to a maximum of:

- EUR 400 per year for persons aged less than 35 years;

- EUR 350 per year for persons aged between 35 and 50 years;

- EUR 300 per year for persons aged more than 50 years.

Taxable income above EUR 7,000 per year: 20 per cent of employee contributions are tax-deductible up to a maximum that varies between 0 and EUR 100, depending on the level of taxable income (these limits are established for the overall tax benefits).

Taxation of employer contributions:

In order for employer contributions to receive favourable tax treatment (i.e. EET tax treatment), the scheme must comply, inter alia, with the following requirements:

- cover all permanent employees;

- calculate benefits objectively and equally for all members; and

- pay benefits from the social security retirement age.

In schemes which comply with these requirements and which do not provide for vesting, employer contributions are tax-deductible up to a limit of 15 per cent of salary (25 per cent if the employee is not covered by the social security scheme). Employer contributions in schemes that do provide for vesting are fully tax-deductible.

Employer contributions in schemes not providing vesting are not taxable as fringe benefits for employees. Employer contributions in plans providing vesting are taxable as fringe benefits for employees if they exceed 15 per cent of salary (25 per cent if the employee is not covered by the social security scheme).

Returns on investment and fund accumulation - Tax-exempt

Withdrawals - Taxed

Tax rate and description - Taxable pension income (see below) is exempt from income tax if, together with social security pensions, it does not exceed EUR 4,104 per year. Pension income exceeding this limit is subject to income tax.

Pension benefits are only considered as taxable pension income if the contributions were tax-deductible (employer contributions in plans not providing vesting). If contributions were taxed (vested rights), only that part of the pension which constitutes interest is considered as taxable pension income.

Lump-sum benefits are, for tax purposes, divided into contribution and interest components.

If contributions were taxed (vested rights), the entire contribution component is tax-exempt. If contributions were tax-deductible (employer contributions in plans not providing vesting), one-third of the contribution component is tax-exempt up to the limit of EUR 11,704.70 per year.

If contributions were taxed, the interest component is taxed at 8 per cent. If contributions were tax-deductible, the interest component is taxed at 28 per cent on condition that the contributions made in the first half of the contract represent less than 35 per cent of the total contributions, otherwise, the interest component is taxed at 22.4 per cent if the retiree has been a member for between five and eight years or at 11.2 per cent if the retiree has been a member for more than eight years. If the retiree has been a member of the plan for less than five years, the interest component is taxed at 28 per cent.

2) Pension scheme: Other DB schemes

Regulatory framework

Type - DB, generally earnings related (but it depends on the specific provisions of the Pension schemes) and voluntary or mandatory (some collective bargaining agreements may be considered mandatory in the sense that the adhesion to these agreements is voluntary but if employers decide to sign it then they are bound to provide those retirement benefits).

Current law - Decree-Law no. 12/2006, January 20th (as amended), which regulates pension funds and pension fund management entities

Coverage - Employed

- Profession-wide associations of self-employed persons may, on a voluntary basis, establish a **Pension scheme** for their members;

- Self-employed persons may also join open pension funds on an individual basis.

Administrative organization - The pension schemes are financed through pension funds (financing vehicles), which are autonomous entities without legal personality, managed by pension fund management entities. These management entities can be pension fund management companies or life insurance companies.

Qualifying condition

Minimum retirement age and contributory years - 55 years old

Statutory retirement age - See Public Schemes

Contributory period for full pension - It depends on the specific provisions of the pension schemes

Contribution

Contribution rate: Employers - Variable (it depends for instance on the funding level of the pension fund)

Contribution rate: Employees - No common contribution rate

Benefit

Pensionable earning reference - No common formula for DB benefits (final salary is the most common)

Accrual rate - It depends on the specific provisions of the **Pension scheme**s

Penalties for early retirement - As benefits depend on the years of service penalties for early retirement are implicitly reflected in the formula

Valorisation of pensionable earnings - Rule not established

Indexation of pensions in payment - No common formula for indexation of pensions in payment

Maximum replacement rate - Not defined

Taxes

See First pillar DB schemes for the banking sector

Minimum retirement age and contributory years - 55 years old

Statutory retirement age - See Public Schemes

Contributory period for full pension - It depends on the specific provisions of the pension schemes

Contribution

Contribution rate: Employers - No common contribution rate

Contribution rate: Employees - No common contribution rate

Taxes

See First pillar DB schemes for the banking sector

3) Pension scheme: DC schemes

Regulatory framework

Type - DC, earnings related and voluntary or mandatory (some collective bargaining agreements may be considered mandatory in the sense that the adhesion to these agreements is voluntary but if employers decide to sign it then they are bound to provide those retirement benefits).

Current law - Decree-Law no. 12/2006, January 20th (as amended), which regulates pension funds and pension fund management entities

Coverage - Employed;

- Profession-wide associations of self-employed persons may, on a voluntary basis, establish a Pension scheme for their members;

- Self-employed persons may also join open pension funds on an individual basis.

Administrative organization - The pension schemes are financed through pension funds (financing vehicles), which are autonomous entities without legal personality, managed by pension fund management entities. These management entities can be pension fund management companies or life insurance companies.

Qualifying condition

Romania

Public schemes

OLD AGE

Pension scheme: Public pension system (2014)

Regulatory framework

Type- PAYG, calculation formula based on pension points, mandatory, earnings related

Current law- Law no 263/2010 Pension Law

Coverage - One scheme, covering the public and private sector employees, self-employed, covering old age, disability, early retirement, survivors' pensions.

Administrative organization - National House of Public Pension - https://www.cnpp.ro/home

Qualifying condition

Minimum retirement age and contributory years- Minimum retirement age not regulated by the law; minimum contributory period for men and women in December 2014 -14,7, To be increased gradually up to 15 (2015)

Retirement age linked to life expectancy- Yes

Statutory retirement age- December 2014:

Men – 64.9; to be increased to 65 for men starting with 2015.

Women - 59.9; to be increased gradually up to 63 for women by 2030.

Contributory period for full pension - December 2014:

Men - 34.7; to be increased gradually up to 35 (by 2015).

Women - 29.7; to be increased gradually up to 35 (by 2030).

Special schemes- For active military personnel, policeman and civil servants with a special status in the field of national defence, public order and national security

Contribution

Contribution rate: Employers - normal working conditions: 15.8%; difficult working conditions: 20.8%; special working conditions 25.8%

Contribution rate: Employees- 10.5%

Fund (or any residual funding from the State) - RO provides funds from the national budget to cover the public pension system deficit.

Contribution base- Gross monthly income. The upper threshold is 5 times the average gross economy wage

Benefit

Pensionable earning reference- Contributory scheme, full career.

Accrual rate - Estimated accrual rate for 2014 = 1.07.

Point value- Current point value: 178.9 eur (2014) - estimated value in 2060: 526.5 eur

Criteria for accumulation of points - The annual average pension points are calculated as the average of the monthly pension points, which are the ratio between the individual's income and the monthly economy-wide average wage. The sum of the annual average pension points is divided by the statutory period of contribution set for the year of the person's retirement.

Penalties for early retirement - Early retirement is not penalized, provided the person exceeded by at least 8 years the statutory period of contribution, and can be granted up to 5 years before the statutory retirement age of the person. Partial early retirement, permitted for persons who exceeded the statutory full period of contribution with less than 8 years, is penalized by diminishing the benefits calculated for the old age pension, by 0.75% for each month of anticipation, before complying with the old-age pension criteria

Bonuses for postponing retirement - No

Indexation of pensions in payment - Pension **Point value** is increased annually by100% inflation rate plus 50% of the real growth of the average gross earnings for the previous year. As from 2021, the indexation with the average gross wage from the previous year is diminished gradually by 5 pp per year. Consequently, as from 2030 the **Point value** will be indexed only by 100% of the inflation rate.

Maximum replacement rate - For the new stream of pensioners, a correction index is applied, only once (at the retirement). Thus, the number of average annual pension points accrued by the retiree is multiplied by 0.433 of the ratio between the gross economy-wide average wage from the previous year and the actual value of the pension point.

Sustainability factor/benefit linked to life expectancy- Not legislated

Taxes

Pension taxation - 5.5% health insurance deduction is applied to the difference between the pension benefits and the minimum threshold of 740 RON (167 eur)/month (only for pensions exceeding this threshold); Further, 16% tax is applied to the difference between the gross monthly pension (less the health insurance contribution) and the threshold of 1000 RON (227 eur), only for monthly pension benefits exceeding this threshold.

DISABILITY

Regulatory framework

Type - earnings related

Current law- Law no 263/2010 Pension Law

Coverage - Persons who lost totally or at least half of their work capacity, due to work accidents, profesional disease, neoplasia, schizophrenia, AIDS, other diseases not related to work

Administrative organization - National House of Public Pension - https://www.cnpp.ro/home

Qualifying condition

Minimum retirement age and contributory years- Irrespective to age and contributory years

SURVIVOR

Regulatory framework

Type – Mandatory, earnings related

Current law- Law no 263/2010 Pension Law

Coverage - children, survivor spouse.

Administrative organization - National House of Public Pension - https://www.cnpp.ro/home

MINIMUM PENSION

Pension scheme: Minimum income guarantee, Social Pension, Social Disability pension

Regulatory framework

Type - Non earning-related

Current law- Law no 263/2010 Pension Law

Coverage - Public pension system beneficiaries whose aggregated income from pension and allowances is below the value of 350 RON (78 EURO), benefit of this "social pension" according to Law no. 196/2009 and Law no. 118/2010.

Administrative organization - National Agency for Social Prestations - www.prestatiisociale.ro and National House of Public Pension - https://www.cnpp.ro/home

Qualifying condition

Statutory retirement age- Statutory old-age retirement age

Private schemes

PRIVATE INDIVIDUAL

1) Pension scheme: Privately administered pension funds

Regulatory framework

Type- DC with investment guarantees (hybrid). Mandatory for persons under 35 years age and voluntary for the age-group 35-45.Earnings related

Administrative organization - Supervisory Fiscal Authority - www.asfromania.ro

Qualifying condition

Minimum retirement age and contributory years- The same as the statutory retirement age in the public pension system

Contribution

Contribution rate: Employees - 2014 – 4.5% of the individual social contribution from Pillar I (gradual increase by 0.5% per year until reaching 6%)

Benefit

Accrual rate - estimated to reach 1.07 in 2060

2) Pension scheme : Voluntary pensions

Regulatory framework

Type - DC, non-earnings related

Administrative organization - Supervisory Fiscal Authority - www.asfromania.ro

Qualifying condition

Minimum retirement age and contributory years - 60 years for men and women and minimum contributory period 90 months

Contribution

Contribution rate: Employers - Up to 15% of monthly gross earnings, can be shared between employer and employee.

Contribution rate: Employees - Up to 15% of monthly gross earnings, can be shared between the. employer and the employee.

Additional features - The amount representing contribution to the voluntary pension fund is tax deductible for both the participant and employer, within the limit of 400 euro per fiscal year.

Slovenia

Public schemes

OLD AGE

Pension scheme: Public Pension scheme

Regulatory framework

Type - DB, mandatory, earnings related

First law - Pension and invalidity insurance Act (ZPIZ) from 1992

Current law - Pension and disability insurance Act (ZPIZ-2), adopted on 4.12.2012

Coverage - Employed, self-employed, partners or shareholders, farmers, insured from other legal relationship and from grounds in other regulations (unemployed etc.).

Administrative organization - Pension and Disability Insurance Institute of Slovenia

Qualifying condition

Minimum retirement age and contributory years - Old-age pension (M and W at 60 Y of age and completed 40 years of pensionable service without purchasing years). Early pension (at 60 years of age if completed 40 years of pensionable period (with purchasing years)).More stringent early and old-age pension entitlement conditions are being introduced gradually, with the transitional period ending in 2018.

Statutory retirement age - 65 (both genders)

Contributory period for full pension - Completed 40 years of pensionable service without purchasing years at 60 Y of age or an insurance period of at least 15 years at 65 Y of age.

Additional features - Old-age pension (full pension without purchasing years). Early pension (due to purchased years reduction of pension).

Contribution

Contribution rate: Employers – 8.85%

Contribution rate: Employees – 15.5%

Fund (or any residual funding from the State) - SI provides funds from the national budget and other sources to cover the difference between the Institute's revenues from contributions and other sources, and the Institute's expenditures.

Contribution base - Pension is assessed based on the Pension Rating Base comprising the monthly average of an Insured Person's bases for an individual year of insurance from which the Compulsory Insurance contributions were paid (salary or salary compensation and all other benefits arising from the employment relationship, profit of the Self-employed person, any individual payment for performed work or rendered services, amount of the unemployment benefit etc.). The minimum base for charging the contributions from the salary or salary compensation is 60% of the last known average annual salary of Employees in the SI.

Additional features - SI provides funds from the national budget to settle the liabilities arising from Compulsory Insurance based on the recognition or assessment of the rights arising from the Pension and Disability Insurance under special conditions or due to the default in payment of contributions such as:

war veterans, recipients of exceptional pensions; period of active service in the former Yugoslav People's Army; the Employer's contribution for farmers etc..

Should the Institute lack liquid funds to fulfil the obligations for the payment of pensions and other liabilities, and to cover possible losses between the revenues and expenditures in a specific calendar year, SI will provide it with the necessary funds from the national budget.

Benefit

Pensionable earning reference - Any consecutive 24 years of the insurance from 1 January 1970 onwards which are the most favourable for the Insured Person are taken into account. Notwithstanding the preceding paragraph, a 20-year period is taken into account in the calculation of the Pension Rating Base in 2014. During a transitional period which runs until 2018, one year

is added at the beginning of each new calendar year until a period of 24 consecutive years is reached.

Accrual rate - For an insurance period of 15 years, it shall amount to 26% (M) or 29% (W), each additional year it shall be increased by 1.25% without any ceilings (for 40 years of insurance 57,25% (M) and 60,25% (W).

Penalties for early retirement - Early pension is reduced by 0.3% for every missing month of age up to the completion of 65 years of age. Max. reduction:18% for both genders.

Bonuses for postponing retirement - On the side of Insured Person:

Who fulfils 40 Y of pensionable service without purchased years and remains insured, every further year of pensionable service but only up to 3 consecutive insurance years, shall be valued so that 3 months of pensionable service excluding the purchase amount to 1%.

20% of the early pension or old-age pension to which the Insured Person would be entitled on the date of claiming it, if Insured Person postpones retirement.

Partial pension, increased by 5% until the completion of 65 years of age, if an Insured Person acquires Partial pension.

On an Employers side:

Partial exemption from payment of Employer's contributions for older employees

Valorisation of pensionable earnings - Adjusted with adjustment coefficient, which is re-determined annually and calculated in accordance with the following formula to three decimal places:

ASECPR ASECY

ASECPR = average salary per Employee paid for the calendar year preceding the year for which the coefficients have been determined;

ASECY = average salary per Employee paid for an individual calendar year.

Adjustment coefficient is equal to 1 due to determination of the percentage for the assessment of an old-age pension in net value.

Indexation of pensions in payment - Pensions are adjusted by 60% of the growth in average gross salary paid for the period from January to December of the previous year compared to the average gross salary paid for the same period in the year before, and by 40% of the average growth in consumer prices for the period from January to December of the previous year compared to the same period in the year before. The pension indexation shall be expressed as a percentage and shall constitute the sum of both established partial growths. In the year 2014 pensions have not been indexed.

Maximum replacement rate - Note: the definition of replacement rate is not equal to Pension rate percentage. According to new legislation ZPIZ-2 which sets valorisation coefficient equal to 1, replacement rate numerically equals Pension rate percentage. For 40 years of insurance 57,25% (M) and 60,25% (W) Pension Rating Base (PRB).

Minimum PRB amounts 76.5% of the average monthly salary paid out in SI in the previous calendar year reduced by the taxes and contributions paid from the salary at the average rate in SI. Maximum PRB amounts 4 times higher than the Minimum PRB. No statutory maximum amount. If a pension would exceed the amount four times higher than the minimum PRB, the pension is assessed from the amount of the maximum PRB.

Taxes

Pension taxation - The basis for pension taxation is in general the same as for other taxpayers. The legal basis is Income TaxAct (Zdoh-2) and the Tax Procedure Act (ZDavP-2). Exception: Pensioners residing in the country of Slovenia are entitled to pension tax relief (13,5 % of pension).

Tax rates - Tax rates depend on amount of Pension

DISABILITY

Pension scheme: Public Pension scheme

Regulatory framework

Type – DB, mandatory earnings related

First law - Pension and invalidity insurance Act (ZPIZ) from 1992

Current law - Pension and disability insurance Act (ZPIZ-2), adopted on 4.12.2012

Coverage - See old-age pension scheme.

Administrative organization - See old-age pension scheme.

Qualifying condition

Minimum retirement age and contributory years - Minimum period of insurance depends upon the age of the person when the invalidity emerged:

• Age: 30 years and over: employed for at least one third of the time between attaining 20 years of age and the development of invalidity (only full years of service considered).

• Age between 21 and 29: employed for at least one quarter of the time between reaching 21 and the development of the invalidity (full years of service).

• A person who was afflicted with invalidity of category I prior to reaching 21 years of age acquires the right to Invalidity pension, if at the onset of invalidity he was covered by compulsory insurance or if he has completed at least three months of insurance period.

No period required if invalidity caused by an accident at work or occupational disease.

Statutory retirement age - The following Insured Persons shall acquire the right to a disability pension:

- an Insured Person who has been afflicted with a disability of category I;

- an Insured Person who has been afflicted with a disability of category II and is not capable of performing other full-time work without an occupational rehabilitation, to which, however, they are not entitled since they are over 55 years of age;

- an Insured Person who has been afflicted with a disability of category II and is not capable of performing other part-time work for at least 4 hours daily without an occupational rehabilitation, to which, however, they are not entitled since they are over 50 years of age;

- an Insured Person who has been afflicted with a disability of category II or III and who is not provided with an appropriate employment since they have reached 65 years of age.

Contributory period for full pension - Period of effective contributory work:

40 - M, The disability pension in the event of a disability caused by an occupational injury or an occupational disease shall be assessed in the amount of 57.25% of the Pension Rating Base.

Contribution

Contribution rate: Employers – 8.85%

Contribution rate: Employees – 15.5%

Fund (or any residual funding from the State) - See: old-age.

Contribution base - See old-age pension scheme.

Additional features - See old-age pension scheme.

Benefit

Pensionable earning reference - monthly average of earnings in any consecutive 24-year period of insurance following 1 January 1970 (whichever is the most favourable for the insured person). Calculation of the PRB is based on earnings (net of tax and other contributions) upon which pension contributions have been paid.

Accrual rate - The amount of Invalidity Pension is assessed according to the Pension Rating Basis

(PRB) in the same manner as for the Old-age Pension depending upon how and when the invalidity occurred.

Valorisation of pensionable earnings - The Minimum Pension Rating Base shall be established from 1 January of an individual calendar year in the amount of 76.5% of the average monthly salary paid out in the Republic of Slovenia

Indexation of pensions in payment - See old-age pension scheme.

Maximum replacement rate - See old-age pension scheme.

Taxes

Pension taxation - See old-age pension scheme.

Tax rates - See old-age pension scheme.

SURVIVOR

Pension scheme: Public Pension scheme

Regulatory framework

Type - DB, mandatory, earnings related. Means-tested survivor's pension to establish condition of maintenance of the child. It shall be deemed that the Insured Person or the beneficiary of rights maintained a family member until the time of their own death if:

- they shared a permanent residence until the time of their own death with the family member, and

- their own average monthly income in the last calendar year prior to the occurrence of the insurance event did not exceed 29% of the Minimum Pension Rating Base applicable upon the occurrence of the insurance event.

First law - Pension and invalidity insurance Act (ZPIZ) from 1992

Current law - Pension and disability insurance Act (ZPIZ-2), adopted on 4.12.2012

Coverage - See old-age pension scheme.

Administrative organization - See old-age pension scheme.

Qualifying condition

Minimum retirement age and contributory years - Widow or widower entitled:

• If he/she is at least 58 years of age at the time of death of the spouse,

• irrespective of age if completely incapable of work or if he/she be-comes completely incapable of work within a year after the death of the spouse,

• if he/she is left with a child who is entitled to Survivor's Pension and the mother/father has to maintain the child by virtue of the law, or

• if he/she is aged between 53 and 58 years (payment is postponed until age 58).

Widow entitled:

 If she gives birth to the child of the deceased no later than 300 days after the death.

Children - age limit:

• 15 years,

• 18 years (if registered at the employment office),

• 26 years (in case of regular studying),

• no age limit if a child is totally incapable of work.

• Grandchildren, stepchildren and other children without parents: maintained by the deceased at time of death,

• parents and adoptive parents: maintained by the deceased at time of death.

Statutory retirement age - 58

Contributory period for full pension -

Conditions on Deceased insured person side:

• Fulfilment of the conditions to receive an early pension, old-age pension or invalidity pension; in

case of death an insured person is deemed to have suffered category I invalidity; or

• a recipient of an early, old-age or invalidity pension under compulsory insurance or a person entitled to Invalidity Benefit or Partial Benefit under compulsory insurance.

In case of death due to an accident at work or occupational disease, no pension qualifying period is required.

Contribution

See old-age pension scheme.

Benefit

Pensionable earning reference -

Conditions on Deceased insured person side:

• Fulfilment of the conditions to receive an early pension, old-age pension or invalidity pension; in case of death an insured person is deemed to have suffered category I invalidity; or

• a recipient of an early, old-age or invalidity pension under compulsory insurance or a person entitled to Invalidity Benefit or Partial Benefit under compulsory insurance.

In case of death due to an accident at work or occupational disease, no pension qualifying period is required.

Accrual rate - Widow's or Widower's Pension:

• 70% of the deceased's pension (old-age or invalidity) or the pension to which the deceased would have been entitled at time of death,

• widow/widower who has the right to her/his own pension is entitled to 15% of Widow's or Widower's Pension, whereby the amount of both pensions may not exceed that of an Old-age Pension of a man which is assessed from the maximum Pension Rating Base for 40 years of pensionable service.

If widow/er is entitled to different pensions she/he may choose the pension which is more favourable.

A divorced spouse who was entitled to alimony from the deceased until the insured person's death receives the same benefit under the same conditions as a widow/widower. If the deceased remarried but continued to pay alimony then the current spouse and all ex-spouses become co-beneficiaries.

Widow's or Widower's Pension ceases:

• if the recipient remarries before reaching the age of 58 years, except if he/she has acquired or retained this right on grounds of total incapacity for work;

• if a beneficiary enters an unmarried partnership before reaching the age of 58 years.

Orphans having lost one parent:

Percentage of the Survivor's Pension depends on the number of the entitled persons:

• for a single beneficiary: 70% of the deceased's pension at the time of death,

• for two beneficiaries: 80% of that basis,

• for three beneficiaries: 90% of that basis,

• for four or more beneficiaries: 100% of that basis.

Orphans having lost both parents:

For one beneficiary, the Survivor's Pension equals 100% of the prescribed basis of the higher of the deceased parents' pensions at the time of death. In case there are two or more beneficiaries, the Survivor's Pensions will be based on 100% of both deceased parents' pensions. These pensions are divided in equal parts corresponding to the number of children. If division into equal parts is not possible, the remainder goes to the oldest child.

Valorisation of pensionable earnings - See old-age pension scheme.

Indexation of pensions in payment - See old-age pension scheme.

Maximum replacement rate - See old-age pension scheme.

Sustainability factor/benefit linked to life expectancy - An insured person who is entitled to Survivor's Pension is guaranteed the minimum pension in the amount of 26% of the minimum Pension Rating Base. No statutory maximum pension.

If a pension would exceed the amount four times higher than the minimum Pension Rating Base, the pension is assessed from the amount of maximum Pension Rating Base.

Taxes

See old-age pension scheme.

MINIMUM PENSION

Pension scheme: Public Pension scheme

(Slovenian pension insurance does not stipulate minimum pension, however it does include provisions on minimum pension rating base. Principle of financing and qualifying conditions are the same as for old age pension.)

According to ZPIZ-2 article 39 an insured person who acquires the right to an early retirement benefit, an old-age pension or a disability pension pursuant to the provisions hereof, shall be guaranteed the minimum pension in the amount of 26 % of the minimum pension rating base.

And an insured person, who under the relevant treaties, acquires the right to an early retirement benefit, an old-age pension or a disability pension in the proportionate part shall be guaranteed at least the proportionate part of the old-age pension referred to in the preceding paragraph.

Private schemes

PRIVATE OCCUPATIONAL

Pension scheme: Voluntary supplementary pension

Regulatory framework

Type - DC with life cycle funds (or with minimum yield guarantee), voluntary,

Administrative organization - insurance or pension company or mutual pension fund

Qualifying condition

Minimum retirement age and contributory years - retirement age referred to retirement conditions in I. pillar

Statutory retirement age – See old-age pension scheme.

Contribution rate: Employers - agreement between employer and employee

Benefit

Pensionable earning reference - actuarial calculation of pension benefits

Taxes

Contribution - Employer paying the contributions to occupational/collective pension plan (premiums) can lower his tax base for the premiums paid on behalf of his employees in the year the premiums are paid. If the employer fulfils those conditions, also social security contributions are not paid from the premiums. However, this tax relief cannot be higher than 24% of contributions for compulsory pension insurance that have been paid per employee/member of supplementary **Pension scheme** (5,844% of gross wage of employee) and not more than 2.819,09 euros (in 2014) per year per employee/member of supplementary **Pension scheme** and maximum to the level of tax base for that tax period.

For the purposes of Personal Income Tax premiums paid by employer are not included in the taxable base of the employee up to the amount of

the cap mentioned in previous paragraph. If premiums are also paid by employee to the pension plan his taxable base is reduced for these premiums up to the cap mentioned before. Namely, this relief (5,844% of gross wage of employee and not more than 2.526,23 euros) is defined for the sum of premiums paid by the employee and the employer on behalf of the employee but the employer has the priority. If the sum of all the premiums paid for the employee exceeded this cap there is no tax relief for the excess of premiums paid.

Tax rate and description - Employer paying the contributions to occupational/collective pension plan (premiums) can lower his tax base for the premiums paid on behalf of his employees in the year the premiums are paid. If the employer fulfils those conditions, also social security contributions are not paid from the premiums. However, this tax relief cannot be higher than 24% of contributions for compulsory pension insurance that have been paid per employee/member of supplementary **Pension scheme** (5,844% of gross wage of employee) and not more than 2.819,09 euros (in 2014) per year per employee/member of supplementary **Pension scheme** and maximum to the level of tax base for that tax period.

For the purposes of Personal Income Tax premiums paid by employer are not included in the taxable base of the employee up to the amount of the cap mentioned in previous paragraph. If premiums are also paid by employee to the pension plan his taxable base is reduced for these premiums up to the cap mentioned before. Namely, this relief (5,844% of gross wage of employee and not more than 2.526,23 euros) is defined for the sum of premiums paid by the employee and the employer on behalf of the employee but the employer has the priority. If the sum of all the premiums paid for the employee exceeded this cap there is no tax relief for the excess of premiums paid.

Returns on investment and fund accumulation - not taxed

Withdrawals - lump sum - fully taxed under Personal income tax, pension benefit - only 50% is included in yearly tax basis for assessment of personal income tax

PRIVATE INDIVIDUAL

Pension scheme: Voluntary supplementary pension

Regulatory framework

Type - DC with life cycle funds (or with minimum yield guarantee), voluntary

Administrative organization - insurance or pension company or mutual pension fund

Qualifying condition

Minimum retirement age and contributory years - retirement age referred to retirement conditions in I. pillar

Statutory retirement age - See old-age pension scheme.

Benefit

Pensionable earning reference - actuarial calculation of pension benefits

Taxes

Contribution - Individual insurance - Yearly tax basis for assessment of personal income tax may be reduced for the value of contributions that the insured person has paid for supplementary pension insurance to a provider based and registered in Slovenia or other EU member state, but maximum up to the 24% of contributions that have been paid for compulsory pension insurance (I pillar) in that year and not more than 2.819,09 euro (in 2014) per year.

Tax rate and description - Individual insurance - Yearly tax basis for assessment of personal income tax may be reduced for the value of contributions that the insured person has paid for supplementary pension insurance to a provider based and registered in Slovenia or other EU member state, but maximum up to the 24% of contributions that have been paid for compulsory pension insurance (I pillar) in that year and not more than 2.819,09 euro (in 2014) per year.

Returns on investment and fund accumulation - not taxed

Withdrawals - lump sum - fully taxed under Personal income tax, pension benefit - only 50% is included in yearly tax basis for assessment of personal income tax

Tax rate and description - lump sum - fully taxed under Personal income tax, pension benefit - only 50% is included in yearly tax basis for assessment of personal income tax

Slovakia

Public schemes

OLD AGE

Public Pension scheme

Regulatory framework

Type – PS, Mandatory, earnings-related, non Means-tested.

First law - Act No. 461/2003 on social insurance

Current law - Act No. 204/2014 on social insurance (with amendments)

Coverage - Employed, self-employed, voluntarily insured persons, persons insured by the state (persons rearing children up to 6 years of age, persons providing people with disabilities with assistance, etc.).

Administrative organization - Social Insurance Agency (http://www.socpoist.sk/)

Qualifying condition

Minimum retirement age and contributory years - Early retirement is possible 2 years before statutory retirement age. Minimum contributory period is 15 years. The early pension must be higher than the minimum subsistence level by 20%.

Retirement age linked to life expectancy - Yes (as from 2017)

Statutory retirement age - **Statutory retirement age** is currently 62 for men; for women it depends on the number of reared children, it is gradually increasing until 2024, then unified. As from 2017, the retirement age for both sexes will be automatically annually increased by the y-o-y difference of 5-year moving average of the unisex life expectancy.

Contributory period for full pension - No limit
Special schemes - There is a closed DB pension system of the armed forces, existing alongside the universal pension system. Entitlements comprise old-age pension and a temporary pension benefit,

disability pension and survivor pension. The temporary pension benefit is received for 1 year in case of service length of 10 - 17 years, 2 years in case of service length of 17 - 22 years and 3 years in case of service length of 22 - 25 years. A minimum contribution period to be entitled to old-age pension for new members is 25 years (replacement rate = 37.5 %); in case of service length from 26 to 30 years the replacement rate is raised by 2 p.p. for each additional year, from 31 to 35 years by 3 p.p. a year and from 36 years on by 0.5 p.p. a year up to a maximum of 65%. The indexation mechanism will be unified with that of the universal general system as from 2018; until then the pensions of armed forces are indexed by a fixed sum as in the general system with a coefficient incorporating the length of contributory period (the exact formula is (fixed sum/30)*(1+2*contributory period over 15 years)).

There is a transition period for persons that are already in the system and have not yet fulfilled requirements to retire when the reform came into force (1.5.2013). The minimum contributory period (15 years at that time) will increase every year by one year until it reaches 25 years. The replacement rate will remain the same as in the old legislation (30% for 15 years of service, in case of service length from 16 to 20 years the replacement rate is raised by 2 p.p. for each additional year, from 21 to 25 years by 3 p.p. a year, from 26 to 30 years by 1 p.p. (reaching 60% - maximum replacement rate according to the old legislation). Additionally, from 31 years on the replacement rate will be increased by 0.5 p.p. until reaching maximum of 65%. Minimum contributory period for entitlement of a temporary pension benefit (5 years at the time of the reform) is increased every year by one year until it reaches 10 years.

Contribution

Contribution rate: Employers - 14% of the assessment base for old age pension contribution. 4.75% contribution to the reserve solidarity fund. If the employee participates in the II pillar, the employer contributes 10% to old age pension contribution (as from 2017 the percentage will decrease every year by 0.25 % until reaching 8% in 2024) and 4% to the II pillar (as from 2017 the percentage will increase every year by 0.25 % until reaching 6% in 2024).

Contribution rate: Employees - 4% of the assessment base for old age pension contribution-Self-employed (mandatory if earnings in the previous years were higher than 12 times the average monthly wage 2 years ago) and voluntary insured persons: 18% old age pension contribution, 4.75% reserve solidarity fund contribution. If the person participates in the II pillar, the old age pension contribution of self-employed or voluntarily insured persons = 14% (as from 2017 the percentage will decrease every year by 0.25 % until reaching 12% in 2024) and 4% to the II pillar (as from 2017 the percentage will increase every year by 0.25 % until reaching 6% in 2024).

Contribution rate: Government - 18% old age pension contribution plus 2% reserve solidarity fund contribution. The state pays the contribution to the pension system only for certain groups defined by law (persons rearing children up to 6 years of age, persons providing people with disabilities with assistance etc.). If the person participates in the II pillar, the state contributes 10% to old age pension benefits (as from 2017 the percentage will decrease every year by 0.25 % until reaching 8% in 2024) and 4% to the II pillar (as from 2017 the percentage will increase every year by 0.25 % until reaching 6% in 2024).

Contribution base - *Employees* : gross wage and profit shares in the current year, since 2011, assessment base includes also termination and severance payments; *Self-employed*: the contribution base is calculated as the sum of earnings (revenues minus expenses) and of total contributions (health care, pensions, reserve solidarity fund, unemployment) of the last year, divided by a constant (1.6 in 2014), and it is constrained by a minimum of 1/2 of the average monthly wage in economy of 2 years ago; *Voluntarily insured persons*: the contribution base is voluntary, but no less than 1/2 average monthly wage in economy of 2 years ago (voluntarily insured persons). There is a maximum of 5 times the average monthly wage 2 years prior uniquely applying to employees, self-employed and voluntarily insured persons.

Special scheme - *Armed forces*: old-age pension contribution = 20 % employer/7 % employee, temporary pension benefit contribution = 1 % employer/1 % employee (only until fulfilling the requirements to retire).

Additional features - Possibility to shift a part of the contributions to the II. pillar (see contribution rates).

Benefit

Pensionable earning reference - Lifetime wage average (starting with 1984 at the earliest, due to data availability).

Accrual rate - Calculated as average replacement rate per year of service; currently 0.0124 and is projected to reach approximately 0.0118 in 2060.

Point value - Represents the value of adjusted average pension points accumulated during the career. Currently 10.2524, it is indexed by nominal wage growth every year (according to growth in the third quarter of calendar year), in 2060 it is projected to be approximately 66.4. To calculate the pension benefit, the average pension point is multiplied by the point value and the length of pension insurance period.

Point cost - The system does not use the concept of a "point cost". It may be derived, however, as the ratio of the average accrual rate and the point value. Point cost calculated this way amounts to 8.2 in the base year and is projected to reach approximately 56.4 in 2060.

Criteria for accumulation of points - There is a so called "pension point" that represents the ratio of the insured person's wage to the economy-wide wage average in a given year when the person paid the pension contribution. "Average pension point" is calculated as an average of pension points throughout the career life. It is further adjusted by a solidarity factor.

Penalties for early retirement - Early pension benefits are calculated as old age pension benefits; however the early pension is reduced by 0.5 % for every 30 days until reaching the retirement age.

Bonuses for postponing retirement - Pension benefit is increased by 6 % per year for every additional working year above the retirement age.

Valorisation of pensionable earnings - Valorisation by the nominal wage increase through the **Point value** growth.

Indexation of pensions in payment - Pension benefits are indexed depending on the inflation rate and the average wage growth rate, with the impact of the former increasing gradually (in 2014, 60% inflation + 40% wage inflation). During a transition period (2013 – 2017) pensions are temporarily indexed by a fixed amount. As from 2018 on, pension benefit will be indexed by the pensioner's price inflation rate.

Maximum replacement rate - Not legislated

Sustainability factor/benefit linked to life expectancy - Not legislated

Taxes

Pension taxation - Pension benefits as well as pension contributions are exempt from tax.

DISABILITY

Regulatory framework

See old-age pension scheme.

Qualifying condition

Qualifying condition Minimum retirement age and contributory years - The minimum contributory period is less than one year for person under 20 years; at least one year for person aged 20 to 24 years; at least two years for person aged 24 to 28 years; at least five years for person aged 28 to 34 years; at least eight years for person aged 34 to 40 years; at least ten years for person aged 40 to 45 years; at least 15 years for person over 45 years.

Contributory period for full pension - No limit

Special schemes - Disability pension benefit from the pension system of armed forces: Benefit depends on the degree of invalidity (if the person's abilities are lowered by more than 50%, the disability pension benefit will be calculated in the same way as the old-age pension; between 20% and 49%, it is calculated as twice the percentage share of an old-age pension entitlement).

Contribution

Contribution rate: Employers - 3% of the assessment base for disability pension contribution;

Contribution rate: Employees – 3% of the assessment base for disability pension contribution. Self-employed (mandatory if earnings in the previous years were higher than 12 times the average monthly wage 2 years ago) - 6%; voluntarily insured persons - 6%

Contribution rate: Government - 6%

Contribution base - See old-age pension scheme.

Special scheme - Armed forces - disability pension contribution is 3% employer, 3% employee.

Benefit

Pensionable earning reference - See old-age pension scheme.

Point value - Represents the value of adjusted average pension points accumulated during the career. Currently 10.2524, it is indexed by nominal wage growth every year (according to growth in the third quarter of calendar year), in 2060 it is expected to be 66.4. In case the person's abilities are lower by more than 70 %, the pension benefit is calculated as the average pension point is multiplied by the point value and the length of pension insurance period plus the period remaining until reaching the statutory retirement age. In case the person's abilities are lower by more than 40 % and equal or less than 70 %, the pension benefit is calculated as the average pension point is multiplied by the point value and the length of pension insurance period plus the period remaining until reaching the statutory retirement age times the percentage level of disability.

Criteria for accumulation of points - See old-age pension scheme.

Valorisation of pensionable earnings - See old-age pension scheme.

Indexation of pensions in payment - See old-age pension scheme.

Maximum replacement rate - Not legislated

Sustainability factor/benefit linked to life expectancy - Not legislated

Taxes

Pension taxation - Pension benefits as well as pension contributions are exempt from tax.

SURVIVOR

Regulatory framework

See old-age pension scheme.

Qualifying condition

Minimum retirement age and contributory years - The deceased had to fulfil requirements to be entitled to old age pension (including early retirement), disability pension, or if he/she died as a consequence or a work accident or sickness. In case of orphan pension, the orphan has to be a dependent child. As from 2004 orphans can be entitled to two pensions if both parents are deceased.

Retirement age linked to life expectancy - Yes (through minimum requirements)

Contributory period for full pension - no limit

Special schemes - Survivor pension from the pension system of armed forces: Normally, the survivor receives for 1 years 60 % of the pension to which the deceased was entitled. This period might be prolonged if certain conditions are fulfilled (the survivor is of pension age, takes care of a child etc.).

Contribution

Contribution rate: Employers - No special contribution - covered from the other contributions (old age pension contributions or disability pension contributions)

Contribution rate: Employees - No special contribution - covered from the other contributions

(old age pension contributions or disability pension contributions)

Contribution rate: Government - Any

Contribution base - See old-age pension scheme.

Special scheme - Armed forces: no special contribution - covered from the other contributions

Benefit

Pensionable earning reference - See old-age pension scheme.

Point value - Linked to the old-age or disability pension point value. The amount of the widow´s/ widower's pension is 60% of the deceased person's pension benefit entitlement. In case of receiving also old-age pension, and if this old-age pension is higher, the percentage of widow´s/widower´s pension is 30% of the deceased person's pension benefit entitlement. The amount of the orphan's pension is 40% of the deceased person's pension benefit entitlement.

Criteria for accumulation of points - See old-age pension scheme.

Valorisation of pensionable earnings - See old-age pension scheme.

Indexation of pensions in payment - See old-age pension scheme.

Maximum replacement rate - Not legislated

Sustainability factor/benefit linked to life expectancy - Not legislated

Taxes

Pension taxation - Pension benefits as well as pension contributions are exempt from tax.

MINIMUM PENSION

Pension scheme: Public social assistance benefit scheme

Regulatory framework

Type - DB, Mandatory, earnings-related, non Means-tested.

First law - Act No. 599/2003 on social assistance (old code cancelled by Act no. 417/2013)

Current law - Act No. 417/2013 (amendment to several acts)

Coverage - All the pensioners that fulfil the condition of minimum income

Administrative organization - Ministry of Labour, Social Affairs and Family (http://www.employment.gov.sk/sk/)

Qualifying condition

Qualifying condition Minimum retirement age and contributory years - No limit - included in the social assistance benefit system

Contribution

Contribution rate: Employers - No special contribution - covered from the Ministry of Labour, Social Affairs and Family budget

Contribution rate: Employees - No special contribution - covered from the Ministry of Labour, Social Affairs and Family budget

Contribution rate: Government - No special contribution - covered from the Ministry of Labour, Social Affairs and Family budget

Fund (or any residual funding from the State) - Funded from the social assistance benefit program through the Ministry of Labour, Social Affairs and Family

Benefit

Indexation of pensions in payment - There is no legislated system of indexation of the social assistance benefits.

Maximum replacement rate - Not legislated

Taxes

Pension taxation - Pension benefits as well as pension contributions are exempt from tax.

Private schemes

PRIVATE INDIVIDUAL

Pension scheme: Voluntary fully funded private scheme

Regulatory framework

Type - DC, voluntary, earnings-related, non Means-tested

First law - Act no. 43/2004 on old age private pension schemes

Current law - Act no. 43/2004 (with amendments)

Coverage - Covers part of the employees, self-employed and voluntarily insured persons that decided to take part in the scheme, or those that have been included in the scheme while it was Mandatory (<2008 and from 1 April 2012 until 31 December 2012) and did not exit during any of the openings.

Administrative organization - Pension Funds Management companies (various), insurance companies (various)

Qualifying conditions

Qualifying condition Minimum retirement age and contributory years - Early retirement is possible 2 years before statutory retirement age if the person is entitled to a pension from I. and II. pillar that is higher than 1.2 times the subsistence income level (legislated). Minimum contributory period is 10 years, from 1 January 2015 no minimum contributory period will be required.

Retirement age linked to life expectancy - Yes (as from 2017).

Statutory retirement age - see public old-age pension scheme

Contributory period for full pension - No limit

Contribution

Contribution rate: Employers - 4 % of the assessment base; as from 2017 the percentage will increase every year by 0.25 % until reaching 6 % in 2024.

Contribution rate: Employees - If a self-employed person or voluntarily insured persons participates in the II. pillar, they contribute 4% of the assessment base to the II pillar (as from 2017 the percentage will increase every year by 0.25 % until reaching 6 % in 2024).

Contribution rate: Government - 4% of the assessment base; as from 2017 the percentage will increase every year by 0.25 % until reaching 6 % in 2024.

Contribution base - see public old-age pension scheme

Benefit

Pensionable earning reference - Average wage in the contributory period

Accrual rate - Calculated as a replacement rate per year of service life; currently 0, because no pensions from the II pillar are paid until 2015.

Penalties for early retirement - No legislated penalisation. Earlier retirement will only be reflected in lower amount of annuity since the person is expected to live longer if he/she retires earlier (and the insurance companies will take this into account when calculating the annuity), and also in lower amount of contribution paid.

Bonuses for postponing retirement - No legislated bonuses. Postponing retirement will only be reflected in higher amount of annuity since the person contributes with higher amount into his/her personal account.

Valorisation of pensionable earnings - After fulfilling the conditions of eligibility for the pension from the 2 pillar, a person concludes a contract with an insurance company of his/her own choice that will ensure a lifetime (or after fulfilling other conditions also temporary) annuity. Monthly sum is calculated by the insurance company using actuarial methods, based on the amount of contributions the insured person has paid to his/her personal account and the yield from investing these contributions.

Indexation of pensions in payment - When concluding a contract with an insurance company, a person can choose whether he/she prefers receiving a non-indexed pension during all the following period or receive a lower amount at the beginning which will be indexed by a fixed percentage yearly (percentage will be announced by the National Bank of Slovakia in a regulation).

Maximum replacement rate - Not legislated

Sustainability factor/benefit linked to life expectancy - There is an indirect link through the insurance companies calculating the annuity using actuarial methods that take into account the life expectancy.

Taxes

Contribution - As of 2013 voluntary contributions to the privately managed fully funded pillar up to 2% of gross earnings net of employee social security contributions are tax-deductible. Maximum yearly limit for this tax relief is calculated as: 2% x 60 x AW(t-2), where AW(t-2) is the average wage two years ago. It is legislated that this relief will be automatically abolished as of 2017.

Returns on investment and fund accumulation - No taxes

Withdrawals – No taxes

Finland

Public schemes

OLD AGE

1) Pension scheme:National pensions

Regulatory framework

Type - Income tested, mandatory, non earnings related, income tested

First law - Kansaneläkelaki (1937)

Current law - Kansaneläkelaki (1997)

Coverage - Universal

Administrative organization - Social Insurance Institution, www.kela.fi

Qualifying condition

Minimum retirement age and contributory years - Full pension 65, early pension 63

Retirement age linked to life expectancy - No

Statutory retirement age - 65

Additional features - To qualify, at least 3 years living in Finland after reaching the age of 16 is required.

Contribution

Contribution rate: Employers - abolished in 2010

Fund (or any residual funding from the State) - Funding from the State 100%

Benefit

Pensionable earning reference – n/a.

Accrual rate – n/a.

Penalties for early retirement – 0.4% / month

Bonuses for postponing retirement – 0.6% / month

Indexation of pensions in payment - 100 % prices

Maximum replacement rate - n/a.

Taxes

Pension taxation - Taxed

Tax rates - Normal labour income taxation, Pension tax income credit EUR 12,610, up to earnings EUR 41 269.

2) Pension scheme: Earnings-related pensions

Regulatory framework

Type – DB, mandatory, earnings related

First law - Työntekijän työeläkelaki (1961)

Current law - Työntekijän työeläkelaki (2006)

Coverage - All employed and self-employed

Administrative organization - Many pension funds, a statutory co-operation body for private sector pensions is The Finnish Centre for Pensions (www.etk.fi), Public sector pensions organization is KEVA (www.keva.fi)

Qualifying condition

Minimum retirement age and contributory years - Old-age pension 63, min contr. period 1 month

Retirement age linked to life expectancy - No

Statutory retirement age - 63-68

Contributory period for full pension – n/a., no full pension

Special schemes - Old-age pension: Army 55-63, Seafarer's 55-60 and Police officer 60 if born before 1960.

Contribution

Contribution rate: Employers - 17.75 % (private sector main system, tyel); 20.40 % State; 23.7 % Local government in year 2014. These contributions include also the part needed to finance disability and survivors' pensions.

Contribution rate: Employees - employees 18-52 years 5,55 and 53-68 years 7,05 (in year 2014)

Contribution rate: Government - Government contribution rate is 20.4 (VeEL) for state pension.

Fund (or any residual funding from the State) - Approx. 25 % of private sector pension are prefunded, Fund size EUR 109,2 billion. Total public sector fund size is approximately 60 billion.

Contribution base - All wages and labour income for 18-68-year-olds.

Special scheme - The accrual from home care and studies is financed by the state

Additional features - 0,4 % /month bonus postponing retirement after age of 68.

Benefit

Pensionable earning reference - full career (ages 18 - 68)

Accrual rate – 1.5% ages 18 - 52; 1.9% ages 53 - 62; 4.5% ages 63 – 68

Bonuses for postponing retirement – 0.4 % /month bonus postponing retirement after age of 68.

Valorisation of pensionable earnings - 80 % wages, 20 % prices

Indexation of pensions in payment - 80 % prices, 20 % wages

Maximum replacement rate – n/a.

Sustainability factor/benefit linked to life expectancy - life expectancy coefficient reduce new pensions in line with the life expectancy at age 62 compared to base year 2010.

Special schemes - Soldiers 2 % and Army pilots 3 % accrual rate (max replacement rate 60%)

Taxes

Pension taxation - Taxed

Tax rates - Normal labour income taxation, Pension tax income credit EUR 12,610, up to earnings EUR 41 269.

DISABILITY

1) Pension scheme: National Disability pension

Regulatory framework

Type - Mandatory, non earnings related, income tested

First law - Kansaneläkelaki (1937)

Current law - Kansaneläkelaki (1997)

Coverage - Universal

Administrative organization - Social Insurance Institution, www.kela.fi

Qualifying condition

Minimum retirement age and contributory years - 16

Retirement age linked to life expectancy - No

Contributory period for full pension - Full disability pension if you are not able to do your normal work to secure reasonable income considering for example age and skills.

Additional features - A temporary disability pension you may be granted, If there is a chance that your work capacity might be restored i.e. a cash rehabilitation benefit. The disability pension may be granted on more lenient conditions if you have already turned 60. A person drawing a full disability pension may earn 743 euro per month. When the earnings exceed the earnings limits, the pension payments are suspended for at least three months and no more than two years.

Contribution

Fund (or any residual funding from the State) - Funding from the State 100%

Benefit

Indexation of pensions in payment - 100 % prices

Taxes

Pension taxation - Taxed

Tax rates - Normal labour income taxation, Pension tax income credit EUR 12,610, up to earnings EUR 41 269.

2)Pension scheme   - Earnings-related Disability pensions

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested

First law - Työntekijän työeläkelaki (1961)

Current law - Työntekijän työeläkelaki (2006)

Coverage - All employed and self-employed

Administrative organization - Many pension funds, a statutory co-operation body for private sector pensions is The Finnish Centre for Pensions (www.etk.fi), Public sector pensions organization is KEVA (www.keva.fi)

Qualifying condition

Minimum retirement age and contributory years - 18, min contr. period 1 month

Retirement age linked to life expectancy - No

Contributory period for full pension - Full Disability Pension If your work capacity has been reduced by at least 60 per cent

Special schemes - Partial disability pension can be granted in case of loss of work capacity at least 40%

Additional features - A temporary disability pension you may be granted, If there is a chance that your work capacity might be restored i.e. a cash rehabilitation benefit. The disability pension may be granted on more lenient conditions if you have already turned 60. A person drawing a full disability pension may earn a maximum of 40 per cent of the stabilised average earnings prior to retirement, and a person drawing a partial pension, 60 per cent. When the earnings exceed the earnings limits, the pension payments are suspended for at least three months and no more than two years.

Contribution

Contribution rate: Employers - This contribution is included in the total contribution (see above).

Contribution rate: Employees - This contribution is included in the total contribution (see above).

Contribution base - All wages and labour income for 18-68-year-olds.

Benefit

Pensionable earning reference - Last 5 years before the disability.

Accrual rate - 1,5% ages 18 - 52; 1,9% ages 53 - 62; and Pension will accrue for projected pensionable service until the end of the month during which you turn 63. The accrual rate is 1.5 per cent of your standard earnings for the five calendar years prior to the start of your retirement

Valorisation of pensionable earnings - 80 % wages, 20 % prices

Indexation of pensions in payment - 80 % prices, 20 % wages

Sustainability factor/benefit linked to life expectancy - The life expectancy coefficient is also applied to disability pensions, but to a lesser degree. The coefficient used is the one confirmed for the pension contingency year, and it is only

applied to the pension component that has accrued by the start of disability.

Taxes

Pension taxation - Taxed

Tax rates - Normal labour income taxation, Pension tax income credit EUR 12,610, up to earnings EUR 41 269.

SURVIVOR

Pension scheme: Survivors pension

Regulatory framework

Type – Mandatory, earnings related, means-tested

First law - Työntekijän työeläkelaki (1961) and Kansaneläkelaki (1937)

Current law - Työntekijän työeläkelaki (2006)

Coverage - All employed and self-employed

Qualifying condition

Minimum retirement age and contributory years - For children under 18 years-old and widow. If there are no children, the widow must be at least 50 years old or be on a disability pension to receive a survivors' pension

Additional features - The surviving spouse or the former spouse is entitled to a surviving spouse's pension if 1.the surviving spouse has, or has had, a child (biological or adopted) together with the deceased and the spouses married before the deceased reached the age of 65, or

2.the spouses married before the deceased reached the age of 65 and the surviving spouse reached the age of 50, and the marriage has continued for at least five years, and the surviving spouse has reached the age of 50 at the time of the spouse's death or has been incapacitated for work for a long time.

1.the surviving spouse has, or has had, a child (biological or adopted) together with the deceased

and the spouses married before the deceased reached the age of 65, or

2.the spouses married before the deceased reached the age of 65 and the surviving spouse reached the age of 50, and the marriage has continued for at least five years, and the surviving spouse has reached the age of 50 at the time of the spouse's death or has been incapacitated for work for a long time.

A child (biological or adopted) of the deceased will receive an orphan's pension until the age of 18.

Contribution

Contribution rate: Employers - This contribution is included in the total contribution (see above).

Contribution rate: Employees - This contribution is included in the total contribution (see above).

Benefit

Pensionable earning reference - Survivors' pension is determined on the basis of the pension that the deceased had accrued during his or her time in employment or self-employment. If the deceased was not yet retired, the survivor's pension is determined according to the disability pension that he or she would have received at the time of

Indexation of pensions in payment - 80 % prices

20 % wages

Maximum replacement rate - At most, the surviving spouse may receive half of the pension of the deceased. The number of children and the surviving spouse's own pensions or earnings affect the amount of the surviving spouse's pension. However, the surviving spouse's own earnings do not affect the surviving spouse's pension until the youngest child reaches the age of 18.

Sustainability factor/benefit linked to life expectancy - The pension of the deceased is/has been adjusted by the life expectancy coefficient

Additional features - The surviving spouse's pension is reduced if his or her own pension exceeds EUR 645.50. The amount of the deduction

made to the full surviving spouse's pension is half of the difference between the surviving spouse's own pension and the above-mentioned limit.

MINIMUM PENSION

Pension scheme: Guarantee pensions

Regulatory framework

Type - Income tested, mandatory, non earnings related, income tested

First law - Laki takuueläkkeestä (2010)

Current law - Laki takuueläkkeestä (2010)

Coverage - Universal

Administrative organization - Social Insurance Institution, www.kela.fi

Qualifying condition

Minimum retirement age and contributory years - 65, early pension 63

Retirement age linked to life expectancy - No

Statutory retirement age - 65

Additional features - To qualify, at least 3 years living in Finland after reaching the age of 16 is required.

Contribution

Fund (or any residual funding from the State) - Funding from the State 100%

Benefit

Pensionable earning reference – n/a.

Accrual rate – n/a.

Indexation of pensions in payment - 100 % prices

Maximum replacement rate – n/a.

Taxes

Pension taxation - Taxed

Tax rates - Normal labour income taxation, Pension tax income credit EUR 12,610, up to earnings EUR 41 269.

Private schemes

PRIVATE OCCUPATIONAL

Regulatory framework

Type - DB and DC

PRIVATE INDIVIDUAL

Regulatory framework

Type - DC

New legislation from 1.1.2010: 62

Sweden

Public schemes

OLD AGE

1) Pension scheme: Income pension

Regulatory framework

Type - NDC, mandatory, earnings related, non means-tested

First law - 1998

Current law - 2010

Coverage - All employed and self-employed

Administrative organization - Swedish Pension Agency

Qualifying conditions

Minimum retirement age and contributory years - 61 / 1

Retirement age linked to life expectancy - No

Statutory retirement age - No upper limit

Contrib. period for full pension - n.a.

Contribution

Contribution rate: Employers – 9.04%

Contribution rate: Employees – 6%

Contribution rate: Government - The "employer contribution" for social insurances e.g. unemployment benefits

Fund (or any residual funding from the State) - Buffer funds

Contribution base – 0.423 PBA < gross pensionable earnings < 8.07 IBA

Benefit

Pensionable earning reference - full career

Accrual rate - around 1.5% a year

Valorisation of pensionable earnings - IBA + inheritance gains

Indexation of pensions in payment - Change of IBA -1.6%

Sustainability factor/benefit linked to life expectancy - Annuity factor based on unisex life expectancy at the date of retirement. Also an automatic balancing mechanism that is activated in case of financial imbalance in the system

Taxes

Pension taxation - Income taxation

2) Pension scheme: Old transitional supplementary pension (for individuals born before 1954)

Regulatory framework

Type - DB, mandatory, earnings related, non means-tested

First law - 1962

Current law - 2010

Coverage - All employed and self-employed

Administrative organization - Swedish Pension Agency

Qualifying conditions

Minimum retirement age and contributory years - 61 / 3

Retirement age linked to life expectancy - No

Statutory retirement age - No upper limit

Contrib. period for full pension - 30 years

Contribution

Contribution rate: Employers – 9.04%, during phase-out period until 2019

Contribution rate: Employees – 6%, during phase-out period until 2019

Fund (or any residual funding from the State) - Buffer funds

Contribution base – 0.423 PBA < gross pensionable earnings < 8.07 IBA

Benefit

Pensionable earning reference - average of 15 best, minimum 30 for full pension

Accrual rate (for non-DB systems effective accrual rate) - 0.148843243243243

Penalties for early retirement - malus 0.5 % for each month of retirement before 65

Bonuses for postponing retirement – 0.7 % bonus for each month of retirement after 65.

Valorisation of pensionable earnings - IBA

Indexation of pensions in payment - Change of IBA -1.6%

Taxes

Pension taxation - Income taxation

DISABILITY

Pension scheme: Disability pension

Regulatory framework

Type - Social insurance, mandatory, earnings related and non earnings related.

First law - 1913

Current law - 2010

Coverage - All residents

Administrative organization - Swedish Social Insurance Agency

Qualifying conditions

Minimum retirement age and contributory years - 19

Retirement age linked to life expectancy - No

Statutory retirement age - 65

Contrib. period for full pension - 40

Contribution

Contrib. rate: Gov. - General tax

Benefit

Indexation of pensions in payment - PBB

Taxes

Pension taxation - Income taxation

2) Pension scheme: Housing supplement for disability pensioners

Regulatory framework

Type - Social insurance, mandatory, means-tested

First law - 1946

Current law - 2010

Coverage - All residents

Administrative organization - Swedish Social Insurance Agency

Qualifying conditions

Minimum retirement age and contributory years - 19

Retirement age linked to life expectancy - No

Statutory retirement age - 65

Contrib. period for full pension - 40

SURVIVOR

1) Pension scheme: Widows pension

Regulatory framework

Type - Social insurance, mandatory, earnings related and non earnings related, non means-tested

First law - 1946

Current law - 2010

Coverage - Women married before 1990

Administrative organization - Swedish Pension Agency

Qualifying conditions

Retirement age linked to life expectancy - No

Contribution

Contribution rate: Government - General tax

2) Pension scheme: Temporary adjustment allowance

Regulatory framework

Type - Social insurance, mandatory, earnings related and non earnings related, non means-tested

First law - 1990

Current law - 2010

Coverage - All residents

Administrative organization – Swedish Pension Agency

Qualifying conditions

Retirement age linked to life expectancy - No

Contribution

Contribution rate: Government - General tax

MINIMUM PENSION

1) Pension scheme: Guarantee pension

Type - Top-up to income pension, mandatory, non earnings related, means-tested

First law - 1946

Current law - 2010

Coverage - All residents

Administrative organization - Swedish Pension Agency

Qualifying conditions

Minimum retirement age and contributory years - 65 / 3

Retirement age linked to life expectancy - No

Statutory retirement age - No limit

Contrib. period for full pension - 40 years

Contribution

Contribution rate: Government - General tax

Benefit

Pensionable earning reference - Minimum pension 2.13 price base amounts (PBA) for singles and 1.90 PBAs for cohabitants. Benefits are reduced with 100% for pension income below the minimum level and with 48% above the minimum level.

Indexation of pensions in payment - PBB

Sustainability factor/benefit linked to life expectancy - No

Taxes

Pension taxation - Income taxation

2) Pension scheme: Housing supplement for old-age pensioners

Regulatory framework

Type – Social insurance, mandatory, non earnings related, means-tested

First law - 1946

Current law - 2010

Coverage - All residents

Administrative organization - Swedish Pension Agency

Qualifying conditions

Minimum retirement age and contributory years - 65

Retirement age linked to life expectancy - No

Statutory retirement age - No limit

Contrib. period for full pension - 40 years

Contribution

Contribution rate: Government - General tax

Taxes

Pension taxation – Not taxed

3) Pension scheme: Maintenance support for the elderly

Regulatory framework

Type – Social insurance, mandatory, non earnings related, means-tested

First law - 1996

Current law - 2010

Coverage - All residents

Administrative organization - Swedish Pension Agency

Qualifying conditions

Minimum retirement age and contributory years - 65

Retirement age linked to life expectancy - No

Statutory retirement age - No limit

Contribution

Contribution rate: Government - General tax

Taxes

Pension taxation – Not taxed

Private schemes

PRIVATE OCCUPATIONAL

1) Pension scheme: Private blue-collar

Regulatory framework

Type – DC, quasi mandatory, earnings related

Coverage - Employees

Administrative organization - Trade unions

Qualifying conditions

Minimum retirement age and contributory years - normally 65 / 1

Statutory retirement age - 65

Contribution

Contribution rate: Employers - ca 4.5% up to 7.5 IBB, 30% > 7.5 IBB

Contribution base - Pensionable Wage

Benefit

Valorisation of pensionable earnings - Market return on mutual funds

Indexation of pensions in payment - A fixed or variable annuity

Sustainability factor/benefit linked to life expectancy - Annuity factor based on unisex life expectancy at the date of retirement

Taxes

Contribution - Tax deductible

Tax rate and description - Income taxation

Returns on investment and fund accumulation - Taxed

2) Pension scheme: Private white-collar

Regulatory framework

Type – DB/FDC, quasi mandatory, earnings related

Coverage - Employees

Administrative organization - Trade unions

See the information on the blue collar private occupational scheme

3) Pension scheme: local government

Regulatory framework

Type – DB/FDC, quasi mandatory, earnings related

Coverage - Employees

Administrative organization - Trade unions

See the blue collar private occupational pension scheme

2) Pension scheme: Private white-collar

Regulatory framework

Type – DB/FDC, quasi mandatory, earnings related

Coverage - Employees

Administrative organization - Trade unions

See blue collar private occupational pension scheme

PRIVATE INDIVIDUAL

1) Pension scheme: Premium pension

Regulatory framework

Type - FDC, mandatory, earnings related, non means-tested

First law - 1998

Current law - 2010

Coverage - All employed and self-employed

Administrative organization - Pension Agency

Qualifying condition

Minimum retirement age and contributory years - 61 / 1

Statutory retirement age - No upper limit

Contribution

Contribution rate: Employers - around 1.5%

Contribution rate: Employees - 1%

Contribution rate: Government - The "employer contribution" for social insurances e.g. unemployment benefits

Contribution base - 0.423 PBA < gross pensionable earnings < 8.07 IBA

Benefit

Pensionable earning reference – 0.423 PBA < gross pensionable earnings < 8.07 IBA

Valorisation of pensionable earnings - Market return on individual chosen mutual funds

Indexation of pensions in payment - A fixed or variable annuity, calculated on actuarial principles

Sustainability factor/benefit linked to life expectancy - Annuity factor based on unisex life expectancy at the date of retirement

Taxes

Contribution - Tax deductible

Tax rate and description - Not taxed

Returns on investment and fund accumulation - Not taxed

Sustainability factor/benefit linked to life expectancy - Minimum 5 years

Taxes

Contribution - Tax deductible

Tax rate and description - Income taxation

Returns on investment and fund accumulation - Taxed

2) Pension scheme: Tax deductible pensions savings

Regulatory framework

Type – FDC, voluntary

Administrative organization - Private

Qualifying condition

Minimum retirement age and contributory years - 55 / 1

Statutory retirement age - No limit

Benefit

Pensionable earning reference - Maximum 12000 SEK / year for employees

Valorisation of pensionable earnings - Market return on individual chosen mutual funds

Indexation of pensions in payment - A fixed or variable annuity, calculated on actuarial principles

United Kingdom

Public schemes

OLD AGE

1) Pension scheme - Basic State Pension - Flat rate scheme

Regulatory framework

Type - Contribution based state pension scheme, mandatory, indirectly earnings related, non means-tested.

First law - n/a

Current law - Pensions Act 2007 reformed state pension for those reaching state pension age (SPA) from April 2010. Pensions Act 2014 provides for new contributory state pension (replacing basic and additional state pension) for those reaching SPA on or after 6 April 2016.

Administrative organization - Department for Work and Pensions

Qualifying condition

Minimum retirement age and contributory years - Based on qualifying years of national insurance contributions between age 16 and SPA.

Statutory retirement age - n/a

Contributory period for full pension - 30 qualifying years need for full basic state pension for those reaching SPA on or after 6 April 2010. For new state pension 35 qualifying years needed for the full pension for those reach in SPA on or after 6 April 2016.

Additional features - A qualifying year is obtained from the weekly NICs liability on earning £5772 over the year. A qualifying year can also be obtained by receiving National Insurance Credits (for unemployment, child care or jury service for example) or purchasing voluntary contributions specifically to gain more QYs.

Contribution

Contribution rate: Employers - Employers pay 13.8% on weekly earnings above a threshold of £153 a week.

Contribution rate: Employees - Employees pay 12% on earnings between the primary threshold (£153/wk) and upper earnings limit (£805/wk). Additional 2% on earnings above UEL. Self-employed pay weekly flat rate charge of £2.90, and a 9% or 2% charge of profits (at the same thresholds as the 12% and 2% earnings rates above respectively).

Contribution rate: Government - No direct contribution.

Fund (or any residual funding from the State) - Occasional top-ups to the National Insurance Fund (NIF) if reserves fall below a threshold recommended by the Government Actuary Department.

Contribution base - Earnings

Special scheme - n/a

Additional features - Voluntary contributions of £13.90 are available to purchase QYs.

Benefit

Pensionable earning reference - n/a

Penalties for early retirement - n/a

Bonuses for postponing retirement - Currently 10.4% p/a for deferring state pension. For new state pension deferral rate will be 5.8% p/a (roughly actuarially fair).

Valorisation of pensionable earnings - Currently highest of Earnings, CPI, 2.5%

Indexation of pensions in payment - Coalition Government commitment currently highest of earnings, prices (CPI) or 2.5%. Legislative minimum of earnings

Maximum replacement rate - n/a

Sustainability factor/benefit linked to life expectancy - n/a

Taxes

Pension taxation - Taxed at marginal rate

2) Pension scheme - Additional State Pension (SERPS and State Second Pension) - Earnings related scheme

Regulatory framework

Type - Contribution based state pension scheme, voluntary, earnings related, non means-tested

First law - n/a

Current law - Pensions Act 2007 reformed state pension for those reaching state pension age (SPA) from April 2010. Pensions Act 2014 provides for new contributory state pension (replacing basic and additional state pension) for those reaching SPA on or after 6 April 2016.

Administrative organization - Department for Work and Pensions

Qualifying condition

Minimum retirement age and contributory years - Based on earnings and qualifying years of national insurance contributions between age 16 and SPA.

Statutory retirement age - n/a

Contributory period for full pension - 30 qualifying years need for full basic state pension for those reaching SPA on or after 6 April 2010. For new state pension 35 qualifying years needed for the full pension for those reach in SPA on or after 6 April 2016.

Contribution

Contribution rate: Employers - Employers pay 13.8% on weekly earnings above a threshold of £153 a week.

Contribution rate: Employees - As above (though note that employees in defined benefit schemes can currently get a 1.4 ppt rebate on their contributions if they contract out of the second state pension)

Contribution rate: Government - No direct contribution.

Fund (or any residual funding from the State) - Occasional top-ups to the National Insurance Fund (NIF) if reserves fall below a threshold recommended by the Government Actuary Department.

Contribution base - Earnings

Special scheme - n/a

Benefit

Penalties for early retirement - n/a

Bonuses for postponing retirement - Currently 10.4% p/a for deferring state pension. For new state pension deferral rate will be 5.8% p/a (roughly actuarially fair).

Valorisation of pensionable earnings - Earnings

Indexation of pensions in payment - Legislative minimum of prices (CPI)

Maximum replac. rate - n/a

Sustainability factor/benefit linked to life expectancy - n/a

Taxes

Pension taxation - Taxed at marginal rate

DISABILITY

Not applicable

SURVIVOR

Not applicable

MINIMUM PENSION

Not applicable

Private schemes

PRIVATE OCCUPATIONAL

The UK pension system in place contemplates occupational schemes where the employer happens to be public. All information on these schemes have been enclosed in the national country fiche available through the Ageing Working Group website:

http://europa.eu/epc/working_groups/ageing_en.htm

1) Pension scheme - Occupational pensions

Regulatory framework

Type - DB, voluntary, typically related to final salary or career average, non means-tested

Coverage - Access to 100%

Administrative organization - Pensions Regulator ensures sustainability of schemes, Pension Protection Scheme exists to cover insolvent schemes

Qualifying condition

Minimum retirement age and contributory years - n/a

Retirement age linked to life expectancy - No

Statutory retirement age - n/a

Contributory period for full pension - n/a

Contribution

Contribution rate: Employers - Varies

Contribution rate: Employees - Varies

Contribution rate: Government - Tax relief, corporation tax relief, contracted-out out rebate, national insurance relief - so contribution rate varies

Fund (or any residual funding from the State) - No

Benefit

Pensionable earning reference - Varies

Accrual rate - Varies

Valorisation of pensionable earnings - Varies

Indexation of pensions in payment - Varies

Maximum replacement rate - n/a

Sustainability factor/benefit linked to life expectancy - Public service schemes remain DB

Taxes

Contribution - Untaxed

Returns on investment and fund accumulation - Untaxed

2) Pension scheme - Occupational pensions

Regulatory framework

Type - DC, voluntary, earnings related according to contribution rates, which can be varied but will typically be a % of salary, non means-tested

Coverage - Access to 100%

Administrative organization - The pensions regulator ensure compliance with auto enrolment.

All the information provided on the previous occupational DB scheme is valid except for those reported above.

PRIVATE INDIVIDUAL

See the occupational DB pension scheme.

Contribution rate: Government - Tax Relief abolished (refer to HMRC about the detail)

Norway

Public schemes

OLD AGE

Pension scheme: Old age

Regulatory framework

Type – NDC, mandatory, earnings related, non means-tested

First law - A universal old age pension without a means test was implemented (the Old Age Pensions Law) in 1957. In 1967 an earnings related component was introduced. The system which came in place in 1967 was passed by the Parliament (Storting) on June 17, 1966. The law was named the National Insurance System Law.

Current law - The current system is a reformation of the system from 1967 and was implemented in 2011. The law that reformed the system was passed by the Parliament on June 5, 2009. The new rules became part of the existing National Insurance System Law.

Coverage - All citizens

Administrative organization - The Norwegian Labour and Welfare Administration: www.nav.no

Qualifying condition

Minimum retirement age and contributory years - Minimum retirement age 62 and contribution period all years between age of 13 and 75 years

Retirement age linked to life expectancy - The annual pension benefit is adjusted for life expectancy

Statutory retirement age - 67 (reference)

Contributory period for full pension - No explicit full pension

Special schemes - Certain occupations (police, army personnel etc.) have occupational pension schemes with lower retirement age.

Additional features - Withdrawing pensions before 67 is possible given that the earned pension is above the minimum pension level

Contribution

Contribution rate: Employers - Pay as you go system without an earmarked tax going to pensions

Contribution rate: Employees - Pay as you go system without an earmarked tax going to pensions

Contribution rate: Government - The system is financed through taxes but without any defined fund going to pensions

Fund (or any residual funding from the State) - Pay as you go

Contribution base - For cohorts born after 1953 pensions is earned on income between 0 and 7,1 base amount(1 base amount=87328 NOK in 2014)

Special scheme - Certain occupations (police, army personnel etc.) have occupational pension schemes with lower retirement age. In the public pension scheme pension is earned for unemployment, sickness and disability spells and maternity leave.

Additional features - The minimum pension (guarantee pension) is income-tested against the income pension

Benefit

Pensionable earning reference - Full career (Age 13-75)

Accrual rate (for non-DB systems effective accrual rate) – 18.1%

Penalties for early retirement - The pension benefits are actuarially calculated so early retirement gives lower annual pension benefits

Bonuses for postponing retirement - The pension benefits are actuarially calculated so late retirement gives higher annual pension benefits

Valorisation of pensionable earnings - Wage growth

Indexation of pensions in payment – Wage growth – 0.75 pp

Maximum replacement rate - No specific rate set. Replacement rate dependent upon earned pension rights and life expectancy.

Sustainability factor/benefit linked to life expectancy - The pension benefit is adjusted for life expectancy

Special schemes - Certain occupations (police, army personnel etc.) have occupational pension schemes with lower retirement age.

Taxes

Pension taxation - The benefit is taxed. There is no earnings test.

Tax rates - Pension income is taxed less than labour income. Special tax rules ensure that recipients of minimum pensions and pensions just in excess of the minimum pension are exempted from paying income tax. Old-age and early-retirement pensioners are entitled to a special tax credit depending on pension income. In 2014 the maximum tax credit was NOK 30 000. The tax credit is scaled down against pension income. Social security contributions are levied on pension income, albeit at a lower rate (5.1%) than wage earnings (8.2%). Pensioners with the full tax credit do not pay social security contributions. The net income is calculated as gross wage, pension, income from self-employment, and capital income less basic relief and other deductible expenses arisen from earning the income and is taxed at 27 %. The maximum deduction for basic relief is somewhat lower for pensioners (70 400 NOK in 2014) than for wage earners(84 150 NOK in 2014). The deduction for personal allowance is the same for pensioners as for wage earners.

Special schemes - Certain occupations (police, army personnel etc.) have occupational pension schemes with lower retirement age. Pension benefits from occupational schemes are not entitled to the tax credit.

DISABILITY

Pension scheme: Disability pension

Regulatory framework

Type – Mandatory, earnings related. An insured person, who due to a permanent illness, injury of defect has certain necessary extra expenses or needs special attention or nursing, is entitled to additional basic benefit and attendance benefit. Also others than disability pensioners may be entitled basic and attendance benefits.

Current law - A new disability benefit is to be implemented from January 1 2015. The new rules are included in the existing National Insurance Law.

Coverage - All citizens given that he/she has been insured with entitlements to pension benefits for at least three years up to the contingency.

Earnings related / non-earnings related - Earnings related

Administrative organization - The Norwegian Labour and Welfare Administration: www.nav.no

Qualifying condition

Minimum retirement age and contributory years - Between 18 and 67

Contribution

Contribution rate: Employers - Pay as you go system without a earmarked tax going to disability benefits.

Contribution rate: Employees - Pay as you go system without a earmarked tax going to disability benefits.

Contribution rate: Government - The system is financed through taxes without any defined fund going to disability benefits.

Fund (or any residual funding from the State) - Pay as you go

Benefit

Pensionable earning reference - The benefit is calculated based on the average of the three years with the highest income out of the last five years

Indexation of pensions in payment - Wage growth

Maximum replacement rate - 66% of prior income

Taxes

Pension taxation - The disability benefit will be taxed as labour earnings

SURVIVOR

Pension scheme: Survivor benefits

Regulatory framework

Type – Mandatory, earnings related, non means-tested

Coverage - All citizens

Administrative organization - The Norwegian Labour and Welfare Administration: www.nav.no

Qualifying condition

Retirement age linked to life expectancy - The benefit is adjusted for life expectancy in the same way as old age pensions

Contribution

Contribution rate: Employers - Pay as you go system without an earmarked tax going to survivor benefits

Contribution rate: Employees - Pay as you go system without an earmarked tax going to survivor benefits

Contribution rate: Government. - The system is financed through taxes but without any defined fund going to survivor benefits

Fund (or any residual funding from the State) - Pay as you go

Contribution base - Based on the pension earnings of both spouses

Benefit

Penalties for early retirement - The pension benefits are actuarially calculated so early retirement gives lower annual pension benefits

Bonuses for postponing retirement - The pension benefits are actuarially calculated so late retirement gives higher annual pension benefits

Valorisation of pensionable earnings - Wage growth

Indexation of pensions in payment - Wage growth – 0.75 pp

Maximum replacement rate - The supplementary pension is equivalent to 55 % of the combined supplementary pension of the couple

Sustainability factor/benefit linked to life expectancy - The survivor benefit is adjusted for life expectancy in the same way as old age pensions

Taxes

Pension taxation - The benefit is taxed as old age pensions

MINIMUM PENSION

Pension scheme: Minimum pension to persons with no or low pension earnings.

The benefit is an integral part of the old age pension system.

Regulatory framework

Type – Mandatory, non-earnings related, non means tested

Coverage - All citizens

Administrative organization - The Norwegian Labour and Welfare Administration: www.nav.no

Qualifying condition

Minimum retirement age and contributory years - 67

Retirement age linked to life expectancy - The annual pension benefit is adjusted for wage growth and changes in life expectancy from one cohort to the next

Contributory period for full pension - Full benefit requires 40 insurance years.

Contribution

Contribution rate: Employers - Pay as you go system without a earmarked tax going to pensions

Contribution rate: Employees - Pay as you go system without a earmarked tax going to pensions

Contribution rate: Government - The system is financed through taxes but without any defined fund going to pensions

Fund (or any residual funding from the State) - Pay as you go

Benefit

Sustainability factor/benefit linked to life expectancy - The annual pension benefit is adjusted for wage growth and changes in life expectancy from one age-cohort to the next

Taxes

Pension taxation - Same rules as for old age pensions which imply that persons receiving minimum pension is exempted from paying taxes

Tax rates - Same rules as for old age pensions

Private schemes

PRIVATE OCCUPATIONAL

Pension scheme: Act on mandatory occupational pension (covers schemes 1 – 3 below)

Regulatory framework

Type - Act on mandatory occupational pension (covers schemes 1) – 3) below)

First law - Act of December 21 2005 no. 124

Current law - Last revision: Act of December 13 2013 no. 106

Administrative organization - Ministry of Finance (regulatory framework) and Finanstilsynet [Financial Supervisory Authority] (supervision)

Additional features - framework law - mandating DC, DB or mixed schemes equivalent to a minimum contribution of 2 pct. of wage

1) Pension scheme: Company pension scheme (Foretakspensjon)

Regulatory framework

Type – DB, Mandatory minimum coverage equivalent to defined contribution of 2 pct of yearly wage. Employers may choose between the three types (1) – 3)) of schemes

First law - Act of March 24 2000 no. 16 on Company pension

Current law - Last revision: Act of December 13 2013 no. 106

Coverage - Private sector employees

Administrative organization - same as above

Qualifying condition

Minimum retirement age and contributory years - Flexible retirement age between 62 and 75. Accrual from day one of employment. 12 months membership in order to have vested rights.

Statutory retirement age - No statutory retirement age, cf. minimum retirement age. As a main rule full pension is achieved at 67

Contributory period for full pension - minimum 30 years, maximum 40 years

Special schemes - Full pension achieved at lower ages for certain occupations.

Contribution

Contribution rate: Employers - Min. equivalent to DC of 2pct. of wages.

Contribution rate: Employees - No more than 4 pct. of wages and maximum half the premium paid by employer.

Contribution rate: Government - None, but special tax treatment

Fund (or any residual funding from the State) - No

Benefit

Pensionable earning reference - Premiums and benefits mostly relates to current wage (i.e. final salary/wage at retirement as basis for benefits).

Accrual rate - 1/n where n = max ["years from entering scheme until time of full pension"; "contribution period for full pension"]

Penalties for early retirement - Neutral withdrawal = current value of all future pension benefits unaffected by time of withdrawal. Earlier retirement results in lower yearly benefits.

Bonuses for postponing retirement - "Neutral withdrawal"

Valorisation of pensionable earnings - Valorisation by use of return on pension funds in excess of interest rate guarantee.

Indexation of pensions in payment - Indexation by use of return on pension funds in excess of interest rate guarantee.

Maximum replacement rate - 100 pct. replacement for wages [0, 6 G] and 70 pct.

replacement for wages [6 G, 12 G] incl. estimated pensions from national insurance. (1 G = NOK 88 370 = approx. 10 800 EURO)

Sustainability factor/benefit linked to life expectancy - No, but under review

Taxes

Contribution - Exempt

Returns on investment and fund accumulation - Exempt

Withdrawals - Taxed

Tax rate and description - See public pension scheme

Special schemes - See public pension scheme

2) Pension scheme: Contributory pension scheme (Innskuddspensjon)

Regulatory framework

Type - DC

First law - Act of November 24 2000 no. 81 on Contributional pension

Current law - Last revision: Act of December 13 2013 no. 106

Coverage - Private sector employees

Qualifying condition

Mandatory / voluntary - Mandatory minimum coverage equivalent to defined contribution of 2 pct of yearly wage. Employers may choose between the three types (1) – 3)) of schemes.

Administrative organization - See public pension scheme

Qualifying condition

Minimum retirement age and contributory years -- Flexible retirement age between 62 and

75. Accrual from day one of employment. 12 months membership in order to have vested rights.

Retirement age linked to life expectancy - no

Statutory retirement age - No statutory retirement age, cf. minimum retirement age.

Contributory period for full pension - not defined

Special schemes - Earlier withdrawal allowed for certain occupations

Contribution

Contribution rate: Employers - same as above (scheme 1)) + Maximum contribution of 7 pct. of wages [0, 7,1 Gs] and 25,1 pct. of wages [7,1 , 12 Gs]. (1 G = NOK 88 370 = approx. 10 800 EURO)

Contribution rate: Employees - Maximum 4 pct. of wages and not more than contribution paid by employer

Contribution rate: Government - None, but special tax treatment

Fund (or any residual funding from the State) - No

Contribution base - Yearly wages between 0 and 12 Gs. Temporary wage components may be held outside of the contribution base

Special scheme - Self-employed persons may establish a limited scheme

Benefit

Valorisation of pensionable earnings - Returns added to capital stock

Indexation of pensions in payment - Returns added to capital stock

Sustainability factor/benefit linked to life expectancy - No mortality profit before retirement. Mortality profit is based on life insurer's/pension fund's estimate on life expectancy/mortality at retirement when mortality profit is chosen under payment.

Taxes

Contribution - Exempt

Returns on investment and fund accumulation - Exempt

Withdrawals - Taxed

Tax rate and description - See public pension scheme

Special schemes - See public pension scheme

3) Pension scheme: Occupational pension scheme (tjenestepensjon)

Regulatory framework

Type - Mixed (DC while employed, DB after retirement). **First law** - Act of December 13 2013 no. 106 on Occupational pension

Current law - **First law** (unchanged)

Coverage - Private sector employees

Mandatory / voluntary - Mandatory minimum coverage equivalent to defined contribution of 2 pct of yearly wage. Employers may choose between the three types (1) – 3)) of schemes.

Administrative organization - See public pension scheme

Qualifying condition

Minimum retirement age and contributory years - Flexible retirement age between 62 and 75. Accrual from day one of employment. 12 months membership in order to have vested rights.

Retirement age linked to life expectancy - no

Statutory retirement age - No statutory retirement age, cf. minimum retirement age.

Contributory period for full pension - not defined

Special schemes - Earlier withdrawal allowed for certain occupations

Contribution

Contribution rate: Employers - same as above (scheme 1)) + Maximum contribution of 7 pct. of wages [0, 7, 1 Gs] and 25,1 pct. of wages [7,1 , 12 Gs]. (1 G = NOK 88 370 = approx. 10 800 EURO)

Contribution rate: Employees - No more than half of maximum allowed contribution from employer.

Contribution rate: Government - None, but special tax treatment

Fund (or any residual funding from the State) - No

Contribution base - Yearly wages between 0 and 12 Gs. Temporary wage components may be held outside of the contribution base

Benefit

Penalties for early retirement - "Neutral withdrawal" = current value of all future pension benefits unaffected by time of withdrawal. Earlier retirement results in lower yearly benefits.

Bonuses for postponing retirement - "Neutral withdrawal"

Valorisation of pensionable earnings - Returns added to capital stock - guaranties may be added

Indexation of pensions in payment - Indexation by use of return on pension funds

Sustainability factor/benefit linked to life expectancy - Accrued pension capital converted to defined benefits at retirement, based on life insurer's/pension fund's estimate on life expectancy/mortality at retirement

Taxes

Contribution - Exempt

Returns on investment and fund accumulation - Exempt

Withdrawals - Taxed

Tax rate and description - See public pension scheme

Special schemes - See public pension scheme

PRIVATE INDIVIDUAL

Pension scheme: Individual pension schemes

Regulatory framework

Type – Voluntary, non earnings related

First law - Act of June 27 2008 no. 62 on individual pension schemes

Current law - Last revision: Act of December 17 2010 no. 83

Coverage - Individuals

Administrative organization - same as above

Qualifying condition

Minimum retirement age and contributory years - See private occupational scheme

Retirement age linked to life expectancy - no

Statutory retirement age - See private occupational scheme

Contributory period for full pension - not defined

Contribution

Contribution rate: Employees - Max. NOK 15 000 = approximately 1 800 Euro per year.

Contribution rate: Government - same as above

Fund (or any residual funding from the State) - same as above

Taxes

Contribution - Contributions deductible from taxable income

Returns on investment and fund accumulation - Exempt

Withdrawals - Taxed

Tax rate and description - See public pension scheme.

Special schemes - See public pension scheme.

Table II.A2.1:   **Components of the pension systems in the EU Member States: main scheme**

	Public pensions (public sector schemes)	**Occupational and individual pension schemes (private sector schemes)**
BE	*Minimum guarantee pensions:* Means-tested minimum pensions through social assistance (GRAPA-IGO) *Earnings-related Public pensions:* Separate schemes for wage earners, self-employed and civil servants; schemes cover old-age and survivors' pensions, and disability pensions in the case of civil servants. These schemes include minimum pensions based on career conditions. The wage earners' scheme also includes the minimum claim per working year. Early retirement through unemployment with company allowance (wage earners' scheme). Disability pension schemes for wage earners and self-employed.	Legal framework has been established: the Law of 28 April 2003 on supplementary pensions, focusing on sectoral pension scheme, improving the access to them and giving more guarantees to workers. Pension spending in the wage earners' scheme: 1.2% of GDP in 2012.
BG	*Minimum guarantee pensions:* Social pension for old age (means-tested). *Earnings-related Public pensions:* One DB pension scheme covering all employees and self-employed (1st pillar) Earnings-related Old age, Disability and Survivors pensions including minimum pension amounts *Non-contributory pensions:* Pensions at the State Budget expense: - Special merits pensions - Social pensions for old age - Social pensions for disability - Military Disability Pensions - Civil Disability Pensions - Special personal pensions - Some pensions under revoked laws	*Occupational pension schemes:* Occupational security pension - Supplementary voluntary pension funds under occupational schemes (3rd pillar) *Individual pension schemes:* Supplementary mandatory private schemes - Universal Pension Funds covering all insured persons born after 31.12.1959 (2nd pillar) Professional Pension Funds for early retirement, covering insured persons working in risky and unhealthy environment (2nd pillar) Supplementary voluntary pension funds (3rd pillar)
CZ	*Minimum guarantee pensions:* No special scheme, it is embedded in the pension formula (flat-rate component). *Earnings-related public pensions:* One scheme covering the whole population, covering old-age, disability and survivors' pensions.	*Occupational pension schemes:* Occupational scheme does not exist. *Individual pension schemes:* Pension savings scheme: Voluntary entry, exit forbidden. Participant's contributions set by law, substituting part of PAYG pension. Voluntary fully funded scheme: Participant's contributions with state subsidies and possibly employers' subsidies

(Continued on the next page)

Table (continued)

DK	*Minimum guarantee pensions:* Universal flat-rate pensions for every citizen (subject to the time lived in DK), means-tested supplements, tax-financed; Disability pensions to those below 65. *Earnings-related public pensions:* Voluntary early retirement pensions (requires 30 years of contributions; pension benefit dependent on age at retirement, not on contributions); Civil servants' pensions for central and local government employees (in coming years these schemes are to a large extent replaced by ordinary labour market (occupational) pensions.	Labour market (occupational) pensions (private sector covering 90% of the employees in the age group 25-59 years); Individual, private pensions Labour market supplementary pensions (ATP); Employees' capital fund (LD) (no new contributions); All these schemes are fully funded.
DE	*Minimum guarantee pensions:* Not part of public pension scheme, but disabled and people at statutory retirement age or older without sufficient income are entitled to means-tested benefits (social assistance). *Earnings-related Public pensions:* General scheme covering private and public sector employees, the scheme covers old-age, disability, early retirement and survivor's pensions; specific schemes for lifetime civil servants as well as for farmers and miners.	Occupational pension provision schemes established; Benefits account for 1.3 % of GDP in 2013.
EE	*Minimum guarantee pensions:* National pension equal to the base amount of the pension ins. scheme, available to those not qualifying for insurance scheme. And have lived at least 5 years in Estonia. *Earnings-related public pensions:* One scheme covering the whole population; covering old-age, disability and survivors' pensions; benefits are flat-rate + a length-of-service supplement for careers before 1999, as of 1999 benefits are earnings-related.	Do not exist.
EL	*Minimum guarantee pensions:* Means-tested minimum pensions through farmers fund for uninsured old age beneficiaries beyond the age of 67. A basic pension for all insured except farmers shall be established with effect from 1.1.2015, which will be calculated proportionately on the basis of the ratio between the years of insurance from 1.1.2011 onwards and the total period of insurance. *Earnings-related Public pensions:* A number of separate main pension insurance and auxiliary funds for different sectors and occupational groups; schemes cover old-age, early retirement, disability and survivors' pensions; benefit levels differ across schemes.	Occupational funds exist only to a minor extent.

(Continued on the next page)

Table (continued)

ES	*Minimum guarantee pensions:*	Voluntary enterprise pension schemes for private sector employees (funded DC schemes and collective insurance DB);
	Means-tested minimum pension scheme (non-contributory);	
	Means-tested minimum pension (contributory).	Mandatory supplementary pension scheme for public sector employees of the central administration (funded DC scheme);
	Earnings-related public pensions:	Schemes are of some importance.
	One main social insurance scheme, covering the private sector employees, self-employed and the regional and local public administrations, providing earnings-related old-age, disability and survivors' pensions;	
	Public sector employees' (contributory) pension scheme (CPE) for the civil servants of the central public administration and the military, providing mainly old-age, disability and survivors' pensions, though 5 different levels of pensions according to the career level. Starting 1-1 2011 all new civil servants are in the Public not in CPE.	

Table (continued)

FR	*Minimum guarantee pensions :*	Voluntary occupational pension schemes for private sector employees (PERE and PERCO) introduced by 2003 reform:

Minimum guarantee pensions :

Means-tested minimum pension provided by a general "old age solidarity fund" (FSV)

Earnings-related Public pensions :

Several separate pension schemes for different sectors and occupational groups providing earnings-related pensions, additionally mandatory "second tier" supplementary funds that complement the pension provision:

- private sector pensions scheme for private sector wage-earners and non-civil servants public sector workers (CNAV);

- complementary pension scheme for private wage-earners (Agirc, for executives, and Arrco, for all workers except aircrews who have their own complementary pension scheme CRPN);

- agricultural sector pension scheme for farmers (MSA);

- public sector pension schemes (CNRACL, for civil servants in local administrations or hospitals, and SRE, for civil servants in state administration and military);

- public sector complementary pension schemes (RAFP, for all civil servants, and Ircantec, for non-civil servants public sector workers);

- pension schemes for self-employed (RSI : for professions such as craftsmen, tradesmen... ; CNAVPL : for professions (doctors, pharmacists,…) ; CNBF : specifically for lawyers);

- complementary pension schemes for self-employed (RCI : for professions such as craftsmen, tradesmen... ; CARMF ; CAVP ; CARCDSF ; CARPIMKO ; CARPV ; CAVEC ; CAVAMAC ; CRN ; CAVOM ; CIPAV : for professions (doctors, pharmacists,…) ; CNBF specifically for lawyers);

- pension schemes for other specific professions (railwayman, sailors, etc.).

These schemes cover old-age and survivors' pensions.

Disability pensions (e-r and non-earning related) covered by the health insurance scheme, except for public sector and some other specific professions who benefit instead of early retirement allowance.

Voluntary occupational pension schemes for private sector employees (PERE and PERCO) introduced by 2003 reform:

- Covering around 1.3 million of people (2012),

- Assets around 7.2 billion € in 2012,

- Contributions around 1.7 billion € in 2012.

Also an earlier version of occupational pension schemes (art. 82 and 83, and art. 39 of the General tax Code (CGI – Code Général des Impôts):

- Covering roughly 4 million of people,

- Assets around 90.1 billion € in 2012,

- Contributions around 5.5 billion € in 2012.

Other schemes for private sector employees:

- Covering less than 0,5 million of people,

- Assets around 5.4 billion € in 2012,

- Contributions around 0.3 billion € in 2012.

Self-employed occupational pension scheme (the 1994 "Madelin" law and the 1997 law for farmers:

- Covering roughly 1.5 million of people in 2012,

- Assets around 31.7 billion € in 2012,

- Contributions around 3.0 billion € in 2012.

NB: people may be covered by different schemes.

Table (continued)

HR	*Minimum guarantee pensions*: There is no standard minimum pension scheme. However, under the general scheme there is a minimum pension as a threshold which is proportional to the contribution period, financed out of contribution, not related to past earnings and not means-tested. *Earnings-related public pensions*: PAYG DB public pension scheme (I pillar) covers all employees and self-employed persons, providing old-age, early old-age, disability and survivors' pensions. No special schemes for special categories of persons, but there are special regulations for special groups who could grant benefits from the PAYG public pension scheme under more favourable conditions (military officers, police officers and authorized officials, disabled war veterans from the Homeland War) whose benefits are financed partly or entirely through the State Budget.	Mandatory fully funded defined-contribution (DC) scheme based on individual savings accounts (II pension pillar) for members of the first pillar under the age of 40 at the moment of the introduction of this scheme (1 January 2002). Persons aged 40 to 50 at that time who were already insured under the social insurance system could voluntarily join the two-pillar system until June 30, 2002. Since October 15, 2011, those persons may opt out from the second pillar scheme and remain in the first pillar scheme only, if the pension from the social insurance system would be more favourable than from the two-pillar system. Voluntary private pension schemes (DC or DB) can be open-ended or close-ended scheme. Open-ended pension scheme accommodate any individual while close-ended accommodate employees employed by a sponsor employer, members of the trade unions or members of self-employed persons' associations. At the moment there isn't any voluntary DB scheme in Croatia.
IT	*Public pension system* There is one main public pension system, based on the NDC regime, covering the whole population and providing old-age, early retirement, disability and survivors' pensions. It is financed according to the pay-as-you-go principle. The previous DB regime only applies temporarily, in a transitional phase. *DB and Mixed regimes* The previous DB regime applies (except for contributions paid as of 2012) to those with at least 18 years of contributions in 1995 (almost phased out) and, pro rata, to those with less than 18 years of contribution in 1995 (Mixed regime). A means-tested, topping-up mechanism to the minimum pension is foreseen, subject to the fulfillment of the eligibility requirements. *NDC regime* The NDC regime fully applies to workers entering the labour market as of 1996 and, pro rata, to those with less than 18 years of contribution in 1995. It also applies to contributions paid as of 2012 by those with at least 18 years of contribution in 1995. The minimum pension, foreseen under the DB and Mixed regimes, is no longer provided. Pensions to the under 65's must be at least 1.2 times the old age allowance. *Minimum income guaranteed to the elderly* Social assistance benefits are provided to the elderly on low income, regardless of contributions. They are means-tested and include the old age allowance and social assistance additional lump sums (*maggiorazioni sociali*). Further income is provided to the elderly by the so-called social purchase card (*carta acquisti*).The minimum retirement age is 65 years and 3 months in 2014 and is fully aligned to the SRA in 2018.	*Occupational pension schemes.* Occupational, supplementary pension schemes exist. They are funded and never mandatory. The 2004 reform (law 243/2004) and its 2005-implementation (law decree 252/2005 and law 296/2006) increased the provisions for occupational pensions by allowing the transformation of the TFR (severance pay) into an occupational pension scheme. Both contributors and contributions have increased significantly. Current pension expenditure is 0.1% as a share of GDP.

Table (continued)

CY	*Minimum guarantee pensions:* Through the Minimum Pension under the General Social Insurance Scheme and through the Social Pension scheme and special allowances to pensioners. *Earnings-related Public pensions:* General social insurance scheme covering all employees and self-employed persons, providing old-age, disability, survivors' and orphans' pensions; and Government Employees Pension Scheme (paid from the Government budget).	Mandatory funded pension schemes for semi-state sector employees and for employees in certain professions. Voluntary funded pension schemes, including provident funds, for private sector employees.	
LV	*Minimum guarantee pensions:* Through the state public benefit, if the person's insurance record <15 years (<20 years from 2025). *Earnings- related Public pensions:* The minimum of the earning – related pension system is paid with a length-of-service supplement to the amount of the state security benefit, if the contribution record exceeds 15 years (20 years from 2025). One social insurance old-age pension scheme, which is a defined-benefit scheme for those, retired before 1996 and notional defined contribution scheme for those retired as of 1996, providing old-age pensions. Also survivors' pensions are based on NDC contributions (except for those retired before 1996). Separate provisions for disability pensions, though under the general public system. Specific public sector service pensions (selected professions) paid from the state budget.	Do not exist.	
LT	*Minimum guarantee pensions:* Through a social assistance pension (also to young disabled persons and orphans). *Earnings-related Public pensions:* One social insurance pension scheme covering all employees and the self-employed, providing old-age, disability and survivors' pensions, and early retirement pensions as of 2004. Special state (old-age, disability and survivors') pensions paid from the state budget to specific groups: scientists, judges, officials and military personnel). State pensions for meritorious persons and casualties paid from the state budget: state pensions of the first and second degree of the Republic of Lithuania; state pensions of deprived persons.	Do not exist.	
LU	*Minimum guarantee pensions:* Through means-tested minimum income provision (RMG). *Earnings-related public pensions:* A general pension scheme for private sector workers, providing old-age, disability and survivors' pensions. A special pension scheme for public sector employees.	Exists for some sectors such as banking and for large foreign companies.	

Table (continued)

HU	*Minimum guarantee pensions:* Through means-tested social assistance. *Earnings-related Public pensions:* One public pension scheme covering all employees and the self-employed, providing old-age, early retirement (only for women with 40 years contribution), disability and survivors' pensions.	Voluntary occupational pension scheme exists, but only to a very minor extent.
MT	*Minimum guarantee pensions:* Means tested non-contributory age pension for those who do not qualify for a contributory retirement pension, may satisfy the capital and income means test. *Earnings-related public pensions:* One public (contributory) pension scheme covering all employees and the self-employed, providing old-age, disability and survivors' pensions (apart from unemployment, sickness and work injury benefits).	Exists only to a minor extent.
NL	*Minimum guarantee pensions:* Social assistance to those not qualifying (not lived in NL for 50 years) to contributory flat-rate scheme. *Contributory social insurance pensions:* General flat-rate old-age pensions (AOW) to all citizens; Separate disability benefits (WAO (being phased out),WIA, WaJong) and survivors' pensions (ANW); flat-rate or earnings-related benefits.	A high number of funds (industry-wide, company-specific and professional group specific) for the provision of occupational old-age pensions and early retirement schemes (VUT), covering over 90% of employees.
AT	*Minimum guarantee pensions:* Means-tested minimum income (no legal minimum pension in Austria) through social assistance scheme ("Ausgleichszulage"). *Earnings-related Public pensions:* Harmonised public pension schemes covering all employees and the self-employed (gradually harmonised as of 2005), providing (early) old-age, disability and survivors' pensions.	The New Severance Payment ("Abfertigung Neu") is a compulsory system since 2002. The employer pays monthly contributions at a rate of 1.53% of gross wages. The employee can choose between a single payment at the end of the career and a transfer to a pension fund system. By end of 2013 assets have increased to 6.2 billion EUR. The pension fund system is an occupational system since 1990. By end of 2013 assets have increased to 17.3 billion EUR.
PL	*Minimum guarantee pensions:* Minimum pensions for all types of schemes, in ZUS - topping-up benefits paid out from mandatory pension schemes. *Earnings-related public pensions:* One social insurance pension scheme (ZUS), covering all employees and the self-employed (except farmers), which is a defined-benefit scheme to those born before 1949 and a notional defined contribution scheme to those born after 1948, providing old-age pensions. Separate schemes for disability and survivors' pensions under the social sec. system. A separate scheme for farmers (KRUS), providing old-age, disability and survivors' pensions. Specific public sector service pensions (armed forces, police, judges etc.) paid from the state budget.	Exists only to a very minor extent, with a very low coverage

Table (continued)

PT	*Minimum guarantee pensions:* Means-tested minimum pensions through social assistance scheme. It includes all types of minimum pensions (non-contributive/social pensions and contributive scheme (the pension amount depends on the contributive career length). *Earnings-related public pensions:* A general social security pension scheme covering all employees and the self-employed in the private sector and public sector employees since January 2006 providing old-age, disability and survivors' pensions (apart from short-term benefits). A separate pension scheme (CGA) for other public sector employees (hired until December 2005).	Exists as a substitute for the general social security scheme for the banking sector (with the changes that have been introduced in the last couple of years)and as complementary schemes for other DB and DC pensions.
RO	*Minimum guarantee pensions:* for PAYG and farmer pensioners only as annually set minimum threshold (350 RON in 2013). *Earnings-related public pensions:* One scheme, covering the public and private sector employees, self-employed), covering old age, disability, early retirement, survivors' pensions.	*Private pension system for public and private sector* – mandatory for persons under 35 years old and optional for persons between 35-45 years old. In 2014 the contribution rate is 4.5% of the personal income and will increase with0.5 percentage points per year, until it reaches 6.0. *Voluntary pension scheme* – for public and private sector employees.
SI	*Minimum guarantee pensions:* National, means-tested pensions (for 15 years of insurance, pension cannot be lower than 26% (M) and 29% (W) % of the minimum pension rating base. Minimum Pension Rating Base amounts 76.5% of the average monthly salary paid out in SI in the previous calendar year reduced by the taxes and contributions paid from the salary at the average rate in SI). *Earnings-related Public pensions:* One public pension scheme covering all employees and the self-employed, providing old-age, disability and survivors' pensions. Flat-rate pensions to farmers, military personnel of the Yugoslav army and for retirees from other republics of the former SFRY.	Mandatory supplementary insurance for some high-risk professions (about 43.000 workers, minor importance), voluntary collective supplementary pensions (covering approximately half the employees).
SK	*Minimum guarantee pensions:* No special minimum pension scheme, minimum subsistence for all classes of pensioners provided through means-tested social assistance paid out from the state budget. *Earnings-related Public pensions:* PAYG point system type of public pension scheme covering almost all employees and self-employed, providing old-age, early old-age, disability and survivors' pensions. First pillar of the universal pension scheme. Closed DB pension system of the armed forces, existing alongside the universal pension system. Entitlements comprise old-age pension and a temporary pension benefit, disability pension and survivor pension.	Do not exist.

(Continued on the next page)

Table (continued)

FI	*Minimum guarantee pensions:* National pension scheme and guarantee pension provides income-tested (against other pensions) minimum pensions to all citizens. Also, there is income-tested housing allowance for pensioners. *Earnings-related public pensions:* Several but harmonised public pension schemes for different sectors of employees and the self-employed, covering all gainfully employed, providing old-age, part-time, disability and survivors' pensions.	Supplementary occupational pensions, accounting for about 2 % of total pension benefits.
SE	*Minimum guarantee pensions*: National pension scheme provides means-tested (against other pensions) minimum pensions to all citizens, a full national pension after 40 years of living in SE. Also means-tested housing allowances for pensioners (BTP) and maintenance support for the elderly (ÄFS). *Earnings-related Public pensions:* The PAYG general public (NDC) pension scheme covering all employees and the self-employed, providing old-age pensions. The old earnings-related transitional DB scheme works in parallel during the phasing-in period of the new system. Disability pension for individuals (19-64 years) and Survivors' benefits, including widow's pension (applies only for women married before 1989).	Quasi-mandatory supplementary occupational old-age pensions for all sectors, covering approx. 90% of employees.
UK	*Minimum guaranteed and contributory social insurance pensions:* Flat-rate state pension based on National Insurance contributions paid by citizens upon reaching state pension age (which is currently being equalised between men and women). From 2016 a replacement flat-rate state pension will be introduced, replacing basic and additional state pension. *Earnings-related social security and other public pensions:* Additional state pension (SERPS) and State second national insurance pension scheme, which people can opt out of – this will not be available to those reaching state pension age after April 2016.	Automatic enrolment was introduced from 2012, in private sector occupational schemes, aimed at all those individuals who are not already covered by existing private pension arrangements. Employers are required to automatically enrol eligible jobholders into a workplace pension. However it is NOT mandatory, as an individual has the option to opt out of the auto enrolled scheme. Additionally, there are 8 main categories of occupational pension schemes in the UK for public service workers, under the direct control of Ministers. These schemes pay out benefits in addition to and separately from the State Pension, and are based on a member's time in service and earnings. They are not part of the UK's social security system. There are also around 300 smaller Non-Departmental Public Body Pension Schemes, which are partly funded through Government grants, and which have more autonomy in designing and administering their pension schemes.
NO	*Minimum guarantee old-age and disability pensions:* Minimum income guarantee. *Earnings-related Public old- age and disability pensions:* Earnings-related benefit.	Central government occupational pension scheme financed by employee contributions and transfers from State budget. Supplement to public old age pension. Local government occupational pension schemes are funded systems. Supplement to public old age pension. Mandatory private sector occupational schemes are funded defined contribution systems. Supplement to public old age pension.

Source: Commission services, AWG delegates.

ANNEX 3

Pension schemes included in the projections

	Schemes covered in the projections	**Schemes <u>not</u> covered**
BE	*Public pensions: old-age and early pensions* Means-tested minimum benefits: 65+ E-r old-age, wage earners: 62+ and 40 career years[a] as from 2016, widows E-r old-age, self-employed: 62+ and 40 career years[a] as from 2016, widows E-r old-age, civil servants: 62+ and 40 career years[a] as from 2016, widows, disability Unemployment with company allowance (wage earners): 60-64, 40 career years (for men as from 2015 and for women as from 2024) Unemployment with company allowance for heavy work (wage earners): 58-64 and 35 career years Unemployment with company allowance (wage earners) for companies undergoing restructuring (55-64 as from 2013) or in difficulty (55-64 as from 2018) *Public pensions: disability* Disability pensions, wage earners: -64 Disability pensions, self-employed: -64	*Public pensions scheme* Unemployment with company allowance only includes the part paid from unemployment benefit scheme, not the allowance paid by the employer. *Private occupational pensions scheme* Pension spending in the wage earners' scheme: 1.2% of GDP in 2012. *Private individual pensions scheme* Non-mandatory
BG	*Public pensions: old age and early pensions* E-r Old Age Pensions (including farmers and military officials) *Public pensions: other* E-r Disability Pensions due to General Disease (including farmers and military officials) E-r Disability Pensions due to Work Injury and Professional Disease (including farmers and military officials) E-r Survivors Pensions according to relationship with the deceased – widows, children, parents Pensions not related to employment – social pensions, special merits pensions, pensions by Decree	*Supplementary mandatory pension schemes:* Supplementary life-long old-age pensions - Universal Pension Funds (UPF) Early retirement pensions for a limited period of time for persons working in hazardous conditions - Professional Pension Funds (PPF) *Supplementary voluntary pension schemes – individual private and occupational pensions* *Teachers Pension Fund*

Table (continued)

CZ	***Public pensions: old age and early pensions***	***Individual private schemes:***
	E-r old-age pensions (all sectors except armed forces, all ages)	Pension savings pillar (negligible impact of 0,006 % of GDP in 2013)
	Early pensions with permanent reductions (all sectors except armed forces, all ages)	Voluntary fully funded scheme
	Public pensions: other	
	Disability pensions (all three types of disability, all sectors except armed forces, all ages)	
	Widows and widowers pensions (all ages)	
	Orphans pensions (all ages)	
DK	***Public pensions: old age and early pensions***	
	Public flat-rate old-age pensions and means-tested	
	supplements, all citizens 65+	
	Civil servants old-age pensions 65+, central and	
	Local government	
	Voluntary early retirement schemes, all wage earners	
	Public pensions: other	
	Disability pensions, -64	
	Occupational pensions	
	Labour market pensions	
	Individual, private pensions	
	Labour market supplementary pensions, ATP	
	Employees' capital fund (LD)	
DE	***Public pensions: old age and early pensions***	Means tested minimum benefits to elderly (social assistance); 0.1% of GDP (2012)
	E-r old-age, widows and disability schemes, all ages	
	General scheme and civil servants	Farmers pensions (0.11% of GDP) (2012)
	Early pensions for long-time workers	
	Early pensions for severely handicapped	***Occupational pensions***
	Public pensions: other	annual contributions
	(covered above; not shown separately)	Pension expenditure 1.3% of GDP in 2012.
		Individual funded and state subsidised private pension (Riester-Rente), schemes at a building stage, only contributions to the schemes.

Table (continued)

EE	***Public pensions: old age and early pensions*** Minimum flat-rate pensions, all citizens E-r old-age pensions; length-of-service component to 60+w and 63+m in 2007, 65+ for both sexes as of 2026, all sectors (Pension Ins. Fund) Early pensions (possible to retire 3 years before the statutory retirement age), all sectors ***Public pensions: other*** Disability and widows' pensions, all ages, all sectors (Pension Insurance Fund) ***Private mandatory pensions*** Mandatory funded pensions, mandatory for young persons born 1983	
IE	***Public pensions: old age and early pensions*** Minimum flat-rate old-age non-contributory pensions, 66+[b] (also includes widow(er)s non-contributory pensions, deserted wives, 66+), all sectors[c] Carers, 66+, all sectors[c] Flat-rate contributory 66+ and transition pensions, 65[b], private sector, self-employed and some civil servants[d] Widow(er)s contributory pensions, 66+, all sectors Carers and deserted wives, 66+, private sector, self-employed and some civil servants[d] ***Public pensions: others*** Widow(er)s non-contributory pensions, 65-, all sectors[c] Blind persons, carers, non-contributory, 65-, all sectors[c] Pre-retirement allowance, 55-65, all sectors [c] Disability pensions, 65-, and invalidity pensions 65-, private sector, self-employed, some civil servants [d] Carers, contributory, 65-, private sector, self-employed, some civil servants[d] Widow(ers) contributory pension, 65-, all sectors ***Public sector (occupational) pensions*** Pensions, lump sums and spouses, Civil service, defence, police, education, health and local authorities, non-commercial state bodies	*Occupational pensions:* Private sector schemes and public sector commercial bodies

Table (continued)

EL	*Public pensions: old age and early pensions*	Welfare benefits
	Main pension:	Occupational and private pension schemes
	- Private sector (employees and self-employed) and public sector: basic pension (flat-rate) and (e-r) proportionate amount on the basis of their total period of insurance for all insured except farmers (statutory retirement age 67+), minimum pensions, (including transitional period for old system). - Farmers: proportionate amount on the basis of their total period of insurance (statutory retirement age 67+).	
	Means tested flat rate pensions of uninsured over aged individuals 67+	
	Auxiliary pensions: NDC system, (including transitional period for old DB system)	
	Disability pensions, 15-67	
	Survivor pensions, all ages	
	Early pensions 62+, transition period	
	Public pensions: other	
	EKAS (Pensioners Social solidarity Fund)	
ES	*Public pensions: old age and early pensions*	
	E-r old-age and early retirement pensions for private sector employees, the self-employed, regional and local government	
	Means-tested minimum pension supplements (contributory)	
	Old-age and early retirement pensions for central government employees and the military, including war pensions.	
	Public pensions: other	
	Disability (-64) and survivors' pensions (all ages) for private sector employees, self-employed, regional, local and central government and the military.	
	Means-tested minimum pension supplements (contributory).	
	Private (supplementary and voluntary) pension schemes: occupational and individual.	
	Means-tested minimum pension scheme (non-contributory)	

Table (continued)

FR	**Public pensions scheme - Earnings-related** E-r private sector pensions scheme for private sector wage-earners and non-civil servants public sector workers (CNAV); E-r complementary pension scheme for private wage-earners (Agirc, for executives, and Arrco, for all workers); E-r agricultural sector pension scheme (MSA); E-r public sector pension schemes (CNRACL, for civil servants in local administrations or hospitals, and SRE, for civil servants in state administration and military); E-r public sector complementary pension schemes (RAFP, for all civil servants, and Ircantec, for non-civil servants public sector workers); E-r pension scheme for licensed workers (RSI, for professions such as craftsmen, tradesmen...); E-r pension scheme for law professions (CNAVPL, CNBF specifically for lawyers); E-r pension schemes for other specific professions (railwayman, etc.). **Non-earning-related pensions** General "old age solidarity fund" scheme (FSV). **Disability (e-r and non-earning-related)** pensions (benefits) covered by the health insurance scheme.	Occupational and private pension schemes (PERP, PERCO, PERE, PREFON).
HR	*PAYG DB public pension scheme (I pillar)* - Old-age and early retirement pensions, - Disability pensions, - Survivors' pensions - Minimum pensions (no means-tested) - pensions of persons who could be granted benefits from PAYG public pension scheme under more favourable conditions (e.g. military officers, police officers and authorized officials, war veterans from the Homeland War) *Mandatory fully funded defined-contribution (DC) scheme based on individual savings accounts (II pension pillar)* - Pensions for members of the first pillar under the age of 40.	*Voluntary fully funded pension scheme DC or DB (III pension pillar)*
IT	*Public Pension System - Public pensions and social assistance benefits (pay-as-you-go):* - Old-age and early retirement pensions, - Disability pensions, - Survivors' pensions - Old age allowances and social assistance additional lump sums (State budget)	*Occupational pensions schemes (funded).* They are not included in the definition of "Public pension system" (which is utilized for the analysis of the sustainability of public finances) insofar as: i) they are never mandatory; ii) they provide a supplement of pension which corresponds to a minor fraction of the pension guaranteed by the public pension system and never replace it. No risk is taken by the State on investment returns.

Table (continued)

CY	*Public pensions: old age and early pensions*	*Occupational funded pension plans:*
	General Social Insurance Scheme (GSIS) covering the following pension benefits: early and old-age, invalidity, widows' and orphan's.	DB pension schemes for semi-state and private sector employees
	Government Employees Pension Scheme (GEPS) covering old-age, widows' and disability pensions.	DC Provident funds for private sector employees
	Social pension scheme and special allowances to pensioners.	
LV	*Public pensions: old age and early pensions:*	*Voluntary private funded pension scheme*
	Old-age minimum guaranteed pension, 62 years and 3 months + (65+ as of 2025)	*Specific public sector service pensions schemes* (paid from state basic budget)
	E-r old age DB pensions, granted -1995	
	E-r old age NDC pensions, 62 years and 3 month + (65+ as of 2025), granted 1996+ (included early retirement during transition period)	
	Service pensions (early pensions), selected professions, public sector (during the transition period).	
	Disability pensions, granted – 1995 and not transformed to old-age pensions	
	Survivor's pensions (for widows during the transition period)	
	Public pensions: other	
	Disability pensions – 62 years and 3 months, (– 65 as of 2025)	
	Survivor's pensions – 24	
	Private mandatory pensions:	
	Individual funded old-age, mandatory for persons born 1971+	
	Social pension (public benefit, if the person's insurance record <15 years (<20 years from 2025), paid from the state basic budget)	

Table (continued)

LT	***Public pensions: old age and early pensions***	
	Social assistance pensions, w61+/m63+ (65+ as of 2026); (State budget)	
	E-r old-age pensions, w61+/m63+ (65+ as of 2026), all sectors (Soc insurance scheme)	
	Special public service (state) pensions for selected professions (scientists, judges) (State budget); state pensions of the first and second degree of the Republic of Lithuania (State budget); state pensions of deprived persons (State budget) w61+/m63+ (65+ as of 2026).	
	Early retirement pensions (possible to retire 5 years before the statutory retirement age), all sectors	
	(Soc insurance scheme).	
	Officials and military personnel pensions for service, public sector (State budget); length of service pensions, compensation for extraordinary working conditions (Soc. insurance. scheme).	
	Public pensions: disability pensions	
	Social assistance disability pensions (State budget)	
	E-r disability pensions, all sectors (Soc. Insurance scheme)	
	Officials and military personnel disability pensions, public sector (State budget)	
	Public pensions: other	
	Social assistance survivors pensions (State budget)	
	Survivors pensions, all sectors (Soc. Insurance scheme)	
	Officials and military personnel survivors pensions, public sector (State budget)	
	Private mandatory pensions:	
	Individual funded old-age pension, voluntary, all sectors	
LU	***Public pensions: old age and early pensions***	Minimum benefits (RMG, social assistance)
	E-r old-age, early retirement and disability pensions, 65+,	
	private sector & self-employed (general pension scheme)	
	E-r old-age, early retirement and disability pensions, 65+ ,	
	public sector (special pension scheme), state budget	
	Public pensions: other	
	Disability (-64 years) and survivors' pensions, all sectors	

Table (continued)

HU	***Public pensions: old age and early pensions:*** Social allowances close to minimum pensions to persons 62+ E-r old-age and anticipatory old-age pensions, all sectors Survivors pensions, 62+, all sectors Disability pensions, 62+, all sectors ***Public pensions: other*** Disability pensions, -61, all sectors Survivors pensions, -61, all sectors Pension-like regular social allowances, -61 ***Private mandatory pensions:*** Individual funded pensions, voluntary to persons. People entering the labour market before 2010 and chose to remain in private pension system, can have some entitlements also from that scheme.	Handicap support, political compensation allowances Voluntary private pension schemes
MT	***Public pensions: old age and early pensions:*** Two-thirds pension scheme (incorporating two-thirds retirement pension, national minimum pension, increased national minimum pension, increased retirement pension, decreased national minimum pension), currently 62, 63 in 2018, 64 in 2022 and 65 in 2026. ***Public pensions: other*** Pensions other than those listed above, notably disability and survivors' pensions and some pensions, including Treasury Pensions (a DB pension scheme open for Public Officers who joined the Public Service of Malta prior to 15th January 1979 and that is closed to new members), which will be phased out over a transition period, to specific groups of pensioners.	
NL	***Public pensions: old age and early pensions:*** Public flat-rate old-age pensions, 65+, all citizens (AOW) Widows pensions, w55+, all sectors (ANW) ***Public pensions: other*** Disability benefits, all sectors (WAO (being phased out), WIA, WaJong) ***Occupational pensions*** Occupational old-age pensions, 65+, all sectors	Private individual pension schemes

Table (continued)

AT	*Public pensions: old age and early pensions*	Minimum income (no legal minimum pension in Austria) – "Ausgleichszulage": if individual pension claims are lower than legally defined thresholds, gap is closed by federal budget contributions; total amount equals to about 0.3% of GDP annually
	E-r regular old-age pensions:	
	Private sector (including farmers and self-employed): f60+/m65+ (female retirement age will be gradually raised to 65 years from 2024 to 2033)	
	Public sector: f65+/m65+	**Other pension related expenditures:** some pension expenditures which are not directly linked to pension benefits (as for rehabilitation, administrative costs, etc.) are not included in the projections (these other pension expenditures make up for approximately 0.9% of GDP annually)
	E-r early retirement pensions:	
	Corridor pension scheme ("Korridorpension"): f62+/m62+ (for women this gets relevant only by 2028); required insurance years will be gradually raised from 38.5 years in 2014 to 40 years in 2017; 5.1% deduction per year before the regular retirement age (for persons born after 1.1.1955)	
	Early old-age pension for long-term contributors ("Hacklerregelung"): f57+/m62+ (women born after 1.1.1959/men born after 1.1.1954); retirement age for women will be gradually raised to 62; required contribution years for men (45), the required contribution years for women will be gradually raised from 42 to also 45	
	Heavy worker regulation ("Schwerarbeitspension"): f60+/m60+ (for women this gets relevant only by 2024); min. requirement of insurance years (45), at least 10 years of „hard labour" (list of professions) within 20 years before retirement; 1.8% deduction per year before the regular retirement age (for persons born after 1.1.1955)	
	Early old-age pension with a long period of insurance ("Vorzeitige Alterspension bei langer Versicherungsdauer"): f59+/m64+ (after 1.1.2014); required insurance years will be gradually raised from 38.5 years in 2014 to 40 years in 2017; retirement age will also be gradually raised until the statutory retirement age is reached (therefore this option will phase out by 2017)	
	Public pensions: other	
	Survivors' pensions: all ages; all sectors	
	Prisoner of war compensation	
	Invalidity and occupational disability pensions: only in case of permanent invalidity; persons born after 1.1.1964 will receive unemployment benefits instead of invalidity pensions (reintegration/rehabilitation); age-limit relevant for activity protection (59 in 2015 and 2016; 60 as of the year 2017); all sectors	

Table (continued)

PL	***Public pensions: old age and early pensions*** E-r DB old-age, w60+/m65+, disability, widows, private and public sector, self-employed (ZUS, Social ins. Institution) E-r NDC old-age,, w60+/m65+ (w67+ in 2040/m67+ in 2020), to persons born 1949- , private and public sector, self-employed (ZUS, Social ins. Institution) E-r NDC bridging-pensions (employment in special conditions or character) w55/m60+, expiring scheme E-r DB old-age, disability and widows pensions, all ages, farmers (KRUS, Farmers social ins. scheme) Armed forces old-age pensions (State budget) ***Public pensions: other*** Disability and survivors' pensions, -54, private and public sector, self-employed (ZUS) ***Private quasi mandatory pensions*** DC funded old-age pensions Includes supplements to ensure minimum pensions	***Occupational pensions*** (of minor importance)
PT	***Public pensions: old age and early pensions:*** Social pensions (minimum, means-tested and non- contributory), old-age, 65+, disability pensions, 65+. General Contributory (social insurance) scheme (employees and self-employed of the private sector and public employees since 2006): old-age and early pensions; disability pensions, 65+. Includes supplements to ensure minimum pensions value. RESSAA (Spec. soc. sec. scheme for agriculture workers): e-r old-age, 65+, disability pensions, 65+. CGA (Pension scheme of civil servants hired until December 2005): old-age and early pensions, disability pensions, all ages. Includes supplements to ensure minimum pensions value. ***Public pensions: other*** Social pensions, including *Complemento Solidário para Idosos* (income supplement for the elderly 65+) (means-tested non-contributory): disability pensions, -64, survivors' pensions, all ages. General contributory scheme & RESSAA: disability pensions, -64, survivors' pensions, all ages. CGA scheme: survivors' pensions, all ages. ***Occupational pensions:*** 1st pillar schemes for some sectors (banking and insurance for example) and complementary schemes for other DB and DC pensions.	***Private pensions:*** Individual (non-mandatory) private pension schemes (of minor importance).
RO	***Public pensions Old Age Pensions:*** w 59+/63, m 64+/65, standard contribution period w 29/35, m34/35 *Early and Partial early retirement and Survivors pensions* *Disability Pensions:* (including farmers, military); ***Private mandatory pension***	

Table (continued)

SI	***Public pensions: old age and early pensions:*** Old age pension (60+/40 Y of service ; 65+/min. 15 Y of insurance period) Early pension (60+/40 Y of pensionable period with purchased years) Disability and widows pensions, all ages, all sectors Special compulsory pensions to workers in high-risk occupations, private and public sector ***Private non - mandatory pensions (collective, individual) (including mandatory pensions to workers in high risk occupations)*** Collective (semi - mandatory) and individual supplementary pensions	National (state) pensions (State budget) – from 1. June 2011 governed by public act (excluded from Pension and Disability Act) Flat-rate pensions for farmers, Pensions (supplements) for the military personnel of the Yugoslav army and retirees from other republics of former SFRY **Occupational pensions:** Collective supplementary pensions
SK	***Public pensions: old age and early pensions*** Statutory retirement age is currently 62 for men; for women it depends on the number of children, it is gradually increasing until 2024, then unified. As from 2017, the retirement age for both sexes will be automatically annually increased by the y-o-y difference of 5-year moving average of the unisex life expectancy. Early retirement is possible 2 years before the statutory retirement age. ***Public pensions: other*** Disability, widows/er pensions, orphans pensions ***Private mandatory pensions*** Individual funded old-age pension, covers voluntarily insured persons that decided to take part in the scheme, or those that have been included in the scheme while it was mandatory (<2008) and did not exit during any of the openings.	Voluntary pension funded DC scheme introduced in 1996. Third pillar of the pension scheme.

Table (continued)

FI	***Public pensions: old age and early pensions***	*Occupational and voluntary pensions:*
	1) National pension (Nat. pension insurance) 62+	Collective and voluntary supplementary schemes
	Disability pension for persons aged between (16) 21 and 64 years	
	Unemployment pension for long-term unemployed persons born in 1949 or before	
	Old-age pensionfor long-term unemployed persons aged 62 years or over	
	Early old-age pension for persons aged 63 years or over	
	Old-age pension for persons aged 65 years or over	
	2) Guarantee pension (guaranteed minimum amount) 65+	
	3) E-r old-age, 63+, early , private sector and the self-employed:	
	TyEL (private sector employees),	
	YEL (self-employed),	
	MYEL (farmers),	
	the public sector:	
	(VaEL (central government employees),	
	KuEL (municipal sector employees),	
	KiEL (church empl.),	
	Unemployment pensions will be phased out during 2014	
	Public pensions: other	
	National (minimum) disability and survivors' pension, 16-64;	
	E-r disability for 18-62 year-olds and survivors pensions, , all sectors (early pensions change into old- age pensions at the age of 63 and, then, included in the above category)	
SE	***Public pensions: old age and early pensions:***	
	Minimum pension, housing supplement for pensioners, maintenance support for the elderly (State budget), 65+	
	E-r NDC old-age pensions, flexible age from 61 (including old transitional DB system), all sectors (Social insurance scheme)	
	Public pensions: other	
	Disability pensions, 19-64	
	Survivors benefits, all ages (State budget)	
	Occupational pensions:	
	Occupational (supplementary) DC and DB pensions, all sectors	
	Private mandatory pensions:	
	Individual mandatory fully funded old-age pension, flexible age from 61, all sectors (Social insurance scheme)	
	Private non-mandatory pensions:	
	Tax-deductible pension savings (from 2016 only deductible for self-employed).	

Table (continued)

UK	*Public pensions (and other public) pensions: old age and early pensions*	*Public pensions*
	Basic state pensions based on national insurance contributions..	Disability benefits to people below State Pension Age and for some beyond SPA. Pension Credit non contributory non taxable means tested benefit.
	Winter Fuel Payments are non contributory and were introduced to give older people reassurances in keeping warm in winter without worrying about the cost. Eligibility is based on having reached women State Pension age. (It is not a pension or social assistance).	
	Pension Credit is a non contributory means tested benefit which provides a guaranteed minimum income level for the UK's poorest pensioners and helps maintain pensioner adequacy levels in the UK.	*Occupational schemes* Non-mandatory occupational pensions for both private and public sector employers. Occupational schemes for public service do not form part of the UK social security system and have not been covered in the pensions projections.
	Additional State pension.	
	State second pension (S2P)/ State earnings-related pensions (SERPS), linked to National Insurance Contributions.	
	New state pension replacing basic and additional state pension for those reaching state pension age on or after 6 April 2016.	
	Pension Credit will be available but is currently being reformed.	
	Winter Fuel Payments will still be available; however this has been reformed and will only be paid in more specific circumstances.	
	Public pensions: other	
NO	*Public pensions: old age and early pensions:*	Central government occupational pension scheme financed by employee contributions and transfers from State budget. Supplement to public old age pension
	Minimum income guarantee.	
	Earnings-related benefits	Local government occupational pension schemes are funded systems. Supplement to public old age pension.
	Public pensions: other	
	Disability pensions. Survivors pensions.	Mandatory private sector occupational schemes are funded defined contribution systems. Supplement to public old age pension.
		Private non-mandatory defined benefits (and from 2001 also defined contribution schemes)

(a) BE - There are exceptions: 60 and 42 careers years, 61 and 41 career years.
(b) IE - Includes dependent adults of all ages.
(c) IE - While individuals from all sectors of the economy are eligible to apply for these pensions, some sectors may not be eligible to receive them due to the means-tested nature of the schemes.
(d) IE - Public servants hired on or after 6 April 1995 pay the standard full-rate social insurance contribution, thereby (in general) becoming entitled on retirement to the contributory public pension, along with a public service occupational pension which is "integrated", i.e. reduced to reflect the public pension income. By contrast, most public servants hired before 6 April 1995 pay a lower "modified" social insurance contribution, but may qualify for some other social welfare benefits. State pension (transition) is no longer paid where a person reaches 65 on or after 1 January 2014 thereby standardising the state pension age at 66. There after state pension age is set to increase to 67 in 2021 & to 68 in 2028
(1) E-r stays for earnings related.
Source: Commission services, AWG delegates.

ANNEX 4

Long-term care model structure

1. Population by age and gender

2. Dependency rates by age and gender, base year and future developments.

Non-dependent population

Dependent population

3. Probability of receiving different types of long term care, by age and gender.

Informal care only

Formal care at home

Formal care in an institution

5. Proportion of dependent people receiving disability related benefits per year.

4. Average public expenditure on formal care at home per user by age, per year

4. Average public expenditure on institutional care per user by age, per year.

6. Inflation assumption

Expenditure on formal care at home

Expenditure on disability-related benefits

Expenditure on institutional care

Total public expenditure on long-term care

Source: Commission services

The graph above provides an overview of the model structure. The square boxes indicate data used in the model, while the round boxes indicate calculations that are performed for each year of the projection period.

ANNEX 5

Sources of data to compute health care and long-term care according to data availability

Preferred solution: SHA, when data is available (CZ, DE, EL, EE, ES, FR, CY, LV, LT, LU, MT, NL, PL, RO, SI, SK, FI, SE)

HC	LTC – "medical" component	LTC – "social" component	LTC – institutional care	LTC – home care	LTC – cash benefits
SHA: HC.1-HC.2 + HC.4-HC.9 + HC.R.1 + **ESSPROS**: Health-related cash benefits	**SHA**: HC.3	**SHA**: HC.R.6	**SHA**: HC.3.1 + HC.3.2 + HC.R.6 divided according to the split in benefits in kind in **ESSPROS** data	**SHA**:HC.3.3 + HC.R.6 divided according to the split in benefits in kind in **ESSPROS** data	**ESSPROS**: cash benefits from **disability** and **old-age** functions

Alternative 1: When data on HC.R.6 - "social" component of LTC is not available in SHA (BE, BG, DK, HU, HR, AT, NO)

		LTC – "social" component			
		ESSPROS: benefits in kind from 1) **sickness**, 2) **disability** and 3) **old-age** functions			

Alternative 2: When SHA lacks data on institutional/home care, i.e. sub-categories of HC.3 (PT)

			LTC – institutional care	LTC – home care	
			SHA health providers classification: HP.1, HP.2 and HP.3, except for HP.3.6	SHA health providers classification: HP.3.6 and HP.7.2.	

Alternative 3: When SHA data is not available (IE, IT, UK)

HC	LTC – "medical" component AND "social" component	LTC – institutional care	LTC – home care	
ESSPROS: Benefits in kind (in-patient + out-patient) and cash benefits in **sickness** function + other benefits in kind in **family** function + exp. on rehabilitation in **social exclusion** function	Estimated on the basis of ESSPROS data: benefits in kind from **sickness**, **disability** and **old-age** functions + cash benefits in **disability** and **old-age** functions	Estimated on the basis of ESSPROS data	Estimated on the basis of ESSPROS data	

Notes: At the point of writing this report, Malta has submitted SHA data to Eurostat, but it has not yet been published.
Source: Commission Services

ANNEX 6

Mathematical illustration of the long-term care scenarios

General definitions

Let's define $N_{g,a,t}$ the population of a given gender g and age a in year t. Following the main steps of the general methodology process presented in the chapter on long-term care, the following definitions are derived.

STEP 1: dependent / non-dependent population

The ratio of dependent (resp. non-dependent) persons in the base year $t=b$ (e.g. 2013) is derived from the EU-SILC data, for each age – actually, 5-year age groups (15+) – and gender group: $d_{g,a\,b}$ (resp. $1- d_{g,a,b}$). The average dependency rates for the last 5 years are being used, based on data availability. Therefore, the projected dependent population of a given gender g and age a in a projected year t is:

$$D_{g,a,t} = d_{g,a,b} N_{g,a,t} \qquad \text{II.A6.1}$$

STEP 2: split into types of care

To be able to differentiate the impact of different scenarios according to the respective behaviour of the different types of care, one needs to split the projected dependent population into three groups: those receiving formal care at home, those receiving formal care in institutions, and those receiving only informal care. The category of those receiving cash benefits will be considered at a later stage, given that age profiles for this category of long-term care benefits are not available.

Therefore, one defines $DFh_{g,a,t}$, $DFi_{g,a,t}$, $DI_{g,a,t}$ the projected dependent population of a given gender g and age a in a projected year t receiving respectively formal care at home (DFh), formal care in institutions (DFi), and informal care (DI), as follows:

$$DFh_{g,a,t} = D_{g,a,t} p_{g,a,b}^{Fh} \qquad \text{II.A6.2}$$

$$DFi_{g,a,t} = D_{g,a,t} p_{g,a,b}^{Fi} \qquad \text{II.A6.3}$$

$$DI_{g,a,t} = D_{g,a,t} (1 - p_{g,a,b}^{Fh} - p_{g,a,b}^{Fi}) \qquad \text{II.A6.4}$$

Where $p^{Fh}g,a,b$ is the probability for a dependent person of gender g and age a to receive formal care at home, in the base year b (e.g. 2013). Similarly, $p^{Fi}g,a,b$ is the correspondent probability of being taken care of formally in institutions, while $p^{I}g,a,b$ – the probability of being take care of informally – is defined as not receiving any formal care service.

STEP 3: age-gender profiles of expenditure

Average expenditure is calculated for a base year b, to define the long-run unit costs of services. If the data is available (through the SHA joint questionnaire and/or provided by Member States), unit costs for formal care at home and formal care in institutions are calculated separately[149]:

$$c_{g,a,b}^{Fh} = \frac{S_b^{Fh}}{N_{g,a,b}^{Fh}} \qquad \text{II.A6.5}$$

where: S_b^{Fh} is public spending on formal care at home in the base year b (e.g. 2013); and $N_{g,a,b}^{Fh}$ is the number of recipients of a given gender g and age a of formal care at home, for the same year.

Similarly, the unit cost per beneficiary of a given gender g and age a of formal care in institution is:

$$c_{g,a,b}^{Fi} = \frac{S_b^{Fi}}{N_{g,a,b}^{Fi}} \qquad \text{II.A6.5B}$$

Note that two adjustments are made to the derived unit costs. The first one applies when age profiles are not provided separately for the two types of formal care. The age profiles provided by Member States for public expenditure on formal care services are then used in order to "re-calibrate" the unit costs. In other words, the relative size of the amounts provided for each gender/age group is applied to respective "total" public expenditure aggregates of formal care at home (S_b^{Fh}) and formal care in institutions (S_b^{Fi}).

---

[149] Otherwise, an average is used.

In other words, adjusted unit costs follow the actual gender-age structure of unit costs, as provided by Member States in country-specific age-profiles. For a country i, age profiles provide the relative size of unit cost per beneficiary of a given gender g and age a of formal care as a proportion x^{PF} – where P stands for "profiles" and F for "formal" – such as:

$$x^{PF}_{g,a,b} = \frac{c^{PF}_{g,a,b}}{S^{PF}_b / N_b} \quad \text{and}$$

$$\sum_{g,a} x^{PF}_{g,a,b} = 1$$

The unit costs adjusted to the age profiles are therefore calculated as:

$$c^{AFh}_{g,a,b} = x^{PF}_{g,a,b} \frac{S^{Fh}_b}{N^{Fh}_{g,a,b}} \quad \text{, and:}$$

$$c^{AFi}_{g,a,b} = x^{PF}_{g,a,b} \frac{S^{Fi}_b}{N^{Fi}_{g,a,b}}$$

Second, the unit costs evolve in time with the GDP growth, as will be explained in the next section of this annex (see equation II.A6.9).

STEP 4: total public expenditure on long-term care services

For a projected year t, public spending on both types of formal care is then computed as:

$$TS^{Fh}_{g,a,t} = c^{AFh}_{g,a,t} DFh_{g,a,t} \qquad \text{II.A6.6}$$

where: $TS^{Fh}g,a,t$ (resp. $TS^{Fi}g,a,t$) is public spending on formal care at home (resp. in institution) for all persons of gender g and age a in year t.

Hence, for all age and gender groups:

$$TS^{Fh}_t = \sum TS^{Fh}_{g,a,t}$$

And:

$$TS^{Fi}_t = \sum TS^{Fi}_{g,a,t} \qquad \text{II.A6.7}$$

STEP 5: total public expenditure on long-term care (services and cash)

Therefore, total public expenditure on both types of formal long-term care services are added to long-term care related cash benefits, so as to obtain $TS^{LTC}t$ for a projected year t:

$$TS^{LTC}_t = TS^{Fh}_t + TS^{Fi}_t + TS^C_t \qquad \text{II.A6.8}$$

These general definitions apply to the general, "basic" model structure. In order to run more accurate scenarios, general and scenario-specific assumptions are being applied. These assumptions are illustrated in the following section.

Assumptions for the different scenarios

Demographic scenario

As mentioned above, the first assumption added to the general model is the following: for the time horizon of the projection exercise, the age-gender specific public expenditure profiles (showing the average public spending on long-term care per beneficiary for each year of age – or 5-year age group, from 15 to 85+ or more, according to data availability) are assumed to grow in line with income, i.e. with GDP per capita.

Therefore, the adjusted per beneficiary cost (expenditure) in a projected year t is:

$$c'^F_{g,a,t} = c^{AF}_{g,a,t-1} \Delta Ypc_t \qquad \text{II.A6.9}$$

where:

$c'^F_{g,a,t}$ is the cost per beneficiary of a given gender g and age group a in period t of formal care F – Fh for formal care at home, Fi for formal care in institution;

$\Delta Ypct$ is GDP per capita growth rate in year t, i.e.:

$$\Delta Ypc_t = \left(\frac{Y_t}{\sum N_{g,a,t}} - \frac{Y_{t-1}}{\sum N_{g,a,t-1}} \right) \Big/ \left(\frac{Y_{t-1}}{\sum N_{g,a,t-1}} \right) \quad \text{II.A6.10}$$

With Yt representing GDP in projection year t;

And $N_{g, a, t}$ the projected population of a given gender g and age a in year t.

Hence, the adjusted per beneficiary cost, $c'^{F}_{g,a,t}$, is the formal care cost per beneficiary of a person of gender g and age a in year t of the projection period, following the adjustment to GDP per capita growth.

Equation II.A6.6 above becomes II.A6.6' as the adjusted unit cost c' is considered, i.e.:

$$TS^{Fh}_{g,a,t} = c'^{Fh}_{g,a,t} DFh_{g,a,t} \qquad \text{II.A6.6'}$$

And of course, for formal care in institution:

$$TS^{Fi}_{g,a,t} = c'^{Fi}_{g,a,t} DFi_{g,a,t} \qquad \text{II.A6.6'b}$$

Similarly for cash benefits, total public spending becomes TS'^{C}_{t}, and an adapted equation II.A6.8 gives adjusted total public spending on long-term care, i.e.:

$$TS'^{LTC}_{t} = TS'^{Fh}_{t} + TS'^{Fi}_{t} + TS'^{C}_{t} \qquad \text{II.A6.8'}$$

Base case scenario

For the "*base case scenario*", the assumption on unit cost development is slightly different from the "*demographic scenario*". Indeed, it has been agreed to differentiate two kinds of unit costs. The projections will link unit cost to GDP per hours worked([150]) for in-kind benefits (services), while unit cost of cash benefits will evolve in line with GDP per capita growth. Therefore, the age-gender specific public expenditure profiles are assumed to grow in line with:

1) GDP per capita for cash benefits;

2) GDP per hours worked for benefits in kind.

The situation is unchanged for cash benefits, i.e. TS'^{C}_{t}, whereas GDP per hours worked will be used

---

([150]) We propose to use GDP per hours worked, similar to the previous ageing report, to stay in line with the macroeconomic assumptions and the other parts of the projections.

to adjust total public spending on formal care services. Equation II.A6.9 becomes:

$$c''^{Fc}_{g,a,t} = c^{Fc}_{g,a,t-1} \Delta Yphw_t \qquad \text{II.A6.9'}$$

where:

$\Delta Yphw_t$ is the rate of growth of GDP per hours worked in year t,

$$\Delta Yphw_t = \left(\frac{Y_t}{\sum hw_t} - \frac{Y_{t-1}}{\sum hw_{t-1}} \right) \Big/ \left(\frac{Y_{t-1}}{\sum hw_{t-1}} \right) \qquad \text{II.A6.11}$$

Corresponding equations II.A6.6 and II.A6.6'b are then used and coupled with TS'^{C}_{t} as calculated in the "*demographic scenario*" to calculate total age/gender group expenditure and total public expenditure on long term care in each projection year.

$$TS''^{LTC}_{t} = TS''^{Fh}_{t} + TS''^{Fi}_{t} + TS'^{C}_{t} \qquad \text{II.A6.8''}$$

High life expectancy scenario

The "*high life expectancy scenario*" presents the budgetary effects of an alternative demographic scenario which assumes life expectancy to be higher for all ages than in the *demographic* and in the *base case* scenarios. In terms of methodology, the scenario does not differ from the "*base case scenario*", apart from the fact that the baseline demographic projections used as input data are replaced with the alternative, high life expectancy, variant (the same used to assess the sensitivity of pension spending). Therefore, the mathematical illustration of the previous scenario only changes in $N_{g, a, t}$, i.e. the number of individuals in each age/gender group up to 2060 (replaced by the new population assumptions in equation II.A6.1 and II.A6.10).

Constant disability scenario

This scenario reflects an alternative assumption about trends in age-specific ADL-dependency rates. The profile of age-specific disability rates shifts in line with changes in life expectancy (disability rate in the future is equal to that of a younger - by the same number of years as the change in age-specific life expectancy - age cohort

today), resulting in a gradual decrease over time in disability prevalence for each age cohort, i.e. affecting the variable Dg, a, t.

In practical terms, it follows the same reasoning as for the similar health care "*constant health scenario*". One starts by calculating, for each projection year, the change in life expectancy in relation to the base year. For example, life expectancy for a 50-year-old man is expected to increase by, say, 4 years: from 30 years in year t to 34 years in year $t+20$ in a specific Member State. Then, the scenario assumes that in $t+20$, in that same Member State, a 50-year-old man will have a disability prevalence of a $(50-4) = 46$-year old man in year t.

Hence, the change in life expectancy of a person of gender g and age a in relation to the base year b (say, 2012) is first calculated for each year of the projections, using the Eurostat population projections (EUROPOP2013)([151]):

$$\Delta LE_{g,a,t,b} = LE_{g,a,t} - LE_{g,a,b}$$

where:

ΔLEg,a,t,b is the additional life expectancy of a person of gender g and age a in year t compared to a person of gender g and age a in the base year b,

LEg,a,t is the life expectancy of a person of gender g and age a in year t and

LEg,a,b is life expectancy of an average person of gender g and age a in the base year b.

For year t of the projections, the "adjusted" disability prevalence for the cohort of gender g and age a is then based on equation II.A6.1 adjusted such as:

$$D'_{g,a,t} = d_{g,a-\Delta LE_{g,a,t,b}} N_{g,a,t} \qquad \text{II.A6.1'}$$

And the adjusted projected dependent population $D'g, a, t$ will therefore replace former Dg, a, t in the subsequent equations II.A6.2 to II.A6.4 and then II.A6.9' and II.A6.8', to follow the subsequent steps of the "*base case scenario*".

Scenario assessing the effect of a shift from informal to formal care

Building on the "*base case scenario*", this policy-change scenario is a sensitivity test that examines the budgetary impact of a progressive shift into the formal sector of care of 1% per year of disabled elderly who have so far received only informal care. This extra shift takes place during the first ten years of the projection period, thus it sums up to about 10.5% shift from informal to formal care. This shift will not have an impact on the relative shares of home and institutional formal care. The shift will thus not be 50% of the "new" beneficiaries to move into institutional care, while the other 50% will be assumed to receive formal care at home but a shift in line with the existing shares of home and institutional care. The variables *DFhg, a, t* , *DFig, a, t* , and *DIg, a, t* will be adjusted to the new assumptions.

The projected dependent population of a given gender g and age a in a projected year t receiving respectively formal care at home (*DFh*), formal care in institutions (*DFi*), and informal care (*DI*), calculated in equations II.A6.2 to II.A6.4, will be changed as follows. For $t \in [b+1, b+10]$ – let's say, for the first ten years of the projection period, i.e. 2013-2020:

$$DI'_{g,a,t} = DI_{g,a,t-1} - 0.1 \times DI_{g,a,t-1} = 0.9 \times DI_{g,a,t-1}$$
$$DFh'_{g,a,t} = DFh_{g,a,t-1} + (DFh_{g,a,t-1} / D_{g,a,t-1}) \times 0.1 \times DI_{g,a,t-1}$$
$$DFi'_{g,a,t} = DFi_{g,a,t-1} + (DFi_{g,a,t-1} / D_{g,a,t-1}) \times 0.1 \times DI_{g,a,t-1}$$

These adapted projected numbers of dependents / recipients of formal care are then injected in equations II.A6.6', II.A6.6b' and II.A6.8' to calculate the total public spending on long-term care, as it was done in the "*base case scenario*". For the rest of the projection period – 2021-2060 – the baseline equations are used as above.

Coverage convergence scenario

([151]) In the "*constant disability scenario*" the total number of years spent with disability during a person's life time is assumed to remain the same while life expectancy increases. Thus, if between time t and $t+1$, total life expectancy increases by n years for a cohort of age a, "disability-free" life expectancy for that very same age cohort must also increase by n years in order for the dynamic equilibrium hypothesis to be valid. If "disability-free" life expectancy increases by n years, then the disability prevalence of this cohort of age a at time $t+1$ will be the same as the disability prevalence of cohort of age $a-n$ at time t.

This policy-change scenario assumes an expansion of publicly financed formal care provision into the groups of population that have not been covered by the public programmes so far. "Formal coverage" covers any of the three types of formal long-term care: institutional care, formal home care, and cash benefits. In order to illustrate this scenario, a "new" probability of being "formally taken care of" through cash benefits, i.e. $p^C{g,a,b}$, has to be introduced. Alternatively, the number of persons receiving long-term care related cash benefits is available.([152]) The assumption is that all recipients of long-term care are dependent. It means that the equations II.A6.2 to II.A6.4 become four equations, with probabilities now changing over time, i.e. depending on t, but also country-specific (for a country i). Further, DIg, a, t, i the projected dependent population of a given gender g and age group a in a projected year t receiving informal care (DI) is simply "converted" into $DN^F{g, a, t, i}$:, i.e. the probability of not being covered by formal long-term care coverage.

$$DFh_{g,a,t,i} = D_{g,a,t,i} p^{Fh}_{g,a,t,i} \qquad \text{II.A6.12}$$

$$DFi_{g,a,t,i} = D_{g,a,t,i} p^{Fi}_{g,a,t,i}$$

$$DC_{g,a,t,i} = D_{g,a,t,i} p^{C}_{g,a,t,i}$$

$$DN^{F}_{g,a,t,i} = D_{g,a,t,i}(1 - p^{F}_{g,a,t,i})$$

where:

DCg,a,t,i is the projected dependent population of a given gender g and age group a in a projected year t receiving cash benefits;

$p^{F}_{g,a,t,i}$ is the probability of receiving any type of formal care, defined as:

$$p^{F}_{g,a,t,i} = p^{Fh}_{g,a,t,i} + p^{Fi}_{g,a,t,i} + p^{C}_{g,a,t,i}$$

- The scenario envisaged is a coverage convergence to the EU28 average. It is meant to take into account the high diversity of country-specific current care-mix. The Member States where the formal coverage rate is below

the EU28 average in the starting year are assumed to converge to this average by 2060.

- The "*base case scenario*" steps are used for the countries whose formal coverage (i.e. $p^F{g,a,t,i}$) is the same or greater than the EU28 average $\overline{p}^{F}_{g,a,2013,EU28}$ in the base year b (2013). For those countries whose formal coverage is below the EU28 average, $p^F{g,a,t,i}$ is assumed to converge to $\overline{p}^{F}_{g,a,2060,EU28}$. It therefore implies that each type of formal care converges at a different pace, making up for the respective relative gaps to the EU28 average. This scenario allows a country to grow faster the relatively less-developed type of formal care.

Cost convergence to EU28 average scenario

This new scenario is run in parallel with the analogous scenario on health care expenditure projections. The "*cost convergence scenario*" is meant to capture the possible effect of a convergence in real living standards on long-term care spending. It assumes an upward convergence of the relative age-gender specific per beneficiary expenditure profiles (as percent of GDP per capita) of all countries below the corresponding EU28 average to the EU28 average. This is done for each type of formal care coverage (i.e. formal care in institutions, formal care at home, cash benefits).

To run this scenario, one builds on the methodology used for the "*base case scenario*". For those countries whose per beneficiary costs are equal to or above the EU28 average the steps illustrated above are followed.

For those countries below the EU28 average per beneficiary costs in the baseline year b (2013) a further change in the way cost per beneficiary is evolving over the projection period is assumed, so as to reach the EU28 average of per beneficiary costs. Building on the equations II.A6.9 – for cash benefits – and II.A6.9'– for in-kind benefits – the real convergence to EU28 average is assumed to follow the adjusted equations:

$$c'^{C}_{g,a,t,i} = c^{C}_{g,a,t-1,i}\left(\Delta Ypc_{t,i} + g_{t,i}\right) \quad \text{II.A6.9}$$

([152]) Hopefully provided by Member States. The issue of double counting is taken care of as much as possible given the availability of detailed data.

$$c''^F_{g,a,t,i} = c^{AF}_{g,a,t-1,i}\left(\Delta Yphw_{t,i} + g_{t,i}\right) \quad \text{II.A6.9}$$

where:

$c''^F_{g,a,t,i}$ is the country i-specific cost of in-kind benefits per beneficiary of a given gender g and age a in period $t - Fh$ for formal care at home, Fi for formal care in institution – adjusted to the GDP per hours worked growth and a catch-up effect if country i is below the EU28 average;

$\Delta Yphw_{t,i}$ is GDP per hours worked growth rate in year t, for country i and

$g_{t,i}$ is a hypothetical rate of growth of per beneficiary costs. It is higher than zero for countries whose per beneficiary costs are below the EU28 average and equal to zero for those countries whose per beneficiary costs are equal or above the EU28 average. If the base year b is 2013, it evolves according to the following mechanism([153]):

$$g_{t,i} = \left[\left(\frac{\overline{rc}_{g,a,EU28,2013}}{rc_{g,a,i,2013}}\right)^{\frac{1}{2060-2013}}\right] - 1 \quad \text{II.A6.13}$$

where:

$\overline{rc}_{g,a,EU28,2013}$ is the weighted EU28 average relative cost per beneficiary of gender g and age a calculated in the baseline year of 2013 and

$rc_{g,a,i,2013}$ is the relative cost per beneficiary of gender g and age a for country i (if below the EU28 average cost per beneficiary) calculated in the baseline year of 2013 defined as:

$$rc_{g,a,i,2013} = \left(\frac{c''_{g,a,i,2013}}{Yphw_{g,a,i,2013}}\right)$$

and

$$\overline{rc}_{g,a,EU28,2013} = \left(\frac{\overline{c}_{g,a,EU28,2013}}{\overline{Yphw}_{g,a,EU28,2013}}\right)$$

where:

$\overline{c}_{g,a,EU28,2013}$ is the weighted EU28 average cost per beneficiary of gender g and age a calculated in the baseline year (2013); and

$\overline{Yphw}_{g,a,EU28,2013}$ is the average GDP per hours worked in the EU28 calculated in the baseline year (2013).

The same type of reasoning can be run with the corresponding equations for cash benefits, adjusted to GDP per capita growth instead of GDP per hours worked growth.

Then after country-specific per beneficiary cost has been calculated, subsequent corresponding equations are used to obtain total age-gender group expenditure and then total public expenditure on long-term care in each projection year, as in equation II.A6.8".

Cost and coverage convergence scenario

This scenario combines the two previous scenarios, the coverage convergence scenario and the cost convergence scenario to the EU 28 average scenario.

([153]) Assumptions for different convergence paths according to the initial country-specific situation - comparing to the EU28-average age profile - could be explored further when data is made available.

ANNEX 7

Organisational structure of secondary education

Three different organisational models can be distinguished: i) a single structure; ii) a compulsory integrated secondary education corresponding to a 'common core'; and iii) distinct types of education. In some new Member States (the Czech Republic, Latvia, Lithuania, Hungary and Slovakia), combinations of these three models coexist. ([154])

In all countries where the **single structure** is the only type (Denmark, Estonia, Portugal, Slovenia, Finland, Sweden, Iceland, Norway and Bulgaria), the end of secondary education coincides with the end of compulsory education, except in Bulgaria where compulsory education ends one year later.

In almost half of all European countries, all pupils follow the same general curriculum "**common core**" during lower secondary education. In seven of these countries, the end of lower secondary education coincides with the end of full-time compulsory education.

In Belgium, France, Ireland, Italy, Hungary, Austria, Slovakia, the United Kingdom (England, Wales and Northern Ireland) and Bulgaria, the end of full-time compulsory education does not coincide with the end of lower secondary education. Instead, one or more final years of compulsory education are part of upper secondary education. Thus, pupils in these countries - with the exception of Ireland and the United Kingdom (England, Wales and Northern Ireland) - have to choose between general, technical or vocational education of one or two years (or four in Hungary) before the end of full-time compulsory education.

In the French and German-speaking Belgian Communities, Germany, Latvia, Lithuania, Luxembourg, the Netherlands, Austria and Liechtenstein, pupils may select or be streamed into **different types of provision or school** from the beginning or before the end of lower secondary education. Even though pupils in Germany attend different schools, they follow entirely compatible curricula for the first two years so that selection of an appropriate study branch can be deferred. In the Netherlands, pupils follow a common core curriculum usually for the first two years at VMBO and three years at HAVO and VWO.

While its level varies depending on the type of school concerned, it specifies minimum skills that should be acquired by all pupils. The three types of lower secondary school in Liechtenstein offer the same basic common curriculum, which is supplemented by certain kinds of provision in the Realschule or Gymnasium.

([154]) Source: Key data on education in Europe 2005, European Commission, Eurydice, Eurostat, 2005.

Part III

Statistical Annex

1. BELGIUM

Belgium	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,81	1,81	1,82	1,83	1,84	1,84	1,85	1,85	1,86	1,86	1,87	0,1
Life expectancy at birth												
men	77,8	78,1	78,9	79,7	80,5	81,2	82,0	82,7	83,3	84,0	84,6	6,9
women	82,9	83,2	84,0	84,6	85,3	86,0	86,6	87,2	87,8	88,4	88,9	6,0
Life expectancy at 65												
men	17,6	17,8	18,4	18,9	19,4	19,9	20,4	20,9	21,3	21,8	22,2	4,6
women	21,1	21,3	21,8	22,3	22,8	23,3	23,8	24,2	24,7	25,1	25,6	4,5
Net migration (thousand)	61,2	73,7	80,2	82,0	80,9	76,8	69,8	59,8	46,8	44,5	42,1	-19,1
Net migration as % of population	0,5	0,6	0,7	0,7	0,6	0,6	0,5	0,4	0,3	0,3	0,3	-0,3
Population (million)	11,2	11,4	11,9	12,4	12,9	13,5	14,0	14,4	14,8	15,1	15,4	4,2
Children population (0-14) as % of total population	17,0	17,1	17,5	17,5	17,4	17,2	17,2	17,2	17,2	17,1	16,9	-0,1
Prime age population (25-54) as % of total population	40,9	40,4	39,2	38,2	37,7	37,7	37,6	37,4	37,0	36,8	36,6	-4,3
Working age population (15-64) as % of total population	65,3	64,8	63,6	62,5	61,3	60,7	60,4	60,2	60,0	59,7	59,4	-5,9
Elderly population (65 and over) as % of total population	17,7	18,0	18,9	20,0	21,3	22,1	22,5	22,6	22,8	23,1	23,7	6,0
Very elderly population (80 and over) as % of total population	5,3	5,4	5,4	5,4	6,1	6,8	7,5	8,3	8,7	8,8	8,9	3,6
Very elderly population (80 and over) as % of elderly population	30,0	29,9	28,8	26,8	28,5	30,6	33,5	36,6	38,0	38,0	37,5	7,5
Very elderly population (80 and over) as % of working age population	8,1	8,3	8,6	8,6	9,9	11,1	12,5	13,7	14,4	14,7	15,0	6,8

Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	0,7	1,0	1,5	1,3	1,8	2,2	2,2	2,0	1,9	1,8	1,8	1,7
Employment (growth rate)	0,3	0,4	0,9	0,5	0,6	0,6	0,6	0,5	0,3	0,3	0,3	0,5
Labour input : hours worked (growth rate)	0,4	0,6	0,9	0,5	0,6	0,6	0,6	0,5	0,4	0,3	0,3	0,5
Labour productivity per hour (growth rate)	0,2	0,3	0,6	0,9	1,2	1,5	1,5	1,5	1,5	1,5	1,5	1,2
TFP (growth rate)	0,2	0,3	0,4	0,6	0,8	1,0	1,0	1,0	1,0	1,0	1,0	0,8
Capital deepening (contribution to labour productivity growth)	0,0	0,1	0,2	0,3	0,4	0,5	0,5	0,5	0,5	0,5	0,5	0,4
GDP per capita (growth rate)	0,0	0,1	0,6	0,5	1,0	1,4	1,5	1,4	1,4	1,4	1,4	1,1
GDP per worker (growth rate)	0,4	0,5	0,6	0,8	1,2	1,5	1,5	1,5	1,5	1,5	1,5	1,2
GDP in 2013 prices (in millions euros)	381,4	388,1	416,5	446,0	482,0	533,5	594,1	659,1	726,2	795,2	870,9	

Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	7316	7380	7556	7753	7937	8171	8432	8681	8877	9033	9165	1849
Population growth (working age:15-64)	0,3	0,5	0,5	0,5	0,5	0,6	0,7	0,5	0,4	0,3	0,3	0,0
Population (20-64) (in thousands)	6681	6744	6904	7033	7188	7389	7627	7861	8038	8167	8278	1597
Population growth (20-64)	0,4	0,5	0,4	0,4	0,5	0,6	0,7	0,5	0,4	0,3	0,3	-0,1
Labour force 15-64 (thousands)	4943	5055	5270	5387	5517	5692	5880	6048	6176	6265	6355	1412
Labour force 20-64 (thousands)	4897	5009	5223	5336	5463	5636	5821	5989	6115	6203	6291	1395
Participation rate (20-64)	73,3	74,3	75,6	75,9	76,0	76,3	76,3	76,2	76,1	75,9	76,0	2,7
Participation rate (15-74)	59,9	60,4	60,6	60,1	59,7	59,9	60,4	60,7	60,5	60,1	59,8	-0,1
Participation rate (15-64)	67,6	68,5	69,7	69,5	69,5	69,7	69,7	69,7	69,6	69,4	69,3	1,8
young (15-24)	31,2	32,2	31,7	30,7	31,2	31,2	31,3	31,3	31,1	30,9	30,9	-0,3
prime-age (25-54)	85,4	85,7	86,0	86,0	85,9	85,7	85,6	85,6	85,7	85,6	85,6	0,3
older (55-64)	44,0	47,2	54,0	55,2	55,8	56,5	56,8	56,3	56,3	55,8	56,0	12,0
Participation rate (20-64) - WOMEN	67,6	69,0	71,1	71,8	72,3	72,8	72,9	72,9	72,8	72,8	72,9	5,3
Participation rate (15-74) - WOMEN	54,7	55,7	56,5	56,5	56,3	56,7	57,3	57,6	57,6	57,2	57,0	2,3
Participation rate (15-64) - WOMEN	62,3	63,7	65,6	65,8	66,1	66,4	66,6	66,6	66,6	66,4	66,4	4,1
young (15-24)	28,6	29,9	29,4	28,4	28,9	29,0	29,0	29,0	28,8	28,6	28,6	0,0
prime-age (25-54)	79,7	80,4	81,4	81,8	82,0	81,9	82,0	82,1	82,1	82,1	82,1	2,4
older (55-64)	37,6	41,5	49,6	51,6	52,9	54,1	54,5	54,2	54,3	54,1	54,3	16,7
Participation rate (20-64) - MEN	79,0	79,5	80,1	79,8	79,6	79,7	79,6	79,4	79,2	79,0	79,0	0,1
Participation rate (15-74) - MEN	65,1	65,2	64,7	63,8	63,0	63,0	63,4	63,6	63,4	62,9	62,5	-2,6
Participation rate (15-64) - MEN	72,7	73,3	73,9	73,1	72,9	72,8	72,8	72,7	72,5	72,2	72,2	-0,6
young (15-24)	33,7	34,4	33,9	32,8	33,4	33,3	33,4	33,5	33,3	33,0	33,1	-0,6
prime-age (25-54)	90,9	90,9	90,6	90,1	89,6	89,3	89,0	89,0	89,1	89,1	89,0	-1,9
older (55-64)	50,4	53,1	58,5	58,8	58,7	59,0	59,2	58,4	58,2	57,4	57,6	7,2
Employment rate (15-64)	61,8	62,9	64,3	64,3	64,3	64,5	64,6	64,5	64,4	64,2	64,2	2,4
Employment rate (20-64)	67,2	68,4	69,9	70,4	70,5	70,8	70,9	70,7	70,6	70,5	70,6	3,3
Employment rate (15-74)	54,8	55,5	55,9	55,7	55,3	55,5	56,0	56,2	56,1	55,7	55,4	0,6
Unemployment rate (15-64)	8,5	8,2	7,9	7,5	7,4	7,4	7,4	7,4	7,4	7,4	7,4	-1,1
Unemployment rate (20-64)	8,3	8,0	7,6	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	-1,1
Unemployment rate (15-74)	8,5	8,2	7,8	7,4	7,4	7,3	7,3	7,3	7,3	7,3	7,3	-1,2
Employment (20-64) (in millions)	4,5	4,6	4,8	4,9	5,1	5,2	5,4	5,6	5,7	5,8	5,8	1,3
Employment (15-64) (in millions)	4,5	4,6	4,9	5,0	5,1	5,3	5,4	5,6	5,7	5,8	5,9	1,4
share of young (15-24)	7%	7%	7%	7%	7%	8%	8%	7%	7%	7%	7%	0%
share of prime-age (25-54)	80%	79%	77%	76%	77%	77%	77%	77%	77%	77%	77%	-3%
share of older (55-64)	13%	14%	16%	17%	16%	15%	15%	15%	16%	16%	16%	3%

Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	19,0	19,4	20,5	20,3	19,3	18,4	18,2	18,6	19,1	19,1	18,8	-0,2
Old-age dependency ratio (2)	27	28	30	32	35	36	37	37	38	39	40	13
Total dependency ratio (3)	53	54	57	60	63	65	66	66	67	67	68	15
Total economic dependency ratio (4)	146	143	142	146	150	152	153	154	155	157	159	13
Economic old-age dependency ratio (15-64) (5)	43	43	45	49	53	55	56	57	58	59	61	18
Economic old-age dependency ratio (15-74) (6)	43	43	45	48	52	54	56	56	57	58	60	17

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

2. BULGARIA

Bulgaria	EC-EPC (AWG) 2015 projections											
Main demographic and macroeconomic assumptions												
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,51	1,54	1,59	1,64	1,67	1,70	1,72	1,74	1,75	1,77	1,77	0,3
Life expectancy at birth												
men	71,1	71,6	72,9	74,1	75,3	76,5	77,6	78,6	79,6	80,6	81,6	10,4
women	78,0	78,4	79,4	80,4	81,3	82,2	83,1	84,0	84,8	85,6	86,4	8,4
Life expectancy at 65												
men	14,0	14,3	15,0	15,7	16,4	17,1	17,7	18,4	19,1	19,7	20,3	6,3
women	17,3	17,5	18,2	18,9	19,6	20,2	20,9	21,5	22,2	22,8	23,4	6,1
Net migration (thousand)	-2,9	-3,5	-5,8	-8,8	-5,8	4,6	5,3	4,2	3,7	3,1	0,6	3,5
Net migration as % of population	0,0	0,0	-0,1	-0,1	-0,1	0,1	0,1	0,1	0,1	0,1	0,0	0,1
Population (million)	7,3	7,2	7,0	6,7	6,5	6,2	6,1	5,9	5,8	5,6	5,5	-1,8
Children population (0-14) as % of total population	13,7	13,9	14,3	13,9	13,4	13,1	13,3	13,7	14,1	14,1	14,1	0,4
Prime age population (25-54) as % of total population	42,1	42,2	41,6	39,8	37,5	35,7	34,5	33,1	32,7	33,3	33,7	-8,4
Working age population (15-64) as % of total population	67,0	66,0	64,1	63,0	62,3	61,4	59,5	57,3	55,7	54,2	54,2	-12,7
Elderly population (65 and over) as % of total population	19,4	20,2	21,7	23,1	24,3	25,6	27,2	29,0	30,2	31,6	31,7	12,3
Very elderly population (80 and over) as % of total population	4,4	4,6	4,9	5,4	6,7	7,7	8,3	8,8	9,6	10,8	12,2	7,8
Very elderly population (80 and over) as % of elderly population	22,5	22,9	22,4	23,2	27,6	30,0	30,6	30,4	31,6	34,3	38,4	15,9
Very elderly population (80 and over) as % of working age population	6,5	7,0	7,6	8,5	10,8	12,5	14,0	15,4	17,2	20,0	22,5	15,9
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	1,4	2,3	2,7	1,6	1,3	1,4	1,1	1,1	0,9	1,0	1,1	1,5
Employment (growth rate)	-0,8	0,1	0,0	-0,9	-0,9	-0,9	-1,1	-1,2	-1,1	-0,7	-0,5	-0,8
Labour input : hours worked (growth rate)	-0,8	0,2	0,0	-0,9	-0,9	-0,9	-1,1	-1,2	-1,1	-0,8	-0,5	-0,8
Labour productivity per hour (growth rate)	2,2	2,1	2,6	2,5	2,2	2,3	2,3	2,3	2,0	1,8	1,5	2,2
TFP (growth rate)	0,7	0,9	1,2	1,3	1,4	1,5	1,5	1,5	1,3	1,2	1,0	1,3
Capital deepening (contribution to labour productivity growth)	1,5	1,2	1,4	1,2	0,8	0,8	0,8	0,8	0,7	0,6	0,5	0,9
GDP per capita (growth rate)	2,0	2,9	3,4	2,4	2,0	2,0	1,7	1,6	1,4	1,6	1,7	2,1
GDP per worker (growth rate)	2,2	2,2	2,7	2,5	2,2	2,3	2,3	2,3	2,1	1,8	1,5	2,2
GDP in 2013 prices (in millions euros)	39,9	41,6	47,6	52,7	56,5	60,2	64,3	67,9	71,2	74,7	78,8	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	4866	4735	4453	4225	4021	3830	3613	3389	3212	3046	2962	-1904
Population growth (working age:15-64)	-1,4	-1,4	-1,2	-1,0	-0,9	-1,1	-1,3	-1,2	-1,0	-1,0	-0,3	1,1
Population (20-64) (in thousands)	4538	4421	4137	3883	3692	3517	3326	3119	2941	2769	2685	-1853
Population growth (20-64)	-1,0	-1,4	-1,2	-1,2	-0,8	-1,1	-1,3	-1,2	-1,2	-1,1	-0,3	0,8
Labour force 15-64 (thousands)	3336	3298	3142	2967	2805	2641	2481	2330	2198	2095	2051	-1285
Labour force 20-64 (thousands)	3313	3277	3121	2946	2783	2620	2462	2313	2180	2077	2033	-1280
Participation rate (20-64)	73,0	74,1	75,4	75,9	75,4	74,5	74,0	74,2	74,1	75,0	75,7	2,7
Participation rate (15-74)	59,7	60,2	60,8	60,9	60,5	59,7	58,7	57,9	57,4	57,6	58,4	-1,3
Participation rate (15-64)	68,6	69,6	70,6	70,2	69,8	69,0	68,7	68,7	68,4	68,8	69,2	0,7
young (15-24)	30,2	31,3	28,8	27,7	29,1	29,7	30,3	29,9	29,2	28,8	29,0	-1,2
prime-age (25-54)	83,1	83,1	83,9	84,3	84,3	83,8	83,6	83,6	83,8	84,0	83,9	0,9
older (55-64)	54,4	56,1	57,4	59,6	61,3	60,9	60,0	60,5	58,8	58,8	61,0	6,6
Participation rate (20-64) - WOMEN	68,9	69,9	70,8	71,2	70,5	69,2	68,5	68,5	68,4	69,5	70,4	1,5
Participation rate (15-74) - WOMEN	55,0	55,4	55,7	56,0	55,6	54,6	53,5	52,7	52,2	52,7	53,6	-1,4
Participation rate (15-64) - WOMEN	64,7	65,6	66,2	65,9	65,2	64,0	63,5	63,5	63,1	63,7	64,3	-0,3
young (15-24)	25,5	26,4	23,7	22,8	24,0	24,5	25,0	24,7	24,1	23,7	24,0	-1,5
prime-age (25-54)	80,2	80,1	80,8	81,2	81,1	80,4	79,9	79,7	79,9	80,2	80,2	0,0
older (55-64)	49,2	50,8	50,8	52,3	53,5	52,8	51,5	52,2	50,0	50,0	52,5	3,3
Participation rate (20-64) - MEN	77,1	78,3	79,9	80,4	80,2	79,6	79,4	79,6	79,7	80,3	80,8	3,7
Participation rate (15-74) - MEN	64,6	65,2	65,9	65,8	65,5	64,8	63,9	63,0	62,5	62,5	63,2	-1,4
Participation rate (15-64) - MEN	72,4	73,5	74,7	74,5	74,2	73,7	73,7	73,8	73,6	73,7	74,0	1,6
young (15-24)	34,7	36,0	33,5	32,4	34,0	34,6	35,2	34,9	34,0	33,6	33,9	-0,8
prime-age (25-54)	85,8	85,9	86,9	87,2	87,3	87,1	87,1	87,3	87,5	87,6	87,5	1,7
older (55-64)	60,2	61,9	64,5	67,2	69,2	69,2	68,5	68,8	67,6	67,6	69,5	9,3
Employment rate (15-64)	59,6	60,9	62,2	63,3	63,4	63,3	63,5	63,6	63,3	63,6	64,1	4,4
Employment rate (20-64)	63,7	65,1	66,7	68,5	68,7	68,6	68,6	68,8	68,7	69,6	70,2	6,5
Employment rate (15-74)	52,0	52,8	53,7	55,0	55,2	55,0	54,5	53,7	53,2	53,4	54,2	2,2
Unemployment rate (15-64)	13,0	12,5	11,9	9,9	9,1	8,2	7,5	7,5	7,5	7,5	7,5	-5,6
Unemployment rate (20-64)	12,7	12,2	11,6	9,7	8,8	8,0	7,3	7,3	7,3	7,3	7,3	-5,5
Unemployment rate (15-74)	12,9	12,4	11,7	9,7	8,9	8,0	7,3	7,2	7,3	7,2	7,3	-5,7
Employment (20-64) (in millions)	2,9	2,9	2,8	2,7	2,5	2,4	2,3	2,1	2,0	1,9	1,9	-1,0
Employment (15-64) (in millions)	2,9	2,9	2,8	2,7	2,6	2,4	2,3	2,2	2,0	1,9	1,9	-1,0
share of young (15-24)	6%	6%	5%	5%	6%	6%	7%	7%	7%	7%	7%	1%
share of prime-age (25-54)	77%	77%	78%	77%	73%	71%	71%	71%	72%	76%	76%	-1%
share of older (55-64)	17%	17%	17%	18%	20%	22%	22%	23%	21%	18%	17%	0%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	21,3	21,1	21,0	21,4	23,2	25,1	25,3	25,6	24,3	20,5	19,1	-2,2
Old-age dependency ratio (2)	29	31	34	37	39	42	46	51	54	58	58	30
Total dependency ratio (3)	49	52	56	59	61	63	68	75	80	84	84	35
Total economic dependency ratio (4)	147	144	143	141	143	146	151	160	168	174	174	27
Economic old-age dependency ratio (15-64) (5)	47	48	51	54	57	61	67	74	80	86	86	39
Economic old-age dependency ratio (15-74) (6)	46	47	49	52	55	58	63	70	76	81	82	36

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

3. THE CZECH REPUBLIC

Czech Republik	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,52	1,55	1,63	1,68	1,72	1,75	1,77	1,78	1,79	1,80	1,80	0,3
Life expectancy at birth												
men	75,1	75,5	76,5	77,4	78,3	79,2	80,1	80,9	81,7	82,5	83,3	8,2
women	81,2	81,5	82,3	83,1	83,8	84,5	85,3	85,9	86,6	87,3	87,9	6,7
Life expectancy at 65												
men	15,7	15,9	16,6	17,2	17,8	18,4	19,0	19,6	20,1	20,7	21,2	5,5
women	19,2	19,4	20,0	20,6	21,2	21,8	22,4	22,9	23,5	24,0	24,5	5,3
Net migration (thousand)	-1,3	23,3	28,0	31,5	35,8	37,8	40,7	33,9	25,5	23,1	21,2	22,5
Net migration as % of population	0,0	0,2	0,3	0,3	0,3	0,3	0,4	0,3	0,2	0,2	0,2	0,2
Population (million)	10,5	10,5	10,7	10,7	10,8	10,8	10,9	11,0	11,1	11,1	11,1	0,6
Children population (0-14) as % of total population	14,9	15,3	16,0	15,3	14,7	14,3	14,7	15,3	15,8	15,7	15,4	0,5
Prime age population (25-54) as % of total population	43,3	43,3	42,5	40,7	38,0	36,1	35,5	35,0	34,6	35,0	35,3	-8,0
Working age population (15-64) as % of total population	68,0	66,6	63,8	63,3	63,0	62,7	60,6	58,0	56,7	56,2	56,4	-11,6
Elderly population (65 and over) as % of total population	17,1	18,1	20,2	21,4	22,3	23,0	24,7	26,7	27,5	28,1	28,2	11,1
Very elderly population (80 and over) as % of total population	3,9	4,0	4,2	5,1	6,6	7,7	7,9	8,0	8,4	9,9	11,5	7,6
Very elderly population (80 and over) as % of elderly population	22,8	21,9	20,7	23,8	29,7	33,4	31,8	30,1	30,7	35,3	40,8	18,0
Very elderly population (80 and over) as % of working age population	5,7	5,9	6,5	8,0	10,5	12,2	13,0	13,9	14,8	17,7	20,4	14,7

Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	0,5	1,3	1,6	1,7	1,9	1,6	1,6	1,6	1,5	1,6	1,7	1,6
Employment (growth rate)	-0,1	0,2	-0,3	-0,2	0,1	-0,1	-0,1	-0,2	-0,2	0,0	0,2	-0,1
Labour input : hours worked (growth rate)	-0,4	0,1	-0,2	-0,2	0,1	-0,1	-0,1	-0,2	-0,2	0,0	0,2	-0,1
Labour productivity per hour (growth rate)	0,9	1,2	1,8	1,9	1,9	1,8	1,8	1,8	1,7	1,6	1,5	1,7
TFP (growth rate)	0,4	0,9	1,2	1,3	1,2	1,1	1,1	1,1	1,1	1,0	1,0	1,1
Capital deepening (contribution to labour productivity growth)	0,4	0,3	0,6	0,6	0,7	0,6	0,6	0,6	0,6	0,6	0,5	0,6
GDP per capita (growth rate)	0,4	1,1	1,4	1,6	1,8	1,5	1,4	1,4	1,4	1,6	1,8	1,5
GDP per worker (growth rate)	0,6	1,1	1,9	1,9	1,9	1,8	1,7	1,8	1,7	1,6	1,5	1,7
GDP in 2013 prices (in millions euros)	149,5	153,1	164,4	178,7	196,0	213,8	231,4	250,9	270,2	291,5	316,5	

Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	7149	7028	6801	6797	6797	6788	6619	6388	6285	6235	6247	-902
Population growth (working age:15-64)	-1,1	-0,8	-0,5	0,3	-0,1	-0,1	-0,8	-0,6	-0,3	-0,1	0,3	1,3
Population (20-64) (in thousands)	6656	6569	6314	6190	6209	6208	6063	5854	5734	5641	5634	-1021
Population growth (20-64)	-0,7	-0,7	-0,7	-0,1	0,0	-0,1	-0,8	-0,6	-0,4	-0,2	0,3	0,9
Labour force 15-64 (thousands)	5215	5176	5075	5002	4982	4940	4830	4748	4696	4655	4680	-535
Labour force 20-64 (thousands)	5186	5150	5049	4971	4949	4908	4799	4719	4667	4623	4647	-539
Participation rate (20-64)	77,9	78,4	80,0	80,3	79,7	79,1	79,2	80,6	81,4	82,0	82,5	4,6
Participation rate (15-74)	64,4	64,2	64,2	64,1	64,5	64,2	63,7	63,6	64,4	65,7	66,4	2,0
Participation rate (15-64)	72,9	73,6	74,6	73,6	73,3	72,8	73,0	74,3	74,7	74,7	74,9	2,0
young (15-24)	31,7	32,3	28,5	26,4	29,4	29,5	29,9	29,9	28,8	28,1	28,6	-3,2
prime-age (25-54)	89,0	89,1	89,3	89,4	89,1	88,5	88,0	87,8	88,1	88,4	88,5	-0,5
older (55-64)	55,1	54,5	58,0	61,4	65,9	67,1	68,0	72,8	74,8	75,5	78,3	23,3
Participation rate (20-64) - WOMEN	69,5	70,1	72,2	72,7	72,4	71,7	71,9	73,7	74,8	75,4	76,0	6,5
Participation rate (15-74) - WOMEN	56,5	56,5	56,9	57,2	57,9	57,7	57,4	57,7	58,8	60,3	61,1	4,5
Participation rate (15-64) - WOMEN	65,1	65,8	67,3	66,6	66,5	66,0	66,3	68,0	68,6	68,7	69,0	3,9
young (15-24)	26,3	26,8	23,6	21,8	24,3	24,4	24,8	24,8	23,9	23,3	23,7	-2,7
prime-age (25-54)	81,9	82,1	82,4	82,6	82,3	81,2	80,3	79,9	80,2	80,9	81,2	-0,6
older (55-64)	44,5	43,6	48,1	52,3	58,1	60,1	62,7	69,7	72,5	73,3	76,0	31,6
Participation rate (20-64) - MEN	86,1	86,5	87,6	87,6	86,8	86,2	86,1	87,2	87,8	88,2	88,7	2,6
Participation rate (15-74) - MEN	72,3	72,0	71,5	70,9	71,1	70,7	69,9	69,5	70,0	71,0	71,7	-0,6
Participation rate (15-64) - MEN	80,6	81,2	81,7	80,3	79,8	79,3	79,4	80,5	80,6	80,4	80,6	0,0
young (15-24)	36,9	37,5	33,2	30,8	34,2	34,3	34,8	34,8	33,6	32,7	33,2	-3,6
prime-age (25-54)	95,8	95,9	95,9	95,9	95,6	95,4	95,4	95,4	95,5	95,6	95,5	-0,3
older (55-64)	66,4	66,0	68,2	70,6	73,7	74,2	73,4	75,9	77,0	77,8	80,6	14,2
Employment rate (15-64)	67,8	68,8	69,9	69,2	68,9	68,4	68,6	69,8	70,2	70,2	70,4	2,6
Employment rate (20-64)	72,6	73,4	75,0	75,6	75,1	74,4	74,5	75,9	76,6	77,2	77,7	5,1
Employment rate (15-74)	59,9	60,1	60,2	60,3	60,7	60,5	60,0	60,0	60,7	61,9	62,6	2,7
Unemployment rate (15-64)	7,0	6,6	6,3	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	-1,0
Unemployment rate (20-64)	6,8	6,4	6,2	5,8	5,8	5,8	5,8	5,8	5,8	5,8	5,8	-1,0
Unemployment rate (15-74)	7,0	6,5	6,2	5,9	5,9	5,9	5,8	5,8	5,8	5,7	5,7	-1,2
Employment (20-64) (in millions)	4,8	4,8	4,7	4,7	4,7	4,6	4,5	4,4	4,4	4,4	4,4	-0,5
Employment (15-64) (in millions)	4,8	4,8	4,8	4,7	4,7	4,6	4,5	4,5	4,4	4,4	4,4	-0,4
share of young (15-24)	6%	6%	5%	5%	6%	6%	6%	6%	6%	6%	7%	1%
share of prime-age (25-54)	78%	79%	80%	79%	74%	71%	71%	72%	72%	74%	74%	-4%
share of older (55-64)	16%	15%	15%	16%	20%	23%	23%	22%	22%	20%	19%	3%

Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	20,3	19,8	19,1	19,2	21,7	24,6	23,8	22,1	21,3	19,0	17,8	-2,5
Old-age dependency ratio (2)	25	27	32	34	35	37	41	46	48	50	50	25
Total dependency ratio (3)	47	50	57	58	59	60	65	72	76	78	77	30
Total economic dependency ratio (4)	113	114	119	122	123	125	128	132	136	137	136	23
Economic old-age dependency ratio (15-64) (5)	35	38	43	46	48	50	54	59	62	64	64	29
Economic old-age dependency ratio (15-74) (6)	35	37	42	45	47	48	51	56	59	60	60	26

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

4. DENMARK

Denmark	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,74	1,75	1,78	1,80	1,81	1,82	1,83	1,84	1,85	1,85	1,86	0,1
Life expectancy at birth												
men	78,2	78,5	79,3	80,0	80,8	81,5	82,2	82,9	83,5	84,2	84,8	6,6
women	82,1	82,5	83,2	84,0	84,7	85,5	86,2	86,8	87,5	88,1	88,7	6,5
Life expectancy at 65												
men	17,5	17,7	18,3	18,8	19,3	19,8	20,3	20,8	21,3	21,8	22,2	4,7
women	20,2	20,5	21,1	21,6	22,2	22,8	23,3	23,8	24,3	24,8	25,3	5,1
Net migration (thousand)	21,2	17,1	18,9	19,4	19,9	18,0	16,3	13,7	10,5	10,1	10,0	-11,2
Net migration as % of population	0,4	0,3	0,3	0,3	0,3	0,3	0,3	0,2	0,2	0,2	0,2	-0,2
Population (million)	5,6	5,7	5,8	5,9	6,1	6,2	6,3	6,4	6,4	6,5	6,5	0,9
Children population (0-14) as % of total population	17,3	17,0	16,6	16,4	16,9	17,2	17,1	16,7	16,5	16,4	16,5	-0,8
Prime age population (25-54) as % of total population	39,4	39,2	38,4	37,5	36,8	36,9	37,2	36,9	36,4	36,0	35,8	-3,7
Working age population (15-64) as % of total population	64,6	64,3	63,4	62,5	60,7	59,4	59,0	59,3	59,9	59,8	58,9	-5,7
Elderly population (65 and over) as % of total population	18,0	18,7	20,0	21,1	22,4	23,4	24,0	24,0	23,6	23,8	24,6	6,6
Very elderly population (80 and over) as % of total population	4,2	4,3	4,8	5,9	7,0	7,5	7,9	8,7	9,3	9,7	9,7	5,5
Very elderly population (80 and over) as % of elderly population	23,1	22,7	23,8	27,8	31,5	32,2	33,1	36,1	39,5	40,8	39,2	16,2
Very elderly population (80 and over) as % of working age population	6,4	6,6	7,5	9,4	11,6	12,7	13,4	14,6	15,6	16,3	16,4	10,0
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	0,6	1,2	2,1	2,0	1,7	1,7	1,8	1,9	1,9	1,8	1,7	1,8
Employment (growth rate)	-0,3	0,4	0,7	0,4	0,1	0,1	0,2	0,4	0,3	0,3	0,1	0,3
Labour input : hours worked (growth rate)	-0,4	0,3	0,6	0,4	0,1	0,1	0,2	0,4	0,3	0,3	0,1	0,3
Labour productivity per hour (growth rate)	1,0	0,8	1,4	1,6	1,6	1,5	1,5	1,5	1,5	1,5	1,5	1,5
TFP (growth rate)	0,7	0,7	0,9	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Capital deepening (contribution to labour productivity growth)	0,3	0,2	0,5	0,6	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
GDP per capita (growth rate)	0,2	0,8	1,6	1,5	1,2	1,3	1,5	1,7	1,7	1,6	1,5	1,4
GDP per worker (growth rate)	0,9	0,8	1,4	1,6	1,6	1,5	1,5	1,5	1,5	1,5	1,5	1,5
GDP in 2013 prices (in millions euros)	249,1	254,4	279,3	309,8	338,0	367,2	400,1	438,6	481,8	528,0	575,4	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	3629	3639	3670	3704	3685	3678	3706	3771	3849	3875	3854	226
Population growth (working age:15-64)	0,1	0,1	0,2	0,1	-0,2	0,2	0,2	0,4	0,3	0,0	-0,2	-0,2
Population (20-64) (in thousands)	3271	3289	3329	3357	3362	3340	3345	3399	3478	3509	3494	223
Population growth (20-64)	0,1	0,3	0,2	0,2	-0,1	0,0	0,1	0,4	0,4	0,0	-0,1	-0,3
Labour force 15-64 (thousands)	2837	2864	2927	2963	2957	2957	2978	3030	3091	3110	3099	262
Labour force 20-64 (thousands)	2649	2680	2749	2781	2787	2780	2789	2835	2896	2918	2910	260
Participation rate (20-64)	81,0	81,5	82,6	82,8	82,9	83,2	83,4	83,4	83,3	83,2	83,3	2,3
Participation rate (15-74)	68,6	68,8	70,1	71,3	71,4	71,2	71,5	72,3	73,2	73,5	73,2	4,6
Participation rate (15-64)	78,2	78,7	79,8	80,0	80,2	80,4	80,3	80,4	80,3	80,3	80,4	2,2
young (15-24)	61,9	62,4	62,4	62,2	62,7	62,0	61,9	62,1	62,2	62,3	62,3	0,4
prime-age (25-54)	87,5	87,4	87,1	87,1	87,0	87,0	87,0	87,0	86,9	86,9	86,9	-0,6
older (55-64)	65,3	67,9	74,2	75,7	76,2	76,7	76,8	77,6	77,9	77,8	78,0	12,7
Participation rate (20-64) - WOMEN	77,9	78,5	80,3	80,8	80,9	81,3	81,5	81,7	81,6	81,5	81,7	3,8
Participation rate (15-74) - WOMEN	65,6	65,7	67,5	68,9	68,9	68,7	69,2	70,2	71,3	71,9	71,7	6,2
Participation rate (15-64) - WOMEN	75,7	76,2	77,9	78,4	78,6	78,9	78,9	79,1	79,0	79,0	79,2	3,5
young (15-24)	62,5	63,0	62,9	62,8	63,2	62,6	62,5	62,7	62,8	62,8	62,8	0,4
prime-age (25-54)	84,9	84,9	84,8	85,0	85,0	85,1	85,2	85,2	85,1	85,1	85,1	0,2
older (55-64)	60,1	62,5	71,5	73,5	73,8	74,5	74,7	75,8	76,4	76,4	76,8	16,6
Participation rate (20-64) - MEN	84,0	84,4	84,8	84,9	84,9	85,1	85,1	85,0	84,8	84,7	84,8	0,8
Participation rate (15-74) - MEN	71,6	71,8	72,6	73,6	73,8	73,6	73,8	74,4	75,1	75,1	74,6	2,9
Participation rate (15-64) - MEN	80,7	81,1	81,6	81,6	81,9	81,9	81,7	81,6	81,5	81,5	81,6	0,9
young (15-24)	61,3	61,9	61,9	61,7	62,2	61,4	61,3	61,5	61,7	61,7	61,7	0,5
prime-age (25-54)	90,2	89,9	89,4	89,2	89,0	88,8	88,8	88,7	88,6	88,6	88,7	-1,5
older (55-64)	70,6	73,3	77,0	78,0	78,6	79,1	79,0	79,3	79,3	79,1	79,3	8,7
Employment rate (15-64)	72,6	73,5	75,4	76,0	76,3	76,4	76,4	76,4	76,4	76,3	76,5	3,9
Employment rate (20-64)	75,7	76,5	78,4	79,1	79,1	79,5	79,6	79,7	79,5	79,4	79,5	3,9
Employment rate (15-74)	63,8	64,3	66,3	67,9	68,0	67,9	68,2	69,0	69,8	70,1	69,9	6,1
Unemployment rate (15-64)	7,2	6,6	5,5	5,0	4,9	4,9	4,9	4,9	4,9	4,9	4,9	-2,3
Unemployment rate (20-64)	6,5	6,0	5,1	4,6	4,6	4,5	4,5	4,5	4,5	4,5	4,5	-2,1
Unemployment rate (15-74)	7,0	6,4	5,4	4,8	4,7	4,7	4,6	4,6	4,6	4,6	4,5	-2,5
Employment (20-64) (in millions)	2,5	2,5	2,6	2,7	2,7	2,7	2,7	2,7	2,8	2,8	2,8	0,3
Employment (15-64) (in millions)	2,6	2,7	2,8	2,8	2,8	2,8	2,8	2,9	2,9	3,0	2,9	0,3
share of young (15-24)	15%	15%	14%	14%	14%	14%	14%	15%	15%	14%	14%	0%
share of prime-age (25-54)	69%	68%	67%	66%	66%	66%	69%	68%	66%	66%	66%	-3%
share of older (55-64)	16%	17%	19%	20%	20%	19%	17%	17%	19%	20%	20%	3%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	19,1	19,1	20,0	20,9	20,6	19,3	17,6	17,8	19,6	20,4	20,1	1,0
Old-age dependency ratio (2)	28	29	32	34	37	39	41	40	39	40	42	14
Total dependency ratio (3)	55	56	58	60	65	68	70	69	67	67	70	15
Total economic dependency ratio (4)	108	106	103	102	105	108	109	108	106	105	105	-3
Economic old-age dependency ratio (15-64) (5)	36	37	39	40	43	46	47	47	46	45	46	10
Economic old-age dependency ratio (15-74) (6)	35	36	37	39	41	43	44	44	43	43	43	8

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

5. GERMANY

Table III.5.1:

Germany	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,40	1,42	1,45	1,48	1,51	1,53	1,56	1,58	1,60	1,61	1,63	0,2
Life expectancy at birth												
men	78,5	78,8	79,6	80,4	81,1	81,9	82,6	83,2	83,9	84,5	85,2	6,7
women	83,2	83,5	84,2	84,8	85,5	86,1	86,8	87,4	87,9	88,5	89,1	5,9
Life expectancy at 65												
men	18,0	18,2	18,7	19,3	19,8	20,3	20,8	21,3	21,8	22,2	22,7	4,7
women	21,0	21,2	21,7	22,2	22,7	23,2	23,7	24,2	24,7	25,1	25,6	4,6
Net migration (thousand)	-1127,0	242,3	228,7	229,8	220,2	181,9	142,6	138,5	119,3	121,1	97,9	1224,9
Net migration as % of population	-1,4	0,3	0,3	0,3	0,3	0,2	0,2	0,2	0,2	0,2	0,1	1,5
Population (million)	81,3	80,7	80,6	80,3	79,7	78,8	77,7	76,2	74,5	72,7	70,8	-10,5
Children population (0-14) as % of total population	13,0	12,8	12,8	13,0	13,0	12,8	12,6	12,5	12,7	12,9	13,1	0,2
Prime age population (25-54) as % of total population	42,1	41,5	38,7	36,2	35,6	35,1	34,3	33,4	33,3	33,1	33,1	-9,0
Working age population (15-64) as % of total population	66,1	65,6	64,0	61,9	59,0	56,7	56,2	56,0	55,5	54,7	54,6	-11,5
Elderly population (65 and over) as % of total population	21,0	21,6	23,2	25,2	28,1	30,6	31,2	31,5	31,8	32,4	32,3	11,3
Very elderly population (80 and over) as % of total population	5,5	5,9	7,4	8,0	8,2	9,1	10,6	12,7	14,2	13,8	13,4	7,9
Very elderly population (80 and over) as % of elderly population	26,3	27,2	32,0	31,8	29,2	29,8	33,9	40,4	44,5	42,8	41,5	15,2
Very elderly population (80 and over) as % of working age population	8,3	9,0	11,6	13,0	13,9	16,1	18,9	22,7	25,6	25,3	24,5	16,2
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	1,4	1,5	1,2	1,0	0,7	0,8	1,0	1,0	0,9	0,9	0,9	1,0
Employment (growth rate)	1,0	0,7	-0,3	-0,7	-0,8	-0,7	-0,5	-0,5	-0,6	-0,7	-0,6	-0,5
Labour input : hours worked (growth rate)	0,7	0,5	-0,4	-0,7	-0,8	-0,7	-0,5	-0,5	-0,6	-0,7	-0,6	-0,6
Labour productivity per hour (growth rate)	0,7	1,0	1,6	1,6	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5
TFP (growth rate)	0,7	0,8	0,9	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Capital deepening (contribution to labour productivity growth)	0,0	0,3	0,6	0,7	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
GDP per capita (growth rate)	2,1	1,5	1,2	1,1	0,9	1,0	1,4	1,4	1,4	1,4	1,5	1,3
GDP per worker (growth rate)	0,4	0,8	1,5	1,6	1,5	1,5	1,5	1,5	1,6	1,6	1,6	1,5
GDP in 2013 prices (in millions euros)	2737,6	2820,9	2980,4	3133,6	3258,8	3379,3	3539,6	3728,8	3910,5	4085,3	4272,0	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	53732	52933	51626	49665	46999	44687	43668	42704	41353	39773	38664	-15068
Population growth (working age:15-64)	-0,9	-0,3	-0,6	-0,9	-1,1	-0,8	-0,3	-0,6	-0,7	-0,8	-0,5	0,4
Population (20-64) (in thousands)	49738	48985	47960	46116	43407	41014	40066	39238	38008	36505	35424	-14313
Population growth (20-64)	-0,8	-0,4	-0,5	-1,0	-1,3	-0,9	-0,3	-0,5	-0,7	-0,8	-0,5	0,3
Labour force 15-64 (thousands)	41758	41449	40665	39168	37190	35630	34918	34114	33005	31771	30860	-10898
Labour force 20-64 (thousands)	40594	40287	39573	38128	36143	34552	33855	33090	32018	30810	29910	-10684
Participation rate (20-64)	81,6	82,2	82,5	82,7	83,3	84,2	84,5	84,3	84,2	84,4	84,4	2,8
Participation rate (15-74)	68,0	68,9	69,4	68,3	67,1	66,5	67,7	69,2	68,9	68,2	68,0	0,0
Participation rate (15-64)	77,7	78,3	78,8	78,9	79,1	79,7	80,0	79,9	79,8	79,9	79,8	2,1
young (15-24)	51,0	50,5	51,1	50,5	50,0	49,9	50,3	50,5	50,5	50,3	50,1	-0,9
prime-age (25-54)	87,7	88,0	88,5	88,9	89,3	89,6	89,6	89,6	89,5	89,5	89,6	1,9
older (55-64)	67,6	69,8	71,9	72,6	72,5	74,5	76,0	76,4	75,9	76,2	76,1	8,5
Participation rate (20-64) - WOMEN	76,2	77,1	77,8	78,4	79,5	80,9	81,3	81,2	81,2	81,3	81,3	5,1
Participation rate (15-74) - WOMEN	62,8	63,8	64,7	64,0	63,2	62,9	64,3	66,0	65,7	65,1	64,9	2,2
Participation rate (15-64) - WOMEN	72,6	73,4	74,3	74,8	75,6	76,5	76,9	76,9	76,8	76,9	76,8	4,2
young (15-24)	48,9	48,5	49,1	48,5	47,9	47,9	48,3	48,5	48,4	48,3	48,1	-0,8
prime-age (25-54)	82,4	82,9	83,9	84,7	85,4	85,8	85,9	85,8	85,8	85,8	85,8	3,4
older (55-64)	60,8	63,3	66,1	67,8	68,9	71,9	73,9	74,5	74,2	74,5	74,4	13,6
Participation rate (20-64) - MEN	86,9	87,3	87,1	86,8	86,9	87,5	87,6	87,3	87,2	87,4	87,4	0,5
Participation rate (15-74) - MEN	73,3	73,9	74,0	72,6	70,9	69,9	70,9	72,4	72,1	71,3	71,0	-2,2
Participation rate (15-64) - MEN	82,7	83,1	83,1	82,8	82,6	82,9	82,9	82,8	82,7	82,8	82,7	0,0
young (15-24)	53,0	52,4	53,0	52,5	51,9	51,8	52,2	52,5	52,4	52,2	52,0	-0,9
prime-age (25-54)	92,7	92,8	92,9	93,0	93,1	93,2	93,2	93,1	93,1	93,1	93,2	0,4
older (55-64)	74,6	76,4	77,7	77,4	76,1	77,2	78,2	78,3	77,7	77,9	77,7	3,1
Employment rate (15-64)	73,5	74,3	75,1	74,6	74,9	75,4	75,7	75,6	75,5	75,6	75,5	2,0
Employment rate (20-64)	77,3	78,1	78,7	78,3	78,9	79,8	80,0	79,9	79,8	79,9	80,0	2,7
Employment rate (15-74)	64,4	65,5	66,2	64,8	63,7	63,0	64,2	65,7	65,4	64,7	64,5	0,1
Unemployment rate (15-64)	5,4	5,1	4,7	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	0,0
Unemployment rate (20-64)	5,3	5,0	4,6	5,3	5,3	5,3	5,3	5,3	5,3	5,3	5,3	0,0
Unemployment rate (15-74)	5,3	5,0	4,6	5,2	5,2	5,1	5,2	5,2	5,2	5,2	5,2	-0,2
Employment (20-64) (in millions)	38,4	38,3	37,7	36,1	34,2	32,7	32,1	31,3	30,3	29,2	28,3	-10,1
Employment (15-64) (in millions)	39,5	39,3	38,8	37,1	35,2	33,7	33,0	32,3	31,2	30,1	29,2	-10,3
share of young (15-24)	10%	10%	10%	9%	10%	10%	10%	10%	10%	10%	10%	0%
share of prime-age (25-54)	72%	71%	68%	66%	68%	70%	69%	67%	68%	68%	68%	-4%
share of older (55-64)	17%	19%	22%	24%	22%	20%	21%	22%	22%	22%	21%	4%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	20,1	21,2	24,5	26,5	24,1	21,4	22,0	23,4	23,3	22,6	22,2	2,1
Old-age dependency ratio (2)	32	33	36	41	48	54	56	56	57	59	59	27
Total dependency ratio (3)	51	52	56	62	70	76	78	79	80	83	83	32
Total economic dependency ratio (4)	102	101	101	107	114	120	123	125	126	128	130	28
Economic old-age dependency ratio (15-64) (5)	41	42	45	50	57	65	68	69	70	72	73	31
Economic old-age dependency ratio (15-74) (6)	40	41	43	47	54	61	65	66	67	68	69	28

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

6. ESTONIA

Estonia	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,57	1,60	1,67	1,71	1,75	1,77	1,79	1,81	1,81	1,82	1,82	0,3
Life expectancy at birth												
men	71,6	72,1	73,3	74,5	75,7	76,9	77,9	79,0	80,0	81,0	81,9	10,4
women	81,3	81,6	82,5	83,3	84,1	84,9	85,6	86,3	87,0	87,6	88,3	7,0
Life expectancy at 65												
men	14,9	15,2	15,9	16,5	17,2	17,9	18,5	19,2	19,8	20,4	21,0	6,1
women	20,1	20,3	20,9	21,5	22,0	22,6	23,1	23,6	24,1	24,6	25,1	5,0
Net migration (thousand)	-2,7	-3,1	-3,7	-3,6	-2,2	0,6	0,6	0,6	0,6	0,4	0,0	2,7
Net migration as % of population	-0,2	-0,2	-0,3	-0,3	-0,2	0,1	0,1	0,1	0,1	0,0	0,0	0,2
Population (million)	1,3	1,3	1,3	1,2	1,2	1,2	1,2	1,1	1,1	1,1	1,1	-0,2
Children population (0-14) as % of total population	15,8	16,1	16,6	15,6	14,7	14,1	14,3	15,0	15,6	15,6	15,2	-0,6
Prime age population (25-54) as % of total population	41,6	41,6	40,1	38,0	36,1	35,5	34,6	33,1	33,1	34,1	34,5	-7,0
Working age population (15-64) as % of total population	66,0	65,0	62,8	61,8	61,0	60,4	58,9	57,3	55,6	54,2	54,9	-11,1
Elderly population (65 and over) as % of total population	18,2	18,9	20,6	22,6	24,3	25,5	26,8	27,7	28,8	30,2	29,9	11,7
Very elderly population (80 and over) as % of total population	4,8	5,1	6,1	6,3	7,2	8,2	9,3	10,0	10,4	11,1	11,8	7,0
Very elderly population (80 and over) as % of elderly population	26,4	26,8	29,4	28,1	29,5	32,3	34,7	36,2	36,2	36,8	39,4	12,9
Very elderly population (80 and over) as % of working age population	7,3	7,8	9,6	10,2	11,7	13,6	15,8	17,5	18,7	20,5	21,5	14,2

Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	2,1	2,8	2,0	1,7	1,5	1,4	1,2	1,1	0,9	1,0	1,4	1,5
Employment (growth rate)	0,4	0,9	-0,7	-0,8	-0,5	-0,5	-0,6	-0,8	-0,9	-0,6	-0,2	-0,6
Labour input : hours worked (growth rate)	0,3	0,9	-0,7	-0,8	-0,5	-0,5	-0,6	-0,8	-0,9	-0,6	-0,2	-0,6
Labour productivity per hour (growth rate)	1,9	1,9	2,7	2,5	2,0	1,9	1,9	1,9	1,8	1,7	1,5	2,0
TFP (growth rate)	0,6	1,0	1,3	1,4	1,3	1,2	1,2	1,2	1,2	1,1	1,0	1,2
Capital deepening (contribution to labour productivity growth)	1,3	1,0	1,4	1,1	0,7	0,7	0,7	0,7	0,6	0,6	0,5	0,8
GDP per capita (growth rate)	2,5	3,2	2,5	2,3	2,1	1,7	1,5	1,4	1,2	1,4	1,8	1,9
GDP per worker (growth rate)	1,8	1,9	2,7	2,5	2,1	1,9	1,9	1,9	1,8	1,7	1,5	2,0
GDP in 2013 prices (in millions euros)	18,4	19,4	21,8	23,7	25,6	27,5	29,4	31,1	32,6	34,2	36,4	

Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	870	850	805	769	735	711	684	656	629	603	599	-272
Population growth (working age:15-64)	-1,1	-1,1	-1,1	-0,9	-0,8	-0,7	-0,8	-0,8	-0,8	-0,7	0,2	1,3
Population (20-64) (in thousands)	808	791	742	694	666	646	625	602	573	544	538	-270
Population growth (20-64)	-0,8	-1,1	-1,4	-1,2	-0,6	-0,7	-0,7	-0,8	-1,0	-1,0	0,2	1,0
Labour force 15-64 (thousands)	655	646	613	580	559	542	523	503	480	460	458	-197
Labour force 20-64 (thousands)	649	640	607	573	553	536	517	498	475	454	452	-197
Participation rate (20-64)	80,3	80,9	81,8	82,6	82,9	82,9	82,8	82,7	82,8	83,6	84,0	3,6
Participation rate (15-74)	68,4	68,8	67,5	66,2	66,3	66,7	66,7	66,3	65,0	65,0	65,8	-2,7
Participation rate (15-64)	75,3	75,9	76,1	75,5	76,1	76,3	76,5	76,7	76,4	76,3	76,4	1,2
young (15-24)	40,4	40,6	35,4	33,4	37,3	37,7	38,5	38,2	36,7	35,8	36,4	-4,0
prime-age (25-54)	87,6	87,7	88,7	89,4	89,7	89,6	89,2	89,3	89,6	89,7	89,7	2,1
older (55-64)	66,6	66,3	67,4	70,0	73,5	73,8	74,2	74,2	72,6	72,8	74,8	8,2
Participation rate (20-64) - WOMEN	76,4	76,9	78,9	80,1	80,5	80,4	80,0	79,8	79,9	80,7	81,2	4,8
Participation rate (15-74) - WOMEN	64,1	64,5	63,5	62,7	63,2	63,6	63,5	63,1	62,6	61,9	62,8	-1,4
Participation rate (15-64) - WOMEN	71,8	72,4	73,6	73,4	74,1	74,2	74,1	74,1	73,8	73,8	74,0	2,2
young (15-24)	37,7	37,6	32,7	31,0	34,5	34,9	35,6	35,4	34,0	33,2	33,7	-3,9
prime-age (25-54)	82,9	83,3	84,8	86,0	86,7	86,5	85,8	85,4	85,7	86,3	86,5	3,6
older (55-64)	66,3	65,4	68,7	71,7	74,3	74,0	74,5	74,7	73,2	73,2	75,4	9,2
Participation rate (20-64) - MEN	84,4	85,1	84,9	85,1	85,3	85,5	85,5	85,6	85,7	86,4	86,6	2,2
Participation rate (15-74) - MEN	73,1	73,5	71,9	69,9	69,6	69,9	70,0	69,6	68,2	68,2	68,8	-4,4
Participation rate (15-64) - MEN	78,8	79,5	78,7	77,5	78,0	78,4	78,8	79,2	78,9	78,8	78,7	-0,1
young (15-24)	42,9	43,4	37,8	35,7	40,0	40,3	41,2	40,9	39,2	38,3	38,9	-4,0
prime-age (25-54)	92,3	92,1	92,4	92,8	92,7	92,5	92,6	93,1	93,2	93,0	92,8	0,5
older (55-64)	67,0	67,3	65,8	68,0	72,5	73,6	73,9	73,8	72,1	72,2	74,2	7,1
Employment rate (15-64)	68,6	70,2	70,2	69,2	70,0	70,4	70,8	70,9	70,7	70,6	70,7	2,1
Employment rate (20-64)	73,4	75,0	75,7	75,9	76,5	76,7	76,8	76,7	76,8	77,6	77,9	4,5
Employment rate (15-74)	62,5	63,8	62,4	60,8	61,1	61,7	61,9	61,5	61,0	60,4	61,0	-1,5
Unemployment rate (15-64)	8,8	7,5	7,8	8,3	8,0	7,7	7,5	7,5	7,5	7,5	7,5	-1,4
Unemployment rate (20-64)	8,6	7,3	7,6	8,1	7,8	7,5	7,3	7,3	7,3	7,2	7,2	-1,4
Unemployment rate (15-74)	8,6	7,3	7,6	8,1	7,8	7,5	7,3	7,2	7,2	7,2	7,2	-1,4
Employment (20-64) (in millions)	0,6	0,6	0,6	0,5	0,5	0,5	0,5	0,5	0,4	0,4	0,4	-0,2
Employment (15-64) (in millions)	0,6	0,6	0,6	0,5	0,5	0,5	0,5	0,5	0,4	0,4	0,4	-0,2
share of young (15-24)	8%	8%	6%	7%	9%	8%	8%	8%	8%	8%	9%	0%
share of prime-age (25-54)	74%	74%	75%	73%	70%	69%	69%	68%	70%	74%	74%	1%
share of older (55-64)	18%	18%	19%	20%	21%	22%	23%	25%	22%	18%	17%	-1%

Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	19,6	20,2	21,1	20,8	21,5	22,3	23,1	24,7	22,8	18,0	16,9	-2,7
Old-age dependency ratio (2)	28	29	33	36	40	42	45	48	52	56	54	27
Total dependency ratio (3)	51	54	59	62	64	66	70	75	80	84	82	31
Total economic dependency ratio (4)	112	110	117	123	123	124	127	133	140	145	145	33
Economic old-age dependency ratio (15-64) (5)	36	37	42	48	52	55	59	62	67	72	72	36
Economic old-age dependency ratio (15-74) (6)	34	35	41	46	50	52	55	59	63	68	68	34

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

7. IRELAND

Table III.7.1:

Ireland	**EC-EPC (AWG) 2015 projections**										
Main demographic and macroeconomic assumptions											

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	2,01	2,01	2,01	2,00	2,00	2,00	1,99	1,99	1,99	1,98	1,98	0,0
Life expectancy at birth												
men	78,7	79,0	79,8	80,5	81,3	82,0	82,6	83,3	83,9	84,6	85,2	6,4
women	83,0	83,3	84,1	84,8	85,5	86,2	86,8	87,5	88,1	88,7	89,2	6,2
Life expectancy at 65												
men	18,1	18,3	18,8	19,3	19,8	20,3	20,8	21,3	21,7	22,2	22,6	4,5
women	21,0	21,2	21,8	22,3	22,9	23,4	23,9	24,4	24,9	25,4	25,8	4,8
Net migration (thousand)	-32,4	-31,8	-30,3	-21,7	-12,1	-3,0	4,8	11,3	16,7	15,9	15,1	47,5
Net migration as % of population	-0,7	-0,7	-0,7	-0,5	-0,3	-0,1	0,1	0,2	0,3	0,3	0,3	1,0
Population (million)	4,6	4,6	4,6	4,6	4,6	4,6	4,7	4,8	5,0	5,1	5,3	0,7
Children population (0-14) as % of total population	21,9	22,0	21,6	19,6	17,5	16,8	17,5	18,8	19,4	19,2	18,5	-3,4
Prime age population (25-54) as % of total population	43,6	42,4	39,1	36,9	35,1	34,2	34,2	35,6	36,9	37,2	37,6	-6,0
Working age population (15-64) as % of total population	65,7	64,9	63,4	63,3	63,1	61,9	59,3	56,7	55,7	57,4	60,1	-5,6
Elderly population (65 and over) as % of total population	12,4	13,1	15,0	17,1	19,4	21,4	23,1	24,5	24,9	23,4	21,4	9,0
Very elderly population (80 and over) as % of total population	2,9	3,1	3,5	4,2	5,3	6,2	7,1	7,9	8,7	9,5	10,2	7,3
Very elderly population (80 and over) as % of elderly population	23,7	23,6	23,6	24,7	27,2	29,1	30,6	32,5	34,9	40,6	47,8	24,2
Very elderly population (80 and over) as % of working age population	4,5	4,8	5,6	6,7	8,4	10,1	11,9	14,0	15,6	16,6	17,0	12,6
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	0,5	2,0	1,4	1,4	1,8	1,7	1,4	1,4	1,9	2,5	2,7	1,7
Employment (growth rate)	0,2	1,6	0,0	0,0	0,3	0,2	-0,2	-0,2	0,3	0,9	1,2	0,3
Labour input : hours worked (growth rate)	0,6	2,2	0,0	-0,1	0,3	0,2	-0,2	-0,1	0,4	0,9	1,2	0,3
Labour productivity per hour (growth rate)	-0,1	-0,2	1,4	1,4	1,6	1,5	1,5	1,5	1,5	1,5	1,5	1,4
TFP (growth rate)	0,0	0,2	0,8	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	0,9
Capital deepening (contribution to labour productivity growth)	-0,1	-0,3	0,6	0,4	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
GDP per capita (growth rate)	0,4	1,9	1,5	1,5	1,8	1,4	0,9	0,8	1,3	1,9	2,2	1,4
GDP per worker (growth rate)	0,3	0,5	1,4	1,4	1,6	1,5	1,6	1,6	1,6	1,5	1,5	1,4
GDP in 2013 prices (in millions euros)	164,1	169,5	181,3	193,9	210,9	230,6	249,2	266,5	289,5	323,7	369,0	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	3017	2990	2923	2893	2876	2844	2784	2739	2775	2943	3156	139
Population growth (working age:15-64)	-0,6	-0,5	-0,5	-0,1	-0,2	-0,3	-0,4	-0,3	0,7	1,4	1,3	1,9
Population (20-64) (in thousands)	2737	2695	2616	2551	2535	2541	2522	2481	2486	2618	2808	71
Population growth (20-64)	-0,8	-0,7	-0,6	-0,5	0,1	0,0	-0,4	-0,4	0,4	1,3	1,3	2,2
Labour force 15-64 (thousands)	2104	2075	2009	1958	1943	1940	1915	1885	1908	2016	2151	47
Labour force 20-64 (thousands)	2059	2026	1957	1902	1883	1886	1869	1841	1859	1962	2092	33
Participation rate (20-64)	75,2	75,2	74,8	74,6	74,3	74,2	74,1	74,2	74,8	74,9	74,5	-0,7
Participation rate (15-74)	64,3	63,7	62,5	61,5	61,1	61,3	61,4	61,0	60,9	62,0	63,5	-0,7
Participation rate (15-64)	69,7	69,4	68,8	67,7	67,6	68,2	68,8	68,8	68,7	68,5	68,2	-1,6
young (15-24)	39,9	39,2	40,4	39,4	41,5	43,7	44,2	42,6	40,9	40,8	41,4	1,5
prime-age (25-54)	80,7	80,6	80,2	80,0	79,6	78,9	78,7	78,8	78,6	78,6	78,5	-2,2
older (55-64)	57,3	58,7	61,8	63,2	65,3	66,9	66,0	62,7	62,7	65,0	64,6	7,3
Participation rate (20-64) - WOMEN	67,2	67,6	68,2	68,7	68,9	69,1	68,8	68,4	68,8	69,1	68,8	1,6
Participation rate (15-74) - WOMEN	57,3	57,2	56,9	56,6	56,7	56,9	56,8	56,0	55,5	56,4	58,3	1,1
Participation rate (15-64) - WOMEN	62,7	62,8	63,1	62,7	63,1	63,8	64,1	63,7	63,4	63,3	63,1	0,5
young (15-24)	38,7	37,9	38,9	38,0	40,1	42,1	42,6	41,0	39,4	39,3	39,9	1,2
prime-age (25-54)	72,5	72,7	73,1	73,7	73,7	72,8	72,0	71,8	71,7	71,8	71,9	-0,6
older (55-64)	47,0	49,6	54,6	56,6	59,9	62,9	63,5	60,4	59,4	61,4	61,1	14,1
Participation rate (20-64) - MEN	83,4	83,0	81,6	80,6	79,7	79,4	79,5	79,9	80,6	80,5	79,8	-3,6
Participation rate (15-74) - MEN	71,3	70,3	68,2	66,4	65,6	65,7	66,0	66,0	66,3	67,4	68,5	-2,9
Participation rate (15-64) - MEN	76,9	76,2	74,5	72,7	72,1	72,6	73,5	73,8	73,9	73,4	72,9	-4,0
young (15-24)	41,0	40,4	41,7	40,8	42,8	45,1	45,8	44,1	42,3	42,1	42,8	1,7
prime-age (25-54)	89,2	88,8	87,6	86,5	85,6	85,0	85,1	85,2	85,0	84,8	84,7	-4,5
older (55-64)	67,7	68,0	69,3	70,0	71,1	71,1	69,0	65,6	66,3	68,5	68,0	0,3
Employment rate (15-64)	60,4	62,3	61,8	61,6	62,0	63,1	64,1	64,1	64,1	63,8	63,5	3,1
Employment rate (20-64)	65,6	67,8	67,6	68,2	68,5	68,9	69,3	69,3	69,9	70,0	69,6	4,1
Employment rate (15-74)	55,8	57,3	56,3	56,1	56,3	56,9	57,4	57,0	56,9	57,9	59,3	3,4
Unemployment rate (15-64)	13,3	10,2	10,2	9,0	8,2	7,4	6,8	6,8	6,8	6,8	6,8	-6,5
Unemployment rate (20-64)	12,8	9,8	9,7	8,6	7,8	7,1	6,6	6,6	6,5	6,5	6,5	-6,3
Unemployment rate (15-74)	13,1	10,0	9,9	8,7	7,9	7,1	6,5	6,5	6,5	6,6	6,6	-6,4
Employment (20-64) (in millions)	1,8	1,8	1,8	1,7	1,7	1,8	1,7	1,7	1,7	1,8	2,0	0,2
Employment (15-64) (in millions)	1,8	1,9	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,9	2,0	0,2
share of young (15-24)	9%	9%	11%	12%	13%	14%	13%	11%	11%	12%	13%	4%
share of prime-age (25-54)	78%	77%	73%	70%	66%	65%	66%	72%	76%	75%	73%	-5%
share of older (55-64)	13%	14%	17%	18%	20%	22%	21%	16%	12%	13%	15%	2%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	15,8	16,3	18,0	19,3	20,5	21,7	21,5	17,6	13,2	13,4	15,4	-0,4
Old-age dependency ratio (2)	19	20	24	27	31	35	39	43	45	41	36	17
Total dependency ratio (3)	52	54	58	58	58	62	69	76	79	74	66	14
Total economic dependency ratio (4)	146	141	146	145	142	141	146	156	163	161	153	7
Economic old-age dependency ratio (15-64) (5)	29	30	35	39	44	48	54	60	63	59	53	24
Economic old-age dependency ratio (15-74) (6)	28	29	33	37	42	46	50	56	59	57	51	23

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

8. GREECE

Table III.8.1:

Greece	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,34	1,36	1,39	1,42	1,45	1,47	1,49	1,52	1,54	1,56	1,58	0,2
Life expectancy at birth												
men	78,0	78,3	79,2	80,0	80,8	81,5	82,2	82,9	83,6	84,3	84,9	6,9
women	83,3	83,6	84,2	84,9	85,5	86,1	86,7	87,3	87,9	88,5	89,0	5,7
Life expectancy at 65												
men	18,0	18,3	18,8	19,3	19,8	20,3	20,8	21,3	21,8	22,2	22,7	4,7
women	20,8	21,0	21,5	22,0	22,6	23,1	23,6	24,0	24,5	25,0	25,4	4,6
Net migration (thousand)	-15,9	-21,3	-22,3	-17,1	-10,0	-3,3	1,3	6,0	7,3	5,9	4,7	20,6
Net migration as % of population	-0,1	-0,2	-0,2	-0,2	-0,1	0,0	0,0	0,1	0,1	0,1	0,1	0,2
Population (million)	11,0	11,0	10,7	10,4	10,1	9,8	9,6	9,3	9,1	8,8	8,6	-2,5
Children population (0-14) as % of total population	14,6	14,5	14,0	13,0	12,3	12,1	12,3	12,7	12,9	12,9	12,9	-1,8
Prime age population (25-54) as % of total population	42,6	42,1	40,6	38,3	36,2	34,6	33,3	32,9	32,8	33,1	33,3	-9,3
Working age population (15-64) as % of total population	65,1	64,7	63,9	63,2	61,9	59,6	57,0	54,6	53,2	53,4	54,2	-10,9
Elderly population (65 and over) as % of total population	20,3	20,8	22,1	23,8	25,8	28,4	30,7	32,7	33,9	33,7	33,0	12,7
Very elderly population (80 and over) as % of total population	5,8	6,2	7,1	7,3	8,1	8,9	10,1	11,3	12,9	14,2	15,3	9,5
Very elderly population (80 and over) as % of elderly population	28,7	30,0	31,9	30,6	31,5	31,5	32,9	34,5	38,1	42,1	46,5	17,8
Very elderly population (80 and over) as % of working age population	8,9	9,6	11,0	11,5	13,1	15,0	17,7	20,7	24,3	26,6	28,3	19,3
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	-3,5	-2,8	0,1	0,6	1,5	2,0	1,1	1,0	0,9	1,1	1,1	0,7
Employment (growth rate)	-2,3	-2,2	1,0	0,4	0,2	0,0	-0,9	-1,0	-0,9	-0,6	-0,5	-0,4
Labour input : hours worked (growth rate)	-1,7	-1,7	1,0	0,4	0,2	0,0	-0,9	-1,0	-0,9	-0,6	-0,5	-0,3
Labour productivity per hour (growth rate)	-1,8	-1,1	-0,9	0,2	1,3	2,0	2,0	2,0	1,9	1,7	1,5	1,0
TFP (growth rate)	-1,4	-0,9	-0,2	0,3	0,8	1,3	1,3	1,3	1,2	1,1	1,0	0,7
Capital deepening (contribution to labour productivity growth)	-0,4	-0,2	-0,8	-0,1	0,4	0,7	0,7	0,7	0,7	0,6	0,5	0,3
GDP per capita (growth rate)	-3,1	-2,4	0,6	1,2	2,0	2,5	1,6	1,5	1,5	1,7	1,8	1,2
GDP per worker (growth rate)	-1,3	-0,6	-0,9	0,2	1,3	2,0	2,0	2,0	1,9	1,7	1,5	1,1
GDP in 2013 prices (in millions euros)	182,1	171,6	163,5	167,9	177,1	194,2	211,2	222,6	233,5	245,3	258,8	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	7190	7085	6818	6548	6233	5840	5460	5107	4849	4723	4639	-2551
Population growth (working age:15-64)	-0,9	-0,8	-0,8	-0,8	-1,1	-1,4	-1,3	-1,3	-0,7	-0,5	-0,3	0,6
Population (20-64) (in thousands)	6645	6545	6286	5988	5732	5388	5044	4703	4441	4306	4226	-2419
Population growth (20-64)	-0,9	-0,8	-0,9	-1,0	-0,8	-1,3	-1,3	-1,4	-0,8	-0,5	-0,3	0,6
Labour force 15-64 (thousands)	4871	4909	4901	4761	4579	4355	4120	3876	3685	3574	3500	-1371
Labour force 20-64 (thousands)	4827	4866	4858	4718	4537	4318	4086	3844	3652	3541	3467	-1361
Participation rate (20-64)	72,6	74,3	77,3	78,8	79,1	80,1	81,0	81,7	82,2	82,2	82,0	9,4
Participation rate (15-74)	59,4	60,7	62,4	63,1	63,4	63,9	64,1	64,6	64,9	65,8	66,9	7,5
Participation rate (15-64)	67,7	69,3	71,9	72,7	73,5	74,6	75,5	75,9	76,0	75,7	75,4	7,7
young (15-24)	30,8	30,9	30,0	29,3	31,2	31,8	31,4	30,9	30,4	30,2	30,6	-0,3
prime-age (25-54)	84,0	85,1	86,4	87,1	87,8	88,2	88,3	88,3	88,4	88,3	88,1	4,1
older (55-64)	42,4	47,4	59,4	66,4	69,4	72,0	74,5	75,9	77,2	77,7	78,0	35,5
Participation rate (20-64) - WOMEN	62,8	65,0	68,7	71,1	72,0	73,5	74,6	75,6	76,3	76,3	76,1	13,3
Participation rate (15-74) - WOMEN	50,9	52,5	54,9	56,2	57,0	57,8	58,1	59,0	59,6	60,6	61,6	10,7
Participation rate (15-64) - WOMEN	58,7	60,6	64,0	65,7	66,9	68,4	69,5	70,2	70,5	70,2	69,9	11,3
young (15-24)	27,6	27,9	27,0	26,3	28,1	28,7	28,3	27,9	27,4	27,2	27,6	-0,1
prime-age (25-54)	74,4	76,3	78,9	80,5	81,7	82,3	82,4	82,6	82,7	82,6	82,4	8,0
older (55-64)	30,8	35,3	46,9	55,5	59,1	62,6	66,2	68,3	69,9	70,4	70,7	39,9
Participation rate (20-64) - MEN	82,6	83,8	85,9	86,5	86,2	86,6	87,2	87,6	88,0	87,9	87,7	5,2
Participation rate (15-74) - MEN	68,2	69,1	70,1	70,1	70,0	70,1	70,0	70,2	70,2	70,9	72,0	3,9
Participation rate (15-64) - MEN	76,9	78,0	79,8	79,7	79,9	80,6	81,2	81,4	81,3	81,0	80,7	3,9
young (15-24)	33,9	33,7	32,8	32,0	34,1	34,6	34,3	33,8	33,2	33,0	33,4	-0,4
prime-age (25-54)	93,6	93,9	93,7	93,6	93,4	93,4	93,6	93,8	93,8	93,7	93,5	-0,1
older (55-64)	55,1	60,6	73,2	78,3	80,3	81,8	83,0	83,5	84,6	85,0	85,2	30,1
Employment rate (15-64)	48,7	52,7	56,0	60,2	63,4	66,9	69,8	70,2	70,3	70,0	69,8	21,1
Employment rate (20-64)	52,6	56,8	60,5	65,4	68,4	72,0	75,0	75,7	76,2	76,2	76,0	23,4
Employment rate (15-74)	42,9	46,2	48,8	52,4	54,9	57,5	59,5	60,0	60,3	61,1	62,1	19,2
Unemployment rate (15-64)	28,0	24,0	22,1	17,2	13,7	10,3	7,5	7,5	7,5	7,5	7,5	-20,6
Unemployment rate (20-64)	27,7	23,7	21,7	17,0	13,5	10,1	7,4	7,4	7,4	7,4	7,4	-20,3
Unemployment rate (15-74)	27,9	23,8	21,8	16,9	13,4	9,9	7,2	7,1	7,1	7,1	7,2	-20,7
Employment (20-64) (in millions)	3,5	3,7	3,8	3,9	3,9	3,9	3,8	3,6	3,4	3,3	3,2	-0,3
Employment (15-64) (in millions)	3,5	3,7	3,8	3,9	3,9	3,9	3,8	3,6	3,4	3,3	3,2	-0,3
share of young (15-24)	4%	5%	4%	5%	6%	6%	6%	6%	6%	7%	7%	2%
share of prime-age (25-54)	82%	81%	77%	73%	70%	68%	68%	70%	72%	72%	72%	-11%
share of older (55-64)	13%	15%	19%	22%	24%	26%	26%	24%	22%	21%	22%	8%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	18,5	19,1	20,6	22,6	24,4	25,3	25,4	23,3	21,0	20,0	20,2	1,7
Old-age dependency ratio (2)	31	32	35	38	42	48	54	60	64	63	61	30
Total dependency ratio (3)	54	55	57	58	61	68	75	83	88	87	85	31
Total economic dependency ratio (4)	211	189	174	155	144	137	135	141	146	148	147	-64
Economic old-age dependency ratio (15-64) (5)	62	59	60	59	61	65	70	77	82	82	80	17
Economic old-age dependency ratio (15-74) (6)	62	59	58	57	59	61	65	71	75	76	74	13

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

9. SPAIN

Table III.9.1:

Spain	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,32	1,34	1,36	1,39	1,42	1,44	1,46	1,48	1,51	1,53	1,55	0,2
Life expectancy at birth												
men	79,5	79,8	80,5	81,2	81,9	82,5	83,2	83,8	84,4	85,0	85,5	6,0
women	85,2	85,4	86,0	86,6	87,1	87,6	88,1	88,6	89,1	89,6	90,0	4,8
Life expectancy at 65												
men	18,6	18,8	19,3	19,7	20,2	20,7	21,1	21,6	22,0	22,4	22,9	4,3
women	22,5	22,7	23,1	23,5	24,0	24,4	24,8	25,2	25,6	26,0	26,3	3,8
Net migration (thousand)	-310,9	-83,3	-79,0	6,4	87,5	159,7	225,2	269,0	305,6	290,3	275,0	585,9
Net migration as % of population	-0,7	-0,2	-0,2	0,0	0,2	0,4	0,5	0,6	0,7	0,6	0,6	1,3
Population (million)	46,6	46,3	45,7	45,0	44,5	44,4	44,7	45,1	45,6	45,9	46,1	-0,5
Children population (0-14) as % of total population	15,2	15,2	14,4	12,9	11,7	11,4	11,9	12,7	13,3	13,4	13,4	-1,8
Prime age population (25-54) as % of total population	45,7	44,7	41,9	38,8	36,0	33,9	33,3	33,8	34,6	35,4	35,8	-9,9
Working age population (15-64) as % of total population	66,9	66,3	65,4	64,7	63,0	60,3	57,1	54,2	53,4	54,6	56,5	-10,4
Elderly population (65 and over) as % of total population	17,9	18,6	20,1	22,4	25,3	28,2	31,0	33,1	33,3	32,0	30,0	12,1
Very elderly population (80 and over) as % of total population	5,6	5,9	6,2	6,8	7,7	8,5	9,8	11,3	12,7	14,0	14,9	9,4
Very elderly population (80 and over) as % of elderly population	31,1	31,8	30,8	30,1	30,3	30,2	31,6	34,1	38,2	43,8	49,7	18,6
Very elderly population (80 and over) as % of working age population	8,3	8,9	9,5	10,5	12,2	14,1	17,2	20,8	23,8	25,7	26,4	18,1
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	-0,4	-0,1	1,7	1,7	1,7	1,6	0,8	0,9	1,5	2,0	2,2	1,4
Employment (growth rate)	-1,9	-1,4	0,9	0,5	0,3	0,0	-0,7	-0,6	-0,1	0,4	0,7	0,0
Labour input : hours worked (growth rate)	-1,8	-1,3	0,9	0,5	0,3	0,0	-0,7	-0,6	-0,1	0,4	0,7	0,0
Labour productivity per hour (growth rate)	1,4	1,2	0,7	1,2	1,4	1,5	1,5	1,5	1,5	1,5	1,5	1,4
TFP (growth rate)	0,6	0,6	0,7	0,8	0,9	1,0	1,0	1,0	1,0	1,0	1,0	0,9
Capital deepening (contribution to labour productivity growth)	0,8	0,6	0,0	0,4	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
GDP per capita (growth rate)	-0,1	0,0	2,0	2,0	1,9	1,5	0,6	0,7	1,2	1,8	2,1	1,4
GDP per worker (growth rate)	1,4	1,3	0,8	1,1	1,4	1,5	1,6	1,6	1,5	1,5	1,5	1,4
GDP in 2013 prices (in millions euros)	1023,0	1018,4	1067,9	1173,8	1280,1	1388,0	1482,1	1544,7	1640,1	1791,5	1990,5	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	31165	30705	29918	29075	28016	26782	25488	24444	24366	25085	26069	-5095
Population growth (working age:15-64)	-1,0	-0,5	-0,5	-0,6	-0,9	-0,9	-1,0	-0,6	0,3	0,7	0,8	1,8
Population (20-64) (in thousands)	29013	28543	27597	26588	25741	24776	23651	22613	22393	22922	23792	-5220
Population growth (20-64)	-1,0	-0,6	-0,7	-0,7	-0,7	-0,8	-1,0	-0,7	0,1	0,6	0,8	1,8
Labour force 15-64 (thousands)	23112	23047	22898	22437	21918	21195	20284	19488	19371	19845	20564	-2547
Labour force 20-64 (thousands)	22825	22765	22599	22109	21604	20919	20034	19244	19111	19560	20261	-2564
Participation rate (20-64)	78,7	79,8	81,9	83,2	83,9	84,4	84,7	85,1	85,3	85,3	85,2	6,5
Participation rate (15-74)	66,0	66,3	67,5	67,9	68,0	67,8	67,4	66,8	67,3	69,1	70,6	4,6
Participation rate (15-64)	74,2	75,1	76,5	77,2	78,2	79,1	79,6	79,7	79,5	79,1	78,9	4,7
young (15-24)	37,9	37,3	35,6	35,9	38,5	39,5	39,3	38,5	37,5	37,1	37,5	-0,4
prime-age (25-54)	86,9	87,7	89,0	89,7	89,8	89,6	89,5	89,6	89,7	89,7	89,6	2,7
older (55-64)	54,2	58,1	67,8	74,5	79,4	81,6	81,8	81,8	81,8	82,1	82,5	28,2
Participation rate (20-64) - WOMEN	72,4	74,5	78,6	81,2	82,8	83,9	84,4	84,7	84,9	84,9	84,8	12,4
Participation rate (15-74) - WOMEN	60,3	61,5	64,2	65,7	66,5	66,8	66,6	66,0	66,3	68,0	69,7	9,4
Participation rate (15-64) - WOMEN	68,4	70,2	73,5	75,4	77,2	78,7	79,3	79,3	78,9	78,6	78,4	10,0
young (15-24)	36,1	35,4	33,6	33,8	36,3	37,3	37,1	36,3	35,4	35,1	35,4	-0,6
prime-age (25-54)	81,3	83,0	86,1	88,1	88,8	88,6	88,3	88,4	88,6	88,7	88,7	7,4
older (55-64)	45,0	50,3	63,2	71,9	78,4	82,7	84,4	84,7	84,7	85,1	85,5	40,5
Participation rate (20-64) - MEN	84,8	84,9	85,2	85,1	85,0	84,9	85,0	85,5	85,8	85,7	85,5	0,6
Participation rate (15-74) - MEN	71,7	71,2	70,8	70,0	69,5	68,9	68,2	67,6	68,2	70,1	71,4	-0,3
Participation rate (15-64) - MEN	79,9	79,8	79,5	78,9	79,2	79,6	79,9	80,2	80,1	79,6	79,3	-0,5
young (15-24)	39,6	39,1	37,6	37,8	40,5	41,5	41,4	40,5	39,4	39,1	39,5	-0,1
prime-age (25-54)	92,5	92,3	91,8	91,3	90,8	90,6	90,7	90,8	90,7	90,6	90,5	-2,0
older (55-64)	63,9	66,3	72,5	77,1	80,4	80,5	79,2	78,6	78,8	79,1	79,6	15,7
Employment rate (15-64)	54,5	57,0	61,6	65,6	68,6	71,5	73,6	73,8	73,6	73,2	73,0	18,5
Employment rate (20-64)	58,3	61,0	66,3	71,0	73,9	76,5	78,5	78,9	79,1	79,1	79,0	20,7
Employment rate (15-74)	48,6	50,5	54,5	57,9	59,9	61,6	62,6	62,1	62,5	64,1	65,5	16,9
Unemployment rate (15-64)	26,5	24,0	19,5	15,0	12,3	9,6	7,5	7,5	7,5	7,5	7,5	-19,0
Unemployment rate (20-64)	25,9	23,5	19,0	14,6	12,0	9,4	7,3	7,3	7,3	7,3	7,3	-18,6
Unemployment rate (15-74)	26,4	23,9	19,3	14,7	11,9	9,2	7,1	7,1	7,2	7,2	7,2	-19,1
Employment (20-64) (in millions)	16,9	17,4	18,3	18,9	19,0	19,0	18,6	17,8	17,7	18,1	18,8	1,9
Employment (15-64) (in millions)	17,0	17,5	18,4	19,1	19,2	19,2	18,8	18,0	17,9	18,4	19,0	2,0
share of young (15-24)	5%	5%	5%	6%	7%	7%	7%	7%	7%	8%	8%	3%
share of prime-age (25-54)	82%	80%	75%	70%	66%	64%	66%	70%	73%	74%	72%	-10%
share of older (55-64)	14%	15%	20%	23%	27%	29%	27%	23%	20%	19%	20%	6%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	17,1	18,1	20,9	23,3	25,5	27,2	25,7	21,7	18,6	17,6	18,7	1,6
Old-age dependency ratio (2)	27	28	31	35	40	47	54	61	62	59	53	26
Total dependency ratio (3)	50	51	53	55	59	66	75	85	87	83	77	27
Total economic dependency ratio (4)	172	162	143	127	120	118	122	132	139	138	132	-41
Economic old-age dependency ratio (15-64) (5)	48	48	48	49	53	59	66	75	78	75	68	20
Economic old-age dependency ratio (15-74) (6)	48	48	47	47	50	55	62	69	73	71	65	17

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

10. FRANCE

Table III.10.1:

France	EC-EPC (AWG) 2015 projections										

Main demographic and macroeconomic assumptions

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	2,02	2,01	2,01	2,00	2,00	1,99	1,99	1,99	1,98	1,98	1,98	0,0
Life expectancy at birth												
men	78,6	79,0	79,8	80,5	81,3	82,0	82,7	83,4	84,0	84,6	85,2	6,6
women	85,0	85,2	85,8	86,4	87,0	87,5	88,1	88,6	89,1	89,6	90,0	5,1
Life expectancy at 65												
men	18,9	19,1	19,6	20,0	20,5	20,9	21,4	21,8	22,2	22,6	23,0	4,1
women	22,9	23,1	23,5	23,9	24,3	24,7	25,1	25,5	25,9	26,2	26,6	3,7
Net migration (thousand)	52,8	87,6	90,2	91,2	91,2	89,0	84,0	79,7	74,2	70,5	66,8	14,0
Net migration as % of population	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,0
Population (million)	65,7	66,3	67,8	69,2	70,5	71,8	72,9	73,7	74,4	75,0	75,7	9,9
Children population (0-14) as % of total population	18,5	18,4	18,1	17,8	17,7	17,6	17,6	17,5	17,4	17,3	17,2	-1,3
Prime age population (25-54) as % of total population	39,0	38,4	36,9	35,8	35,0	35,0	34,9	35,1	35,3	35,2	35,1	-3,9
Working age population (15-64) as % of total population	63,7	62,9	61,6	60,4	59,1	58,0	57,2	57,3	57,4	57,8	57,9	-5,7
Elderly population (65 and over) as % of total population	17,8	18,6	20,3	21,8	23,2	24,4	25,2	25,2	25,1	24,9	24,8	7,1
Very elderly population (80 and over) as % of total population	5,7	5,9	6,0	6,1	7,5	8,6	9,4	10,0	10,4	10,8	10,6	4,9
Very elderly population (80 and over) as % of elderly population	32,0	31,4	29,7	28,2	32,1	35,1	37,1	39,7	41,5	43,1	42,6	10,7
Very elderly population (80 and over) as % of working age population	8,9	9,3	9,8	10,2	12,6	14,7	16,4	17,5	18,1	18,6	18,3	9,4

Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	1,0	1,1	1,2	1,4	1,5	1,8	1,7	1,8	1,8	1,8	1,7	1,6
Employment (growth rate)	0,3	0,4	0,4	0,5	0,2	0,2	0,2	0,2	0,3	0,3	0,2	0,3
Labour input : hours worked (growth rate)	0,3	0,3	0,4	0,5	0,2	0,2	0,2	0,2	0,3	0,3	0,2	0,3
Labour productivity per hour (growth rate)	0,7	0,8	0,9	0,9	1,3	1,5	1,5	1,5	1,5	1,5	1,5	1,3
TFP (growth rate)	0,3	0,4	0,5	0,6	0,8	1,0	1,0	1,0	1,0	1,0	1,0	0,8
Capital deepening (contribution to labour productivity growth)	0,4	0,4	0,4	0,3	0,4	0,5	0,5	0,5	0,5	0,5	0,5	0,5
GDP per capita (growth rate)	0,6	0,6	0,8	1,0	1,1	1,4	1,4	1,6	1,6	1,6	1,6	1,3
GDP per worker (growth rate)	0,7	0,7	0,8	0,9	1,3	1,5	1,5	1,5	1,5	1,5	1,5	1,3
GDP in 2013 prices (in millions euros)	2059,9	2104,2	2237,9	2386,8	2561,7	2780,9	3039,0	3312,6	3621,9	3962,0	4323,1	

Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	41844	41755	41748	41775	41658	41646	41677	42197	42719	43318	43831	1987
Population growth (working age:15-64)	-0,2	-0,1	0,0	0,0	0,0	0,0	0,2	0,2	0,3	0,3	0,2	0,4
Population (20-64) (in thousands)	37865	37689	37605	37590	37510	37440	37456	37903	38356	38925	39437	1572
Population growth (20-64)	-0,3	-0,2	0,0	0,0	-0,1	0,0	0,2	0,2	0,3	0,3	0,2	0,5
Labour force 15-64 (thousands)	29729	29673	30026	30472	30507	30515	30700	31055	31471	31910	32253	2524
Labour force 20-64 (thousands)	29137	29065	29400	29842	29885	29881	30067	30412	30816	31250	31592	2455
Participation rate (20-64)	76,9	77,1	78,2	79,4	79,7	79,8	80,3	80,2	80,3	80,3	80,1	3,2
Participation rate (15-74)	63,0	62,4	61,7	62,7	63,0	63,0	63,3	63,8	64,3	64,3	64,3	1,3
Participation rate (15-64)	71,0	71,1	71,9	72,9	73,2	73,3	73,7	73,6	73,7	73,7	73,6	2,5
young (15-24)	37,7	37,9	38,4	38,6	38,7	38,5	38,6	38,4	38,4	38,5	38,6	0,9
prime-age (25-54)	88,4	88,4	88,6	88,6	88,5	88,5	88,5	88,5	88,5	88,5	88,5	0,1
older (55-64)	49,2	49,7	55,4	61,5	63,0	62,4	63,6	63,0	63,4	63,7	63,4	14,2
Participation rate (20-64) - WOMEN	72,4	72,8	74,1	75,5	75,8	76,0	76,4	76,4	76,5	76,5	76,3	3,9
Participation rate (15-74) - WOMEN	58,9	58,4	57,9	59,0	59,4	59,4	59,7	60,1	60,6	60,7	60,8	1,9
Participation rate (15-64) - WOMEN	66,9	67,1	68,2	69,3	69,6	69,7	70,0	69,9	70,0	70,0	69,9	3,1
young (15-24)	34,1	34,2	34,5	34,7	34,9	34,7	34,7	34,5	34,5	34,6	34,7	0,6
prime-age (25-54)	83,5	83,8	84,3	84,4	84,4	84,3	84,2	84,2	84,2	84,2	84,2	0,7
older (55-64)	46,3	47,0	52,9	59,0	60,9	60,6	62,3	61,5	61,7	62,1	61,9	15,6
Participation rate (20-64) - MEN	81,6	81,5	82,3	83,4	83,5	83,6	84,1	84,1	84,1	84,0	83,7	2,1
Participation rate (15-74) - MEN	67,2	66,4	65,5	66,4	66,7	66,6	66,9	67,4	68,0	68,0	67,8	0,6
Participation rate (15-64) - MEN	75,3	75,1	75,7	76,6	76,8	76,8	77,2	77,2	77,3	77,2	77,1	1,8
young (15-24)	41,2	41,5	42,2	42,3	42,4	42,1	42,3	42,1	42,1	42,2	42,3	1,1
prime-age (25-54)	93,3	93,1	93,0	92,8	92,7	92,6	92,6	92,6	92,6	92,5	92,5	-0,8
older (55-64)	52,4	52,7	58,2	64,1	65,3	64,3	65,1	64,6	65,2	65,4	64,9	12,5
Employment rate (15-64)	63,9	63,8	65,0	66,1	66,8	67,4	68,2	68,1	68,2	68,1	68,1	4,1
Employment rate (20-64)	69,6	69,6	71,0	72,3	73,0	73,7	74,5	74,5	74,6	74,6	74,4	4,8
Employment rate (15-74)	56,7	56,0	55,8	56,8	57,6	58,0	58,7	59,1	59,6	59,6	59,6	2,9
Unemployment rate (15-64)	10,0	10,2	9,6	9,4	8,7	8,0	7,5	7,5	7,5	7,5	7,5	-2,5
Unemployment rate (20-64)	9,6	9,7	9,2	9,0	8,3	7,7	7,1	7,1	7,1	7,1	7,1	-2,4
Unemployment rate (15-74)	10,0	10,1	9,6	9,3	8,6	7,9	7,4	7,4	7,4	7,4	7,4	-2,6
Employment (20-64) (in millions)	26,4	26,2	26,7	27,2	27,4	27,6	27,9	28,2	28,6	29,0	29,3	3,0
Employment (15-64) (in millions)	26,8	26,6	27,1	27,6	27,8	28,1	28,4	28,7	29,1	29,5	29,8	3,1
share of young (15-24)	9%	9%	9%	9%	9%	9%	10%	9%	10%	10%	9%	1%
share of prime-age (25-54)	77%	77%	75%	73%	73%	74%	74%	74%	74%	74%	74%	-4%
share of older (55-64)	14%	14%	16%	18%	18%	17%	16%	16%	16%	17%	17%	3%

Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	19,8	19,8	20,2	20,5	20,4	19,4	18,5	18,3	18,1	18,6	19,1	-0,7
Old-age dependency ratio (2)	28	30	33	36	39	42	44	44	44	43	43	15
Total dependency ratio (3)	57	59	62	66	69	72	75	75	74	73	73	16
Total economic dependency ratio (4)	144	147	147	147	148	150	150	151	150	149	148	4
Economic old-age dependency ratio (15-64) (5)	43	45	50	53	57	60	62	62	62	61	61	18
Economic old-age dependency ratio (15-74) (6)	42	45	49	52	55	58	61	61	60	60	59	17

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

11. CROATIA

Croatia	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,53	1,54	1,56	1,57	1,59	1,61	1,62	1,63	1,65	1,66	1,67	0,1
Life expectancy at birth												
men	74,0	74,4	75,4	76,4	77,4	78,3	79,3	80,2	81,0	81,9	82,7	8,7
women	80,7	81,0	81,8	82,6	83,4	84,1	84,8	85,6	86,2	86,9	87,6	6,9
Life expectancy at 65												
men	15,0	15,3	15,9	16,6	17,2	17,8	18,5	19,1	19,7	20,3	20,8	5,8
women	18,7	19,0	19,6	20,2	20,8	21,4	22,0	22,5	23,1	23,6	24,2	5,5
Net migration (thousand)	2,3	2,1	2,4	2,9	3,5	3,5	4,6	5,5	5,7	5,1	4,8	2,5
Net migration as % of population	0,1	0,0	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Population (million)	4,3	4,2	4,2	4,1	4,1	4,0	4,0	3,9	3,8	3,8	3,7	-0,6
Children population (0-14) as % of total population	14,9	14,8	14,9	14,7	14,3	13,9	13,7	13,7	13,9	14,0	13,9	-0,9
Prime age population (25-54) as % of total population	41,1	40,6	39,5	38,9	37,9	36,8	35,8	35,3	34,9	34,4	34,5	-6,6
Working age population (15-64) as % of total population	66,9	66,4	64,4	62,7	61,4	60,6	59,9	58,9	57,7	56,9	56,5	-10,4
Elderly population (65 and over) as % of total population	18,3	18,9	20,7	22,6	24,2	25,4	26,3	27,4	28,4	29,1	29,6	11,3
Very elderly population (80 and over) as % of total population	4,4	4,7	5,3	5,5	6,2	7,4	8,7	9,5	9,9	10,3	11,1	6,7
Very elderly population (80 and over) as % of elderly population	23,9	24,9	25,8	24,2	25,5	29,3	32,9	34,5	34,8	35,4	37,5	13,7
Very elderly population (80 and over) as % of working age population	6,5	7,1	8,3	8,7	10,1	12,3	14,5	16,1	17,2	18,1	19,6	13,1
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	-0,3	0,6	1,5	1,1	1,5	2,1	1,8	1,6	1,4	1,2	1,0	1,4
Employment (growth rate)	-0,8	-0,2	0,1	-0,3	-0,3	-0,1	-0,4	-0,6	-0,6	-0,6	-0,5	-0,4
Labour input : hours worked (growth rate)	-0,8	-0,2	0,1	-0,3	-0,3	-0,1	-0,4	-0,6	-0,6	-0,6	-0,5	-0,4
Labour productivity per hour (growth rate)	0,5	0,8	1,4	1,5	1,8	2,2	2,2	2,2	2,0	1,8	1,5	1,7
TFP (growth rate)	-0,1	0,3	0,7	0,9	1,2	1,4	1,4	1,4	1,3	1,1	1,0	1,1
Capital deepening (contribution to labour productivity growth)	0,6	0,5	0,8	0,6	0,6	0,8	0,8	0,8	0,7	0,6	0,5	0,7
GDP per capita (growth rate)	0,1	0,7	1,8	1,3	1,6	2,0	1,8	1,9	1,9	2,0	1,8	1,7
GDP per worker (growth rate)	0,5	0,8	1,4	1,4	1,6	1,7	1,9	2,1	2,2	2,2	2,0	1,7
GDP in 2013 prices (in millions euros)	43,3	43,7	46,5	49,3	52,7	57,8	64,0	69,6	74,8	79,5	83,9	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	2847	2815	2700	2596	2507	2435	2369	2288	2204	2141	2090	-757
Population growth (working age:15-64)	-0,4	-0,6	-0,9	-0,7	-0,6	-0,5	-0,6	-0,8	-0,7	-0,5	-0,5	-0,1
Population (20-64) (in thousands)	2600	2574	2494	2380	2296	2228	2170	2098	2021	1959	1908	-692
Population growth (20-64)	-0,5	-0,5	-0,9	-0,9	-0,6	-0,4	-0,6	-0,8	-0,7	-0,5	-0,5	0,0
Labour force 15-64 (thousands)	1809	1798	1744	1675	1619	1581	1543	1491	1438	1398	1363	-445
Labour force 20-64 (thousands)	1780	1769	1719	1650	1594	1556	1520	1468	1417	1377	1342	-438
Participation rate (20-64)	68,5	68,7	68,9	69,3	69,4	69,8	70,0	70,0	70,1	70,3	70,3	1,9
Participation rate (15-74)	56,2	56,3	56,0	55,3	55,2	55,6	56,2	56,2	55,8	55,8	56,0	-0,2
Participation rate (15-64)	63,5	63,9	64,6	64,5	64,6	64,9	65,2	65,2	65,3	65,3	65,2	1,7
young (15-24)	28,7	31,4	33,8	31,6	32,3	32,4	32,7	32,8	32,7	32,4	32,3	3,6
prime-age (25-54)	81,0	80,3	80,1	80,1	80,1	79,7	79,5	79,6	79,7	79,9	79,8	-1,3
older (55-64)	41,4	43,2	44,5	44,6	45,8	49,4	52,5	51,7	51,0	51,4	50,9	9,5
Participation rate (20-64) - WOMEN	63,4	64,0	65,0	66,0	66,5	67,2	67,3	67,2	67,1	67,3	67,3	4,0
Participation rate (15-74) - WOMEN	51,2	51,6	52,0	51,9	52,2	52,8	53,4	53,5	53,1	53,1	53,3	2,1
Participation rate (15-64) - WOMEN	58,9	59,6	60,9	61,4	61,9	62,4	62,6	62,5	62,5	62,5	62,5	3,6
young (15-24)	24,0	26,2	27,4	25,7	26,3	26,3	26,6	26,6	26,6	26,3	26,2	2,2
prime-age (25-54)	77,9	77,6	77,8	78,1	78,1	77,7	77,1	77,1	77,1	77,3	77,2	-0,7
older (55-64)	32,7	35,7	39,9	41,4	44,0	48,7	52,4	51,6	50,5	50,7	50,2	17,4
Participation rate (20-64) - MEN	73,6	73,4	72,9	72,7	72,4	72,5	72,7	72,7	73,0	73,2	73,2	-0,4
Participation rate (15-74) - MEN	61,4	61,1	60,2	58,8	58,3	58,5	58,9	58,9	58,5	58,5	58,7	-2,8
Participation rate (15-64) - MEN	68,2	68,1	68,2	67,6	67,3	67,3	67,6	67,7	67,9	68,0	67,9	-0,3
young (15-24)	33,2	36,4	39,8	37,2	38,1	38,2	38,6	38,6	38,5	38,1	38,0	4,8
prime-age (25-54)	84,1	83,0	82,4	82,2	82,0	81,7	81,8	82,0	82,2	82,4	82,2	-1,9
older (55-64)	50,7	51,3	49,6	48,1	47,6	50,2	52,5	51,9	51,6	52,0	51,6	1,0
Employment rate (15-64)	52,3	52,4	55,9	56,9	57,9	59,2	60,3	60,3	60,4	60,4	60,4	8,1
Employment rate (20-64)	58,5	57,3	60,0	61,0	61,7	62,5	62,5	61,4	60,4	59,7	59,0	0,5
Employment rate (15-74)	47,7	46,6	48,3	48,5	48,9	49,7	50,2	49,4	48,4	47,7	47,5	-0,2
Unemployment rate (15-64)	17,8	18,0	13,5	11,9	10,3	8,7	7,5	7,5	7,5	7,5	7,5	-10,3
Unemployment rate (20-64)	14,5	16,6	13,0	12,0	11,1	10,6	10,7	12,2	13,8	15,1	16,1	1,6
Unemployment rate (15-74)	15,2	17,3	13,7	12,3	11,4	10,6	10,7	12,1	13,4	14,4	15,2	0,0
Employment (20-64) (in millions)	1,5	1,5	1,5	1,5	1,4	1,4	1,4	1,3	1,2	1,2	1,1	-0,4
Employment (15-64) (in millions)	1,5	1,5	1,5	1,5	1,5	1,4	1,4	1,4	1,3	1,3	1,3	-0,2
share of young (15-24)	5%	5%	6%	6%	7%	7%	7%	7%	7%	7%	7%	3%
share of prime-age (25-54)	80%	79%	77%	78%	77%	75%	73%	74%	75%	75%	75%	-5%
share of older (55-64)	15%	16%	16%	16%	16%	17%	19%	19%	18%	18%	17%	2%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	21,0	21,5	21,9	21,5	21,2	21,9	23,0	22,9	22,2	22,2	21,3	0,2
Old-age dependency ratio (2)	27	28	32	36	39	42	44	47	49	51	52	25
Total dependency ratio (3)	50	51	55	59	63	65	67	70	73	76	77	27
Total economic dependency ratio (4)	182	183	171	171	171	169	166	169	172	176	179	-2
Economic old-age dependency ratio (15-64) (5)	51	52	55	60	64	67	69	72	76	79	82	31
Economic old-age dependency ratio (15-74) (6)	50	52	53	58	62	65	66	69	72	75	78	28

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

12. ITALY

Italy	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,43	1,44	1,47	1,49	1,51	1,53	1,55	1,56	1,58	1,60	1,61	0,2
Life expectancy at birth												
men	79,8	80,1	80,8	81,4	82,1	82,7	83,3	83,9	84,4	85,0	85,5	5,7
women	84,7	84,9	85,5	86,1	86,6	87,2	87,7	88,2	88,7	89,2	89,7	5,1
Life expectancy at 65												
men	18,4	18,6	19,1	19,6	20,0	20,5	21,0	21,4	21,8	22,3	22,7	4,3
women	22,0	22,1	22,6	23,1	23,5	24,0	24,4	24,8	25,2	25,6	26,0	4,0
Net migration (thousand)	1135,5	310,6	348,1	368,4	382,4	367,7	335,9	277,8	214,8	206,9	196,4	-939,1
Net migration as % of population	1,9	0,5	0,6	0,6	0,6	0,6	0,5	0,4	0,3	0,3	0,3	-1,6
Population (million)	60,2	61,0	62,1	63,1	64,2	65,3	66,3	66,9	67,0	66,8	66,3	6,1
Children population (0-14) as % of total population	14,0	14,0	13,8	13,4	13,3	13,3	13,5	13,6	13,6	13,6	13,5	-0,5
Prime age population (25-54) as % of total population	42,4	41,9	40,1	38,0	36,4	35,7	35,6	35,4	35,0	34,8	34,5	-7,8
Working age population (15-64) as % of total population	64,8	64,4	63,8	63,0	61,4	59,4	57,6	56,7	56,5	56,5	56,5	-8,2
Elderly population (65 and over) as % of total population	21,2	21,6	22,4	23,5	25,3	27,3	28,9	29,7	29,9	29,9	30,0	8,8
Very elderly population (80 and over) as % of total population	6,3	6,5	7,1	7,4	8,1	8,6	9,3	10,6	11,9	12,9	13,1	6,8
Very elderly population (80 and over) as % of elderly population	29,8	30,1	31,8	31,3	31,9	31,4	32,2	35,6	39,9	43,2	43,8	14,1
Very elderly population (80 and over) as % of working age population	9,8	10,1	11,2	11,7	13,2	14,4	16,2	18,7	21,1	22,9	23,3	13,5
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	-0,4	0,1	1,3	1,1	1,3	1,6	1,5	1,5	1,6	1,6	1,5	1,3
Employment (growth rate)	-0,2	0,1	1,2	0,5	0,1	-0,1	-0,3	-0,2	0,0	0,0	0,0	0,1
Labour input : hours worked (growth rate)	-0,4	0,1	1,2	0,5	0,1	-0,1	-0,3	-0,2	0,0	0,0	0,0	0,1
Labour productivity per hour (growth rate)	0,0	0,0	0,1	0,6	1,2	1,7	1,7	1,7	1,7	1,6	1,5	1,2
TFP (growth rate)	-0,1	0,0	0,2	0,4	0,8	1,1	1,1	1,1	1,1	1,0	1,0	0,8
Capital deepening (contribution to labour productivity growth)	0,1	0,0	-0,1	0,2	0,4	0,6	0,6	0,6	0,6	0,6	0,5	0,4
GDP per capita (growth rate)	-1,6	-0,2	1,0	0,7	0,9	1,3	1,2	1,4	1,6	1,7	1,7	1,1
GDP per worker (growth rate)	-0,2	0,0	0,1	0,6	1,2	1,7	1,7	1,7	1,7	1,6	1,5	1,2
GDP in 2013 prices (in millions euros)	1560,0	1558,1	1628,2	1726,5	1831,9	1973,2	2132,6	2295,2	2485,2	2693,8	2908,3	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	38993	39305	39592	39787	39442	38809	38180	37914	37858	37723	37481	-1512
Population growth (working age:15-64)	0,8	0,0	0,1	0,0	-0,3	-0,3	-0,3	0,0	0,0	-0,1	-0,1	-0,9
Population (20-64) (in thousands)	36135	36403	36590	36651	36344	35764	35125	34811	34699	34520	34280	-1855
Population growth (20-64)	0,8	0,0	0,1	0,0	-0,3	-0,3	-0,4	-0,1	-0,1	-0,1	-0,1	-0,9
Labour force 15-64 (thousands)	24707	25092	25841	26089	25832	25373	24941	24757	24699	24594	24427	-280
Labour force 20-64 (thousands)	24493	24877	25619	25858	25599	25145	24715	24527	24466	24357	24189	-304
Participation rate (20-64)	67,8	68,3	70,0	70,6	70,4	70,3	70,4	70,5	70,5	70,6	70,6	2,8
Participation rate (15-74)	55,3	55,6	57,0	58,0	57,6	56,9	56,6	56,9	57,7	58,3	58,4	3,1
Participation rate (15-64)	63,4	63,8	65,3	65,6	65,5	65,4	65,3	65,3	65,2	65,2	65,2	1,8
young (15-24)	27,5	27,8	27,2	27,1	27,7	27,8	27,5	27,2	27,1	27,0	27,2	-0,3
prime-age (25-54)	77,1	77,1	76,9	76,3	75,5	74,9	74,7	74,8	74,8	74,7	74,7	-2,4
older (55-64)	45,4	48,4	58,6	64,2	66,7	67,5	67,7	67,6	68,1	68,6	69,0	23,6
Participation rate (20-64) - WOMEN	57,1	58,1	60,6	61,4	61,9	62,3	62,7	62,9	63,0	63,2	63,1	6,1
Participation rate (15-74) - WOMEN	46,0	46,7	48,8	50,0	49,8	49,5	49,8	50,5	51,4	52,1	52,2	6,2
Participation rate (15-64) - WOMEN	53,5	54,4	56,6	57,1	57,5	57,9	58,1	58,3	58,3	58,3	58,3	4,8
young (15-24)	23,5	24,0	23,4	23,3	23,9	24,0	23,8	23,5	23,4	23,3	23,5	-0,1
prime-age (25-54)	66,0	66,5	67,4	67,6	67,3	66,7	66,4	66,6	66,6	66,7	66,6	0,6
older (55-64)	34,6	38,0	48,7	53,2	56,7	59,3	61,0	61,4	61,9	62,6	62,9	28,3
Participation rate (20-64) - MEN	78,7	78,7	79,5	79,7	78,9	78,2	77,9	77,8	77,8	77,7	77,8	-0,9
Participation rate (15-74) - MEN	64,9	64,7	65,4	66,2	65,5	64,2	63,4	63,2	63,9	64,3	64,3	-0,5
Participation rate (15-64) - MEN	73,4	73,4	74,0	74,0	73,3	72,7	72,3	72,1	72,0	71,9	71,8	-1,5
young (15-24)	31,2	31,5	30,8	30,7	31,4	31,4	31,1	30,8	30,6	30,6	30,8	-0,4
prime-age (25-54)	88,3	87,7	86,4	84,9	83,5	82,7	82,6	82,6	82,6	82,6	82,5	-5,7
older (55-64)	56,9	59,5	69,1	75,8	77,0	75,9	74,4	73,8	74,0	74,4	75,0	18,0
Employment rate (15-64)	55,5	55,9	58,4	59,6	59,9	60,2	60,4	60,4	60,4	60,3	60,3	4,8
Employment rate (20-64)	59,7	60,1	62,9	64,3	64,6	64,9	65,3	65,4	65,4	65,5	65,5	5,8
Employment rate (15-74)	48,5	48,8	51,1	52,9	52,9	52,6	52,6	52,9	53,6	54,1	54,3	5,7
Unemployment rate (15-64)	12,4	12,5	10,6	9,2	8,6	8,0	7,5	7,5	7,5	7,5	7,5	-4,9
Unemployment rate (20-64)	12,0	12,1	10,2	8,8	8,2	7,6	7,2	7,2	7,2	7,2	7,2	-4,8
Unemployment rate (15-74)	12,2	12,3	10,4	8,8	8,2	7,5	7,1	7,1	7,1	7,1	7,0	-5,2
Employment (20-64) (in millions)	21,6	21,9	23,0	23,6	23,5	23,2	22,9	22,8	22,7	22,6	22,5	0,9
Employment (15-64) (in millions)	21,6	22,0	23,1	23,7	23,6	23,4	23,1	22,9	22,9	22,8	22,6	1,0
share of young (15-24)	5%	5%	5%	5%	5%	6%	6%	6%	6%	6%	6%	1%
share of prime-age (25-54)	81%	80%	75%	71%	69%	69%	71%	72%	71%	71%	70%	-10%
share of older (55-64)	15%	16%	21%	24%	26%	25%	23%	22%	23%	23%	24%	9%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	19,2	19,4	21,6	23,6	24,3	23,4	21,6	20,8	21,0	21,2	21,4	2,3
Old-age dependency ratio (2)	33	34	35	37	41	46	50	52	53	53	53	20
Total dependency ratio (3)	54	55	57	59	63	68	74	76	77	77	77	22
Total economic dependency ratio (4)	173	173	161	154	156	161	166	172	174	172	171	-3
Economic old-age dependency ratio (15-64) (5)	57	58	57	58	62	69	75	79	80	80	79	22
Economic old-age dependency ratio (15-74) (6)	56	57	56	55	59	64	70	74	75	74	73	17

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

13. CYPRUS

Table III.13.1:

Cyprus	EC-EPC (AWG) 2015 projections										

Main demographic and macroeconomic assumptions

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,40	1,41	1,44	1,47	1,50	1,52	1,54	1,56	1,58	1,60	1,62	0,2
Life expectancy at birth												
men	79,1	79,4	80,1	80,9	81,5	82,2	82,8	83,5	84,1	84,6	85,2	6,1
women	83,3	83,6	84,3	84,9	85,5	86,1	86,7	87,3	87,8	88,4	88,9	5,6
Life expectancy at 65												
men	18,3	18,5	18,9	19,4	19,9	20,3	20,8	21,2	21,7	22,1	22,5	4,2
women	20,8	20,9	21,4	21,9	22,4	22,9	23,4	23,8	24,3	24,7	25,2	4,4
Net migration (thousand)	-0,6	-0,5	-0,6	1,1	2,8	4,5	6,0	7,5	8,8	8,4	7,9	8,5
Net migration as % of population	-0,1	-0,1	-0,1	0,1	0,3	0,5	0,6	0,7	0,8	0,8	0,7	0,8
Population (million)	0,9	0,9	0,9	0,9	0,9	0,9	1,0	1,0	1,0	1,1	1,1	0,3
Children population (0-14) as % of total population	16,3	16,3	16,6	16,3	15,4	14,4	13,9	14,2	14,8	15,3	15,4	-0,9
Prime age population (25-54) as % of total population	44,3	44,4	43,9	42,5	40,8	39,5	37,9	36,9	36,4	36,7	37,1	-7,1
Working age population (15-64) as % of total population	70,2	69,3	67,0	65,2	64,0	63,7	63,0	61,7	59,7	58,2	57,7	-12,5
Elderly population (65 and over) as % of total population	13,4	14,3	16,3	18,5	20,5	21,9	23,1	24,1	25,5	26,4	26,8	13,4
Very elderly population (80 and over) as % of total population	3,0	3,2	3,8	4,5	5,6	6,5	7,4	8,1	8,5	8,9	9,5	6,5
Very elderly population (80 and over) as % of elderly population	22,2	22,0	23,2	24,1	27,2	29,6	32,1	33,7	33,3	33,6	35,3	13,1
Very elderly population (80 and over) as % of working age population	4,2	4,5	5,6	6,8	8,7	10,2	11,8	13,2	14,2	15,2	16,4	12,2
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	-2,0	-1,8	2,8	1,5	1,9	2,8	2,5	2,4	2,2	2,0	2,1	1,9
Employment (growth rate)	-2,6	-1,9	2,0	0,5	0,7	0,9	0,6	0,5	0,4	0,4	0,5	0,5
Labour input : hours worked (growth rate)	-2,4	-1,9	2,0	0,5	0,7	0,9	0,6	0,5	0,4	0,4	0,5	0,5
Labour productivity per hour (growth rate)	0,5	0,1	0,8	0,9	1,3	1,9	1,9	1,9	1,8	1,7	1,5	1,4
TFP (growth rate)	-0,3	-0,2	0,1	0,3	0,8	1,2	1,2	1,2	1,2	1,1	1,0	0,8
Capital deepening (contribution to labour productivity growth)	0,8	0,3	0,7	0,6	0,4	0,7	0,7	0,7	0,6	0,6	0,5	0,6
GDP per capita (growth rate)	-2,4	-2,2	2,5	1,1	1,6	2,3	1,9	1,6	1,3	1,2	1,4	1,3
GDP per worker (growth rate)	0,6	0,2	0,8	0,9	1,3	1,9	1,9	1,9	1,8	1,6	1,5	1,4
GDP in 2013 prices (in millions euros)	16,5	15,8	17,1	18,9	20,6	23,2	26,6	30,0	33,6	37,2	41,2	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	609	607	598	592	591	600	609	616	621	631	648	39
Population growth (working age:15-64)	0,0	-0,2	-0,3	-0,1	0,2	0,3	0,4	0,1	0,2	0,4	0,7	0,7
Population (20-64) (in thousands)	552	555	553	543	539	546	557	567	572	578	590	38
Population growth (20-64)	0,6	0,2	-0,3	-0,4	0,1	0,4	0,5	0,2	0,2	0,3	0,6	0,0
Labour force 15-64 (thousands)	444	454	464	460	459	464	474	483	489	497	509	65
Labour force 20-64 (thousands)	438	448	459	455	453	458	468	478	484	491	503	66
Participation rate (20-64)	79,2	80,6	83,0	83,8	84,0	84,0	84,1	84,2	84,6	84,9	85,2	6,0
Participation rate (15-74)	66,8	67,8	69,9	70,1	69,6	69,6	70,2	70,4	70,3	69,9	70,2	3,5
Participation rate (15-64)	72,9	74,8	77,6	77,7	77,7	77,5	77,9	78,4	78,8	78,7	78,6	5,7
young (15-24)	40,6	42,9	41,6	38,3	38,8	39,5	41,0	41,6	41,1	39,9	39,3	-1,2
prime-age (25-54)	87,7	88,0	89,2	89,3	89,5	89,5	89,6	89,6	89,8	89,8	89,7	2,0
older (55-64)	57,0	60,9	68,2	71,6	73,7	74,7	76,4	76,8	77,2	77,4	78,4	21,4
Participation rate (20-64) - WOMEN	72,7	74,1	77,3	78,4	78,8	78,8	79,1	79,3	79,9	80,3	80,7	8,0
Participation rate (15-74) - WOMEN	60,8	62,0	64,5	65,1	64,8	64,7	65,0	65,2	65,3	65,3	65,8	5,0
Participation rate (15-64) - WOMEN	66,9	68,8	72,3	72,8	72,9	72,7	73,1	73,7	74,1	74,1	74,1	7,1
young (15-24)	37,3	38,8	37,4	34,1	34,4	35,2	36,7	37,4	36,9	35,8	35,3	-2,0
prime-age (25-54)	82,0	82,6	84,5	84,7	85,1	85,2	85,3	85,4	85,6	85,6	85,5	3,5
older (55-64)	42,8	47,7	57,8	63,6	66,7	68,0	70,0	70,8	71,5	71,8	73,0	30,1
Participation rate (20-64) - MEN	86,3	87,6	89,1	89,5	89,5	89,3	89,1	89,0	89,1	89,4	89,7	3,4
Participation rate (15-74) - MEN	73,1	74,1	75,7	75,3	74,7	74,7	75,6	75,8	75,4	74,6	74,5	1,5
Participation rate (15-64) - MEN	79,3	81,1	83,2	82,9	82,7	82,4	82,7	83,1	83,3	83,2	83,0	3,8
young (15-24)	43,7	46,9	45,7	42,4	43,1	43,7	45,3	45,9	45,3	44,0	43,4	-0,3
prime-age (25-54)	94,0	94,0	94,2	94,1	94,0	93,8	93,6	93,7	93,8	93,9	93,9	-0,2
older (55-64)	71,5	74,6	79,3	80,8	82,2	82,7	83,5	83,0	82,8	82,8	83,6	12,1
Employment rate (15-64)	60,6	61,0	64,7	68,2	69,9	71,4	73,2	73,6	73,9	73,9	73,8	13,2
Employment rate (20-64)	66,3	66,3	69,6	73,8	75,8	77,6	79,1	79,2	79,6	79,9	80,2	13,9
Employment rate (15-74)	55,6	55,5	58,5	61,7	62,8	64,3	66,0	66,3	65,8	65,9	66,1	10,5
Unemployment rate (15-64)	16,9	18,4	16,6	12,3	10,1	7,8	6,1	6,1	6,1	6,1	6,1	-10,8
Unemployment rate (20-64)	16,3	17,8	16,2	11,9	9,7	7,6	5,9	5,9	5,9	5,9	5,9	-10,4
Unemployment rate (15-74)	16,7	18,2	16,4	12,0	9,8	7,6	5,9	5,9	5,8	5,8	5,8	-10,9
Employment (20-64) (in millions)	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,5	0,5	0,5	0,1
Employment (15-64) (in millions)	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,5	0,5	0,5	0,5	0,1
share of young (15-24)	8%	8%	6%	6%	7%	8%	9%	8%	8%	8%	8%	0%
share of prime-age (25-54)	79%	78%	77%	76%	74%	72%	70%	69%	70%	73%	74%	-4%
share of older (55-64)	13%	14%	17%	18%	18%	20%	22%	23%	22%	20%	18%	5%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	16,0	16,6	18,1	18,5	18,9	19,9	21,7	22,9	22,1	19,7	17,5	1,4
Old-age dependency ratio (2)	19	21	24	28	32	34	37	39	43	45	47	27
Total dependency ratio (3)	42	44	49	53	56	57	59	62	67	72	73	31
Total economic dependency ratio (4)	130	132	124	115	113	108	105	106	110	115	118	-13
Economic old-age dependency ratio (15-64) (5)	29	32	34	37	41	43	44	46	50	53	55	26
Economic old-age dependency ratio (15-74) (6)	29	31	33	35	39	40	42	43	46	49	51	22

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

14. LATVIA

Latvia	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,50	1,53	1,60	1,65	1,68	1,71	1,73	1,75	1,76	1,77	1,78	0,3
Life expectancy at birth												
men	69,1	69,7	71,1	72,5	73,8	75,1	76,4	77,6	78,7	79,8	80,9	11,8
women	78,9	79,3	80,3	81,2	82,2	83,1	83,9	84,7	85,5	86,3	87,0	8,2
Life expectancy at 65												
men	13,8	14,1	14,8	15,5	16,3	17,0	17,7	18,4	19,1	19,7	20,4	6,6
women	18,4	18,7	19,4	20,0	20,6	21,3	21,9	22,5	23,1	23,6	24,2	5,8
Net migration (thousand)	-10,1	-11,5	-14,3	-14,5	-9,9	0,9	0,9	0,8	0,7	0,4	0,0	10,1
Net migration as % of population	-0,5	-0,6	-0,8	-0,8	-0,6	0,1	0,1	0,1	0,1	0,0	0,0	0,5
Population (million)	2,0	2,0	1,9	1,7	1,6	1,5	1,5	1,5	1,5	1,4	1,4	-0,6
Children population (0-14) as % of total population	14,6	15,0	15,5	14,9	14,1	13,5	13,9	15,0	16,0	16,4	16,3	1,7
Prime age population (25-54) as % of total population	41,9	41,7	40,1	37,4	35,1	34,5	33,8	32,9	33,1	35,0	36,1	-5,9
Working age population (15-64) as % of total population	66,6	65,6	63,8	62,0	60,4	59,5	58,3	57,1	55,7	54,7	55,7	-10,9
Elderly population (65 and over) as % of total population	18,9	19,4	20,7	23,1	25,5	27,0	27,9	28,0	28,3	28,9	28,0	9,2
Very elderly population (80 and over) as % of total population	4,7	4,9	5,9	6,5	7,1	8,0	9,2	10,2	10,6	10,9	11,0	6,3
Very elderly population (80 and over) as % of elderly population	24,9	25,2	28,6	28,1	27,8	29,5	33,1	36,5	37,4	37,9	39,1	14,2
Very elderly population (80 and over) as % of working age population	7,1	7,4	9,3	10,5	11,8	13,4	15,8	17,9	18,9	20,0	19,7	12,6
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	1,9	2,9	2,6	1,8	1,1	1,4	1,3	1,1	0,9	1,2	1,6	1,6
Employment (growth rate)	-0,6	0,1	-1,4	-1,6	-1,3	-0,6	-0,7	-0,9	-0,9	-0,5	0,1	-0,9
Labour input : hours worked (growth rate)	-0,5	0,3	-1,4	-1,6	-1,3	-0,6	-0,7	-0,8	-0,9	-0,5	0,1	-0,9
Labour productivity per hour (growth rate)	2,4	2,6	4,0	3,4	2,4	1,9	1,9	2,0	1,8	1,7	1,5	2,4
TFP (growth rate)	0,9	1,3	1,8	1,9	1,6	1,3	1,3	1,3	1,2	1,1	1,0	1,4
Capital deepening (contribution to labour productivity growth)	1,5	1,4	2,2	1,5	0,9	0,7	0,7	0,7	0,6	0,6	0,5	1,0
GDP per capita (growth rate)	2,9	4,0	3,9	3,3	2,9	2,0	1,7	1,5	1,3	1,6	2,0	2,4
GDP per worker (growth rate)	2,4	2,9	4,0	3,4	2,5	2,0	2,0	2,0	1,8	1,7	1,5	2,4
GDP in 2013 prices (in millions euros)	23,4	24,6	28,2	31,1	33,3	35,3	38,1	40,4	42,4	44,7	48,0	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	1341	1297	1191	1081	980	921	879	844	809	779	778	-563
Population growth (working age:15-64)	-1,6	-1,6	-1,8	-2,1	-1,6	-0,9	-0,9	-0,8	-0,9	-0,6	0,4	2,0
Population (20-64) (in thousands)	1244	1209	1100	981	890	834	802	773	737	701	695	-549
Population growth (20-64)	-1,0	-1,5	-2,0	-2,3	-1,7	-0,9	-0,8	-0,7	-1,1	-0,8	0,4	1,5
Labour force 15-64 (thousands)	996	978	896	806	734	686	662	639	609	585	588	-408
Labour force 20-64 (thousands)	987	970	888	798	727	679	655	633	603	579	581	-406
Participation rate (20-64)	79,3	80,3	80,8	81,3	81,6	81,4	81,7	81,8	81,8	82,6	83,6	4,2
Participation rate (15-74)	66,3	67,2	67,0	65,4	64,6	64,5	65,4	65,8	65,6	64,9	65,9	-0,4
Participation rate (15-64)	74,3	75,4	75,2	74,6	74,9	74,5	75,3	75,7	75,3	75,1	75,6	1,3
young (15-24)	40,7	41,7	35,1	33,9	37,1	37,0	39,1	39,0	37,3	36,0	36,3	-4,3
prime-age (25-54)	87,6	87,9	88,7	88,8	89,0	88,9	88,9	89,0	89,1	89,2	89,1	1,5
older (55-64)	61,5	63,3	63,9	67,6	70,7	69,9	71,4	71,9	69,8	68,1	73,1	11,6
Participation rate (20-64) - WOMEN	76,2	77,2	77,6	78,2	78,6	78,3	78,5	78,7	78,8	79,6	80,6	4,4
Participation rate (15-74) - WOMEN	62,3	63,3	63,4	62,0	61,2	61,2	61,9	62,3	62,2	61,6	62,7	0,5
Participation rate (15-64) - WOMEN	71,6	72,8	72,6	72,1	72,5	72,0	72,5	72,9	72,5	72,4	72,9	1,3
young (15-24)	36,6	37,3	31,1	30,0	33,0	32,7	34,7	34,6	33,1	32,0	32,3	-4,3
prime-age (25-54)	84,7	85,0	85,7	86,1	86,5	86,5	86,3	86,2	86,5	86,7	86,7	1,9
older (55-64)	60,5	63,0	62,6	65,8	68,6	67,9	69,3	70,1	68,2	66,6	71,4	10,9
Participation rate (20-64) - MEN	82,7	83,6	84,1	84,6	84,7	84,5	84,9	85,0	84,8	85,5	86,4	3,7
Participation rate (15-74) - MEN	70,9	71,8	71,0	69,1	68,2	68,2	69,1	69,5	69,5	68,1	69,1	-1,8
Participation rate (15-64) - MEN	77,1	78,2	78,0	77,2	77,4	77,1	78,0	78,5	78,0	77,8	78,2	1,0
young (15-24)	44,5	45,8	38,7	37,4	40,9	40,8	43,2	43,1	41,2	39,8	40,1	-4,4
prime-age (25-54)	90,6	91,0	91,7	91,6	91,4	91,4	91,5	91,6	91,6	91,5	91,4	0,8
older (55-64)	62,7	63,7	65,5	69,9	73,2	72,4	73,9	74,0	71,5	69,7	74,9	12,2
Employment rate (15-64)	65,3	68,2	65,9	65,8	67,2	68,0	69,7	70,0	69,5	69,5	69,9	4,7
Employment rate (20-64)	69,9	72,7	70,9	71,9	73,4	74,4	75,7	75,9	75,8	76,6	77,5	7,6
Employment rate (15-74)	58,4	60,9	58,9	57,9	58,2	59,1	60,7	61,1	60,9	60,2	61,2	2,7
Unemployment rate (15-64)	12,1	9,6	12,4	11,8	10,3	8,7	7,5	7,5	7,5	7,5	7,5	-4,7
Unemployment rate (20-64)	11,9	9,4	12,2	11,6	10,1	8,5	7,3	7,3	7,3	7,3	7,3	-4,6
Unemployment rate (15-74)	11,9	9,4	12,0	11,4	9,9	8,4	7,2	7,2	7,2	7,2	7,2	-4,7
Employment (20-64) (in millions)	0,9	0,9	0,8	0,7	0,7	0,6	0,6	0,6	0,6	0,5	0,5	-0,3
Employment (15-64) (in millions)	0,9	0,9	0,8	0,7	0,7	0,6	0,6	0,6	0,6	0,5	0,5	-0,3
share of young (15-24)	9%	8%	6%	7%	8%	9%	9%	9%	8%	9%	10%	1%
share of prime-age (25-54)	75%	75%	75%	72%	70%	70%	69%	68%	71%	76%	77%	2%
share of older (55-64)	16%	17%	19%	21%	22%	22%	22%	23%	21%	15%	14%	-3%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	19,4	20,3	22,3	22,4	22,9	22,5	22,5	24,0	22,1	16,0	13,8	-5,6
Old-age dependency ratio (2)	28	30	32	37	42	45	48	49	51	53	50	22
Total dependency ratio (3)	50	52	57	61	66	68	72	75	79	83	80	29
Total economic dependency ratio (4)	123	117	128	132	133	133	132	136	142	146	143	20
Economic old-age dependency ratio (15-64) (5)	40	40	45	51	57	60	62	64	66	69	66	26
Economic old-age dependency ratio (15-74) (6)	39	39	43	48	54	57	59	60	62	65	63	24

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

15. LITHUANIA

Lithuania	EC-EPC (AWG) 2015 projections										

Main demographic and macroeconomic assumptions

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,61	1,62	1,66	1,69	1,71	1,73	1,75	1,76	1,77	1,78	1,79	0,2
Life expectancy at birth												
men	68,7	69,3	70,8	72,2	73,6	75,0	76,3	77,5	78,7	79,8	80,9	12,2
women	79,6	80,0	80,9	81,9	82,7	83,6	84,4	85,2	86,0	86,7	87,4	7,8
Life expectancy at 65												
men	14,3	14,6	15,3	16,0	16,8	17,5	18,2	18,8	19,5	20,1	20,8	6,5
women	19,2	19,4	20,0	20,6	21,2	21,8	22,4	23,0	23,5	24,1	24,6	5,4
Net migration (thousand)	-16,8	-34,0	-37,4	-33,5	-21,1	1,4	1,0	0,6	0,4	0,2	0,0	16,8
Net migration as % of population	-0,6	-1,2	-1,4	-1,4	-1,0	0,1	0,0	0,0	0,0	0,0	0,0	0,6
Population (million)	3,0	2,9	2,6	2,4	2,2	2,1	2,0	1,9	1,9	1,9	1,8	-1,1
Children population (0-14) as % of total population	14,7	14,6	15,3	15,4	14,6	13,7	13,8	15,0	16,7	17,7	17,8	3,1
Prime age population (25-54) as % of total population	41,1	40,3	38,4	35,5	32,2	31,1	32,1	33,0	33,4	34,8	36,7	-4,4
Working age population (15-64) as % of total population	67,0	66,4	64,0	60,6	57,7	56,2	55,4	55,0	55,0	55,4	56,5	-10,5
Elderly population (65 and over) as % of total population	18,3	18,9	20,7	24,0	27,7	30,1	30,8	30,0	28,3	26,9	25,8	7,5
Very elderly population (80 and over) as % of total population	4,9	5,2	6,2	6,9	7,7	8,7	10,4	12,0	12,5	12,4	11,4	6,5
Very elderly population (80 and over) as % of elderly population	26,7	27,7	30,2	28,9	27,6	28,8	33,8	39,9	44,1	45,9	44,2	17,4
Very elderly population (80 and over) as % of working age population	7,3	7,9	9,8	11,4	13,3	15,4	18,8	21,8	22,7	22,3	20,2	12,9
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	2,6	3,7	1,5	0,8	-0,1	0,8	1,2	1,4	1,2	1,2	1,7	1,2
Employment (growth rate)	-0,4	0,4	-2,3	-2,9	-2,5	-1,0	-0,5	-0,3	-0,4	-0,4	0,2	-1,1
Labour input : hours worked (growth rate)	-0,1	0,8	-2,3	-2,9	-2,5	-0,9	-0,5	-0,3	-0,4	-0,4	0,2	-1,1
Labour productivity per hour (growth rate)	2,7	2,8	3,9	3,7	2,4	1,7	1,7	1,7	1,7	1,6	1,5	2,3
TFP (growth rate)	1,3	1,5	2,0	2,0	1,6	1,1	1,1	1,1	1,1	1,0	1,0	1,4
Capital deepening (contribution to labour productivity growth)	1,3	1,3	1,9	1,7	0,9	0,6	0,6	0,6	0,6	0,6	0,5	1,0
GDP per capita (growth rate)	3,6	5,2	3,4	2,8	1,7	1,6	1,7	1,8	1,7	1,7	2,1	2,3
GDP per worker (growth rate)	3,0	3,3	4,0	3,8	2,5	1,7	1,7	1,7	1,7	1,6	1,5	2,4
GDP in 2013 prices (in millions euros)	34,6	37,0	40,7	42,8	43,2	43,9	46,6	49,8	53,1	56,4	60,7	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	1982	1912	1694	1455	1260	1153	1103	1070	1048	1035	1035	-947
Population growth (working age:15-64)	-1,1	-2,0	-2,6	-3,1	-2,5	-1,2	-0,7	-0,5	-0,4	-0,2	0,4	1,6
Population (20-64) (in thousands)	1799	1745	1568	1332	1134	1033	992	973	954	931	919	-880
Population growth (20-64)	-0,6	-1,8	-2,5	-3,6	-2,6	-1,2	-0,6	-0,3	-0,5	-0,5	0,3	0,9
Labour force 15-64 (thousands)	1437	1388	1234	1053	897	813	786	776	763	747	745	-692
Labour force 20-64 (thousands)	1426	1379	1227	1047	890	806	780	770	758	742	739	-688
Participation rate (20-64)	79,3	79,0	78,3	78,6	78,5	78,1	78,6	79,2	79,5	79,7	80,3	1,1
Participation rate (15-74)	64,7	64,6	63,9	61,4	58,4	57,7	59,1	61,3	63,1	62,9	62,5	-2,1
Participation rate (15-64)	72,5	72,6	72,9	72,3	71,2	70,5	71,2	72,5	72,9	72,2	72,0	-0,5
young (15-24)	32,1	34,3	33,9	29,7	29,3	32,2	33,7	34,5	33,3	31,0	30,8	-1,3
prime-age (25-54)	89,4	88,9	88,2	87,8	87,5	87,3	87,0	87,1	87,4	87,4	87,3	-2,1
older (55-64)	60,2	60,6	61,1	63,7	66,9	66,2	66,6	67,4	66,6	64,5	65,6	5,5
Participation rate (20-64) - WOMEN	76,6	76,3	75,7	76,5	76,6	75,8	76,0	76,6	76,9	77,3	78,1	1,5
Participation rate (15-74) - WOMEN	61,1	61,1	60,5	58,3	55,5	54,5	55,4	57,5	59,3	59,4	59,3	-1,8
Participation rate (15-64) - WOMEN	70,3	70,4	70,8	70,8	69,9	68,8	69,1	70,1	70,4	69,9	69,8	-0,5
young (15-24)	27,5	29,3	28,8	24,9	24,4	27,1	28,5	29,3	28,3	26,3	26,1	-1,4
prime-age (25-54)	88,3	87,8	87,0	86,5	86,2	86,0	85,5	85,4	85,8	86,1	86,0	-2,3
older (55-64)	56,1	56,4	58,0	62,3	66,3	65,0	65,3	66,2	65,5	63,1	64,2	8,1
Participation rate (20-64) - MEN	82,2	82,0	81,1	80,8	80,6	80,5	81,2	81,8	82,0	82,1	82,5	0,3
Participation rate (15-74) - MEN	68,7	68,6	67,8	64,9	61,8	61,3	63,1	65,4	66,4	66,5	65,7	-2,9
Participation rate (15-64) - MEN	74,8	75,0	75,1	74,0	72,6	72,3	73,4	74,9	75,2	74,5	74,1	-0,8
young (15-24)	36,4	38,9	38,5	34,1	33,8	36,8	38,5	39,5	38,1	35,6	35,2	-1,2
prime-age (25-54)	90,7	90,0	89,5	89,2	88,9	88,5	88,5	88,7	88,9	88,9	88,5	-2,1
older (55-64)	65,4	65,8	65,1	65,5	67,7	67,8	68,2	68,8	68,0	65,9	67,1	1,7
Employment rate (15-64)	63,8	65,6	65,0	64,6	64,4	64,6	65,9	67,1	67,4	66,8	66,6	2,8
Employment rate (20-64)	69,8	71,4	69,9	70,2	71,1	71,6	72,8	73,3	73,6	73,8	74,4	4,6
Employment rate (15-74)	57,0	58,4	57,1	55,0	53,0	53,0	54,8	56,9	58,4	58,3	58,0	1,0
Unemployment rate (15-64)	12,0	9,7	10,8	10,7	9,6	8,4	7,5	7,5	7,5	7,5	7,5	-4,6
Unemployment rate (20-64)	11,9	9,6	10,7	10,6	9,5	8,3	7,4	7,4	7,4	7,4	7,4	-4,5
Unemployment rate (15-74)	11,9	9,5	10,6	10,5	9,3	8,1	7,3	7,3	7,3	7,3	7,3	-4,5
Employment (20-64) (in millions)	1,3	1,2	1,1	0,9	0,8	0,7	0,7	0,7	0,7	0,7	0,7	-0,6
Employment (15-64) (in millions)	1,3	1,3	1,1	0,9	0,8	0,7	0,7	0,7	0,7	0,7	0,7	-0,6
share of young (15-24)	8%	8%	7%	6%	7%	9%	10%	9%	8%	8%	9%	1%
share of prime-age (25-54)	77%	75%	73%	72%	69%	69%	71%	73%	73%	76%	79%	3%
share of older (55-64)	16%	17%	20%	22%	24%	22%	19%	18%	18%	15%	12%	-4%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	18,5	19,9	23,6	25,1	25,1	23,0	20,0	19,4	19,9	17,1	12,8	-5,7
Old-age dependency ratio (2)	27	29	32	40	48	53	56	55	52	49	46	18
Total dependency ratio (3)	49	51	56	65	73	78	81	82	82	80	77	28
Total economic dependency ratio (4)	130	125	135	148	160	165	165	164	163	163	159	30
Economic old-age dependency ratio (15-64) (5)	41	42	48	58	71	79	81	78	74	70	66	25
Economic old-age dependency ratio (15-74) (6)	40	41	47	57	68	76	78	76	72	68	64	24

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

16. LUXEMBOURG

Luxembourg	EC-EPC (AWG) 2015 projections											
Main demographic and macroeconomic assumptions												
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,59	1,61	1,64	1,67	1,69	1,71	1,73	1,75	1,76	1,77	1,78	0,2
Life expectancy at birth												
men	79,1	79,4	80,2	80,9	81,6	82,3	83,0	83,6	84,2	84,8	85,4	6,3
women	83,5	83,9	84,6	85,3	86,0	86,7	87,3	87,9	88,4	89,0	89,5	6,0
Life expectancy at 65												
men	18,6	18,8	19,3	19,8	20,2	20,7	21,2	21,6	22,0	22,5	22,9	4,3
women	22,0	22,2	22,6	23,1	23,6	24,0	24,4	24,9	25,3	25,7	26,1	4,1
Net migration (thousand)	10,5	10,8	11,7	11,6	11,2	10,3	9,1	7,4	5,4	5,1	4,9	-5,7
Net migration as % of population	1,9	1,9	1,8	1,6	1,4	1,2	1,0	0,7	0,5	0,5	0,4	-1,5
Population (million)	0,5	0,6	0,6	0,7	0,8	0,9	0,9	1,0	1,1	1,1	1,1	0,6
Children population (0-14) as % of total population	17,0	17,0	17,3	17,7	18,0	18,0	17,9	17,6	17,4	17,1	16,9	-0,1
Prime age population (25-54) as % of total population	45,5	44,8	43,4	42,5	41,9	41,3	40,8	40,3	39,4	38,5	37,8	-7,8
Working age population (15-64) as % of total population	69,0	68,8	67,9	66,7	65,2	64,1	63,5	63,2	62,7	62,2	61,3	-7,7
Elderly population (65 and over) as % of total population	14,0	14,2	14,8	15,6	16,8	17,9	18,6	19,2	19,9	20,7	21,8	7,8
Very elderly population (80 and over) as % of total population	3,9	4,0	4,1	4,1	4,4	4,9	5,6	6,4	7,1	7,5	7,8	3,9
Very elderly population (80 and over) as % of elderly population	28,1	28,1	27,6	26,1	26,1	27,3	30,0	33,4	35,7	36,1	35,8	7,7
Very elderly population (80 and over) as % of working age population	5,7	5,8	6,0	6,1	6,7	7,6	8,8	10,1	11,3	12,0	12,7	7,0
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	1,4	1,3	3,0	2,7	2,9	3,0	2,8	2,5	2,2	2,0	1,9	2,5
Employment (growth rate)	2,2	1,7	2,7	1,9	1,7	1,5	1,3	1,0	0,7	0,5	0,4	1,4
Labour input : hours worked (growth rate)	1,7	1,2	2,6	1,8	1,7	1,5	1,3	1,0	0,7	0,5	0,4	1,3
Labour productivity per hour (growth rate)	-0,3	0,1	0,4	0,8	1,2	1,5	1,5	1,5	1,5	1,5	1,5	1,2
TFP (growth rate)	-0,7	-0,3	0,2	0,5	0,8	1,0	1,0	1,0	1,0	1,0	1,0	0,7
Capital deepening (contribution to labour productivity growth)	0,4	0,5	0,2	0,3	0,4	0,5	0,5	0,5	0,5	0,5	0,5	0,4
GDP per capita (growth rate)	-1,0	-1,0	0,6	0,5	0,9	1,3	1,3	1,3	1,3	1,2	1,2	0,9
GDP per worker (growth rate)	-0,9	-0,3	0,3	0,8	1,2	1,5	1,5	1,5	1,5	1,5	1,5	1,1
GDP in 2013 prices (in millions euros)	45,5	46,7	53,2	61,2	70,2	81,5	94,1	107,2	120,3	133,2	146,6	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	375	392	434	477	517	557	597	634	662	685	701	326
Population growth (working age:15-64)	2,4	2,2	2,0	1,8	1,6	1,5	1,4	1,1	0,8	0,6	0,4	-2,0
Population (20-64) (in thousands)	342	358	399	437	472	506	542	575	601	621	636	294
Population growth (20-64)	2,4	2,2	2,1	1,7	1,5	1,4	1,3	1,1	0,8	0,6	0,4	-2,0
Labour force 15-64 (thousands)	260	274	306	338	368	398	426	451	469	481	491	230
Labour force 20-64 (thousands)	256	270	302	333	363	392	420	444	462	474	483	227
Participation rate (20-64)	74,9	75,4	75,8	76,3	76,9	77,5	77,5	77,2	76,9	76,3	76,0	1,0
Participation rate (15-74)	63,2	63,5	63,5	63,3	62,9	62,8	63,0	62,9	62,4	61,6	60,8	-2,4
Participation rate (15-64)	69,4	69,9	70,5	70,9	71,2	71,5	71,4	71,1	70,8	70,3	70,0	0,5
young (15-24)	27,0	29,6	31,2	30,6	30,1	29,9	29,8	29,6	29,6	29,7	29,6	2,6
prime-age (25-54)	87,5	87,8	89,1	89,6	90,0	90,0	89,9	89,9	89,8	89,8	89,8	2,3
older (55-64)	42,2	43,4	44,4	45,0	45,3	47,1	48,0	47,5	47,9	47,4	46,5	4,3
Participation rate (20-64) - WOMEN	67,6	68,8	70,7	71,9	72,7	73,4	73,5	73,3	73,1	72,7	72,4	4,8
Participation rate (15-74) - WOMEN	56,4	57,4	58,7	59,0	58,9	59,0	59,1	59,1	58,9	58,3	57,7	1,2
Participation rate (15-64) - WOMEN	62,6	63,7	65,6	66,5	67,1	67,6	67,5	67,3	67,2	66,8	66,6	4,0
young (15-24)	22,5	25,8	28,0	27,4	27,0	26,8	26,7	26,5	26,5	26,5	26,5	4,0
prime-age (25-54)	80,4	81,0	83,2	84,4	85,0	85,0	84,8	84,8	84,9	84,9	84,9	4,5
older (55-64)	33,6	36,9	41,0	43,3	45,0	47,8	49,2	48,1	48,8	48,4	47,5	13,9
Participation rate (20-64) - MEN	82,0	81,8	80,8	80,6	81,0	81,4	81,4	81,0	80,4	79,7	79,4	-2,6
Participation rate (15-74) - MEN	69,8	69,4	68,2	67,4	66,7	66,6	66,7	66,6	65,9	64,8	63,9	-5,9
Participation rate (15-64) - MEN	76,0	75,8	75,3	75,1	75,2	75,4	75,2	74,8	74,2	73,6	73,3	-2,7
young (15-24)	31,4	33,2	34,3	33,7	33,2	32,9	32,8	32,6	32,6	32,7	32,6	1,3
prime-age (25-54)	94,3	94,4	94,7	94,7	94,7	94,8	94,7	94,7	94,7	94,6	94,6	0,3
older (55-64)	50,6	49,7	47,6	46,6	45,7	46,3	46,8	46,8	47,1	46,5	45,6	-4,9
Employment rate (15-64)	65,3	66,0	67,0	67,8	68,2	68,5	68,4	68,1	67,8	67,3	67,0	1,7
Employment rate (20-64)	70,7	71,4	72,1	73,2	73,7	74,3	74,3	74,1	73,7	73,2	72,9	2,2
Employment rate (15-74)	59,5	60,0	60,3	60,6	60,2	60,2	60,3	60,2	59,8	59,0	58,3	-1,2
Unemployment rate (15-64)	5,9	5,5	5,1	4,3	4,3	4,3	4,2	4,2	4,2	4,2	4,2	-1,7
Unemployment rate (20-64)	5,7	5,3	4,9	4,1	4,1	4,1	4,1	4,1	4,1	4,1	4,1	-1,6
Unemployment rate (15-74)	5,9	5,5	5,0	4,3	4,2	4,2	4,2	4,2	4,2	4,2	4,2	-1,7
Employment (20-64) (in millions)	0,2	0,3	0,3	0,3	0,3	0,4	0,4	0,4	0,4	0,5	0,5	0,2
Employment (15-64) (in millions)	0,2	0,3	0,3	0,3	0,4	0,4	0,4	0,4	0,4	0,5	0,5	0,2
share of young (15-24)	6%	7%	7%	7%	7%	7%	7%	7%	7%	8%	8%	1%
share of prime-age (25-54)	84%	83%	81%	81%	82%	81%	81%	81%	80%	79%	79%	-4%
share of older (55-64)	10%	10%	11%	12%	11%	11%	11%	12%	12%	13%	13%	3%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	16,3	16,6	17,9	18,3	17,5	16,8	16,8	17,2	18,0	19,1	19,3	3,1
Old-age dependency ratio (2)	20	21	22	23	26	28	29	30	32	33	36	15
Total dependency ratio (3)	45	45	47	50	53	56	57	58	59	61	63	18
Total economic dependency ratio (4)	120	118	118	119	123	126	128	130	133	137	141	21
Economic old-age dependency ratio (15-64) (5)	30	31	32	34	37	40	42	44	46	49	52	22
Economic old-age dependency ratio (15-74) (6)	30	30	31	33	37	40	41	43	45	48	51	21

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

17. HUNGARY

Table III.17.1:

Hungary	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,38	1,42	1,50	1,57	1,61	1,65	1,68	1,70	1,72	1,73	1,74	0,4
Life expectancy at birth												
men	71,9	72,4	73,6	74,8	75,9	77,0	78,1	79,1	80,1	81,1	82,0	10,1
women	78,8	79,2	80,2	81,2	82,1	83,0	83,8	84,7	85,5	86,3	87,0	8,2
Life expectancy at 65												
men	14,5	14,7	15,5	16,2	16,8	17,5	18,2	18,9	19,5	20,1	20,8	6,3
women	18,1	18,4	19,1	19,8	20,4	21,1	21,7	22,3	22,9	23,5	24,1	6,0
Net migration (thousand)	8,1	22,0	24,3	21,7	20,9	22,2	24,2	19,1	15,3	15,3	14,0	5,9
Net migration as % of population	0,1	0,2	0,2	0,2	0,2	0,2	0,3	0,2	0,2	0,2	0,2	0,1
Population (million)	9,9	9,9	9,8	9,7	9,7	9,6	9,5	9,4	9,3	9,3	9,2	-0,7
Children population (0-14) as % of total population	14,4	14,4	14,4	14,3	14,4	14,3	14,2	14,2	14,3	14,4	14,4	0,0
Prime age population (25-54) as % of total population	41,8	41,9	42,6	41,6	39,6	37,4	36,5	35,8	34,7	34,4	34,3	-7,5
Working age population (15-64) as % of total population	68,2	67,5	65,3	64,1	63,7	62,7	61,1	58,9	58,1	57,2	56,1	-12,1
Elderly population (65 and over) as % of total population	17,4	18,1	20,3	21,6	21,9	23,0	24,7	26,9	27,6	28,4	29,5	12,1
Very elderly population (80 and over) as % of total population	4,1	4,3	4,6	5,2	6,1	7,4	8,1	8,0	8,6	10,0	11,7	7,5
Very elderly population (80 and over) as % of elderly population	23,8	23,5	22,6	24,2	27,8	32,4	32,6	29,7	31,3	35,2	39,5	15,7
Very elderly population (80 and over) as % of working age population	6,1	6,3	7,0	8,1	9,6	11,9	13,2	13,5	14,9	17,5	20,8	14,7
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	0,4	1,1	1,9	2,1	2,0	1,5	1,2	1,3	1,4	1,2	1,0	1,5
Employment (growth rate)	0,1	0,3	0,5	0,0	-0,2	-0,6	-0,9	-0,7	-0,5	-0,6	-0,5	-0,3
Labour input : hours worked (growth rate)	0,1	0,3	0,5	0,0	-0,2	-0,6	-0,9	-0,7	-0,5	-0,6	-0,5	-0,3
Labour productivity per hour (growth rate)	0,3	0,8	1,4	2,1	2,2	2,1	2,1	2,1	1,9	1,7	1,5	1,8
TFP (growth rate)	0,1	0,3	0,9	1,4	1,4	1,3	1,3	1,3	1,2	1,1	1,0	1,2
Capital deepening (contribution to labour productivity growth)	0,2	0,4	0,5	0,7	0,8	0,7	0,7	0,7	0,7	0,6	0,5	0,6
GDP per capita (growth rate)	0,5	1,2	2,0	2,3	2,1	1,7	1,3	1,5	1,6	1,3	1,2	1,6
GDP per worker (growth rate)	0,2	0,8	1,4	2,1	2,2	2,1	2,1	2,1	1,9	1,7	1,6	1,8
GDP in 2013 prices (in millions euros)	98,1	100,0	107,4	120,0	133,0	144,9	154,9	164,7	176,3	187,7	197,6	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	6750	6654	6397	6247	6161	6017	5809	5556	5426	5290	5136	-1615
Population growth (working age:15-64)	-0,7	-0,7	-0,9	-0,3	-0,3	-0,6	-1,0	-0,7	-0,4	-0,6	-0,5	0,1
Population (20-64) (in thousands)	6194	6142	5907	5740	5690	5537	5327	5083	4965	4832	4679	-1515
Population growth (20-64)	-0,4	-0,4	-1,0	-0,4	-0,2	-0,6	-0,6	-0,7	-0,4	-0,6	-0,6	-0,2
Labour force 15-64 (thousands)	4368	4466	4597	4611	4570	4444	4258	4072	3977	3866	3748	-620
Labour force 20-74 (thousands)	4341	4441	4574	4588	4548	4422	4236	4051	3956	3845	3727	-614
Participation rate (20-64)	70,1	72,3	77,4	79,9	79,9	79,9	79,5	79,7	79,7	79,6	79,6	9,6
Participation rate (15-74)	57,0	58,5	61,5	63,3	65,0	64,8	62,9	61,4	61,6	62,3	61,7	4,8
Participation rate (15-64)	64,7	67,1	71,9	73,8	74,2	73,9	73,3	73,3	73,3	73,1	73,0	8,3
young (15-24)	27,3	28,9	27,7	26,4	27,6	26,5	26,8	27,0	27,1	26,8	26,7	-0,6
prime-age (25-54)	83,3	83,9	84,7	85,0	85,0	85,2	85,2	85,1	85,1	85,1	85,1	1,8
older (55-64)	41,8	48,6	64,8	76,0	77,7	77,5	76,4	77,5	77,9	77,3	77,5	35,7
Participation rate (20-64) - WOMEN	63,3	66,1	72,3	75,1	75,2	75,0	74,6	74,8	74,8	74,6	74,7	11,4
Participation rate (15-74) - WOMEN	50,4	52,4	56,1	58,2	60,1	60,1	58,2	56,9	57,1	57,9	57,4	6,9
Participation rate (15-64) - WOMEN	58,5	61,4	67,2	69,4	69,8	69,4	68,8	68,8	68,8	68,5	68,4	9,9
young (15-24)	23,9	25,1	24,1	22,9	24,0	23,0	23,2	23,4	23,5	23,2	23,2	-0,7
prime-age (25-54)	77,2	77,9	78,9	79,2	79,3	79,5	79,6	79,4	79,2	79,2	79,3	2,1
older (55-64)	34,8	43,3	62,9	74,6	75,9	74,9	73,6	75,4	76,0	75,1	75,4	40,5
Participation rate (20-64) - MEN	77,1	78,7	82,6	84,8	84,7	84,6	84,3	84,4	84,4	84,4	84,5	7,4
Participation rate (15-74) - MEN	63,9	64,9	67,2	68,6	70,0	69,6	67,6	66,0	66,1	66,7	66,0	2,1
Participation rate (15-64) - MEN	71,0	72,9	76,5	78,2	78,5	78,2	77,7	77,7	77,6	77,5	77,4	6,4
young (15-24)	30,5	32,5	31,2	29,8	31,1	29,9	30,1	30,4	30,5	30,2	30,1	-0,4
prime-age (25-54)	89,5	89,8	90,3	90,6	90,6	90,6	90,6	90,6	90,7	90,7	90,7	1,2
older (55-64)	50,1	54,9	67,0	77,6	79,6	80,1	79,3	79,7	79,9	79,5	79,7	29,6
Employment rate (15-64)	58,0	61,1	65,7	68,2	68,6	68,3	67,8	67,8	67,8	67,6	67,5	9,5
Employment rate (20-64)	63,0	66,0	70,9	74,0	74,0	74,0	73,7	73,9	73,9	73,8	73,8	10,8
Employment rate (15-74)	51,1	53,3	56,3	58,6	60,1	60,0	58,3	57,0	57,1	57,8	57,2	6,1
Unemployment rate (15-64)	10,3	8,9	8,6	7,6	7,6	7,5	7,5	7,5	7,5	7,5	7,5	-2,8
Unemployment rate (20-64)	10,0	8,7	8,4	7,5	7,4	7,3	7,3	7,3	7,3	7,3	7,3	-2,7
Unemployment rate (15-74)	10,2	8,9	8,5	7,5	7,4	7,4	7,3	7,3	7,3	7,3	7,3	-3,0
Employment (20-64) (in millions)	3,9	4,1	4,2	4,2	4,2	4,1	3,9	3,8	3,7	3,6	3,5	-0,4
Employment (15-64) (in millions)	3,9	4,1	4,2	4,3	4,2	4,1	3,9	3,8	3,7	3,6	3,5	-0,5
share of young (15-24)	6%	6%	5%	5%	5%	5%	5%	6%	6%	6%	6%	0%
share of prime-age (25-54)	80%	78%	77%	75%	72%	69%	70%	71%	70%	70%	72%	-8%
share of older (55-64)	14%	16%	17%	20%	23%	26%	25%	24%	25%	24%	23%	9%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	21,2	20,9	18,8	18,9	21,7	24,3	23,3	21,8	22,8	22,2	20,8	-0,3
Old-age dependency ratio (2)	25	27	31	34	34	37	40	46	48	50	53	27
Total dependency ratio (3)	47	48	53	56	57	59	64	70	72	75	78	32
Total economic dependency ratio (4)	150	141	130	124	124	127	133	141	146	150	155	4
Economic old-age dependency ratio (15-64) (5)	43	43	46	47	48	51	56	63	67	70	74	31
Economic old-age dependency ratio (15-74) (6)	43	43	45	46	47	49	54	61	65	68	72	29

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

18. MALTA

Table III.18.1:

Malta	EC-EPC (AWG) 2015 projections

| Main demographic and macroeconomic assumptions | |

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,44	1,48	1,56	1,62	1,67	1,70	1,73	1,75	1,76	1,77	1,78	0,3
Life expectancy at birth												
men	78,7	79,0	79,8	80,5	81,3	82,0	82,6	83,3	83,9	84,5	85,1	6,4
women	82,8	83,2	84,0	84,7	85,4	86,1	86,8	87,4	88,0	88,6	89,1	6,3
Life expectancy at 65												
men	18,1	18,3	18,8	19,3	19,7	20,2	20,7	21,1	21,6	22,0	22,4	4,3
women	21,3	21,5	22,0	22,5	23,0	23,5	24,0	24,4	24,9	25,3	25,7	4,4
Net migration (thousand)	1,6	1,6	1,6	1,6	1,5	1,4	1,4	1,4	1,3	1,3	1,1	-0,5
Net migration as % of population	0,4	0,4	0,4	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,2	-0,1
Population (million)	0,4	0,4	0,4	0,4	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,1
Children population (0-14) as % of total population	14,5	14,4	14,9	15,3	15,4	15,0	14,6	14,6	14,9	15,3	15,4	0,9
Prime age population (25-54) as % of total population	40,9	40,7	40,3	40,2	39,0	37,6	36,5	35,6	34,9	34,6	34,7	-6,2
Working age population (15-64) as % of total population	68,0	66,8	63,9	61,4	60,2	60,6	60,7	59,9	58,7	57,2	56,1	-11,9
Elderly population (65 and over) as % of total population	17,5	18,9	21,2	23,3	24,4	24,5	24,8	25,5	26,4	27,5	28,5	11,0
Very elderly population (80 and over) as % of total population	3,8	4,1	4,9	5,8	7,8	8,8	9,6	9,8	9,4	9,6	10,5	6,7
Very elderly population (80 and over) as % of elderly population	21,7	21,7	23,1	24,8	31,8	36,0	38,9	38,4	35,6	35,1	36,7	15,1
Very elderly population (80 and over) as % of working age population	5,6	6,1	7,7	9,4	12,9	14,5	15,9	16,3	16,0	16,8	18,7	13,1
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	1,7	1,8	1,9	1,9	1,9	2,1	1,8	1,6	1,4	1,3	1,4	1,7
Employment (growth rate)	2,4	1,8	0,6	0,5	0,4	0,3	0,0	-0,1	-0,3	-0,3	-0,1	0,3
Labour input : hours worked (growth rate)	2,5	1,5	0,6	0,4	0,4	0,3	0,0	-0,1	-0,3	-0,3	-0,1	0,3
Labour productivity per hour (growth rate)	-0,7	0,2	1,3	1,5	1,5	1,7	1,7	1,8	1,7	1,6	1,5	1,4
TFP (growth rate)	0,0	0,4	0,6	0,8	1,0	1,1	1,1	1,1	1,1	1,0	1,0	0,9
Capital deepening (contribution to labour productivity growth)	-0,7	-0,1	0,7	0,7	0,5	0,6	0,6	0,6	0,6	0,6	0,5	0,5
GDP per capita (growth rate)	1,0	1,2	1,3	1,5	1,6	1,9	1,7	1,5	1,2	1,1	1,3	1,5
GDP per worker (growth rate)	-0,7	-0,1	1,3	1,5	1,5	1,7	1,7	1,8	1,7	1,6	1,5	1,4
GDP in 2013 prices (in millions euros)	7,2	7,4	8,2	9,0	9,9	11,0	12,0	13,1	14,0	15,0	16,0	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	287	285	281	276	275	279	281	279	275	270	267	-20
Population growth (working age:15-64)	-0,1	-0,3	-0,4	-0,3	0,1	0,3	0,0	-0,2	-0,3	-0,4	-0,1	0,0
Population (20-64) (in thousands)	262	261	260	254	252	254	256	255	251	247	243	-20
Population growth (20-64)	0,2	-0,2	-0,2	-0,4	0,0	0,2	0,0	-0,1	-0,3	-0,5	-0,2	-0,4
Labour force 15-64 (thousands)	188	191	197	202	206	210	211	210	207	204	201	14
Labour force 20-64 (thousands)	181	185	192	197	201	204	205	204	201	198	195	14
Participation rate (20-64)	69,0	70,7	73,8	77,4	79,6	80,2	80,1	80,1	80,0	80,0	80,4	11,4
Participation rate (15-74)	57,4	58,1	59,5	61,9	63,6	65,0	65,1	64,2	63,4	62,8	62,6	5,2
Participation rate (15-64)	65,3	67,0	70,2	73,3	75,1	75,3	75,2	75,3	75,4	75,3	75,4	10,1
young (15-24)	53,2	55,0	54,9	52,4	51,7	51,8	52,5	53,3	53,3	52,7	52,1	-1,1
prime-age (25-54)	78,2	80,1	82,9	84,4	85,1	85,4	85,7	85,7	85,7	85,7	85,7	7,4
older (55-64)	38,7	38,9	43,3	52,3	61,1	64,8	65,2	65,7	65,7	64,9	64,8	26,2
Participation rate (20-64) - WOMEN	52,8	55,6	60,9	65,9	69,1	70,5	70,8	71,0	71,0	71,0	71,4	18,6
Participation rate (15-74) - WOMEN	43,4	45,1	48,4	52,0	54,4	56,4	56,9	56,3	55,6	55,0	55,0	11,6
Participation rate (15-64) - WOMEN	50,2	52,9	58,1	62,5	65,2	66,2	66,5	66,8	66,9	66,8	66,9	16,7
young (15-24)	49,5	51,3	51,3	49,1	48,1	48,4	49,1	49,8	49,8	49,2	48,6	-0,8
prime-age (25-54)	61,3	64,8	70,3	73,6	75,0	75,8	76,4	76,5	76,4	76,3	76,3	14,9
older (55-64)	19,5	20,1	27,1	36,1	46,5	52,8	54,1	55,2	55,7	54,8	54,9	35,4
Participation rate (20-64) - MEN	84,7	85,2	86,1	88,4	89,7	89,4	88,9	88,7	88,6	88,6	89,0	4,3
Participation rate (15-74) - MEN	71,1	70,9	70,4	71,6	72,4	73,2	73,0	71,8	70,8	70,2	69,9	-1,2
Participation rate (15-64) - MEN	79,7	80,5	81,8	83,6	84,5	83,9	83,4	83,4	83,4	83,3	83,4	3,7
young (15-24)	56,7	58,4	58,4	55,4	55,1	55,0	55,8	56,5	56,6	55,9	55,3	-1,3
prime-age (25-54)	94,4	94,6	94,8	94,7	94,6	94,5	94,4	94,4	94,5	94,6	94,5	0,1
older (55-64)	58,0	58,0	59,8	68,6	75,7	76,7	76,1	75,9	75,5	74,6	74,5	16,6
Employment rate (15-64)	61,0	62,6	65,6	68,4	70,0	70,3	70,2	70,3	70,4	70,2	70,3	9,3
Employment rate (20-64)	65,0	66,6	69,4	72,7	74,8	75,3	75,3	75,2	75,2	75,2	75,6	10,6
Employment rate (15-74)	53,7	54,4	55,7	57,8	59,3	60,7	60,8	59,9	59,2	58,6	58,5	4,8
Unemployment rate (15-64)	6,5	6,5	6,6	6,7	6,7	6,7	6,7	6,7	6,7	6,7	6,7	0,2
Unemployment rate (20-64)	5,8	5,8	6,0	6,1	6,1	6,0	6,0	6,0	6,0	6,0	6,0	0,2
Unemployment rate (15-74)	6,4	6,4	6,5	6,7	6,7	6,6	6,6	6,6	6,6	6,6	6,6	0,2
Employment (20-64) (in millions)	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,0
Employment (15-64) (in millions)	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,0
share of young (15-24)	15%	14%	12%	10%	11%	11%	12%	12%	12%	12%	12%	-3%
share of prime-age (25-54)	73%	74%	75%	76%	74%	72%	69%	69%	68%	70%	71%	-2%
share of older (55-64)	12%	12%	13%	13%	15%	17%	19%	20%	20%	19%	17%	5%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	20,6	20,6	20,4	18,6	18,4	20,2	21,5	22,3	22,6	21,6	19,6	-1,1
Old-age dependency ratio (2)	26	28	33	38	41	40	41	43	45	48	51	25
Total dependency ratio (3)	47	50	56	63	66	65	65	67	70	75	78	31
Total economic dependency ratio (4)	137	135	135	136	135	132	132	134	138	145	150	12
Economic old-age dependency ratio (15-64) (5)	41	43	49	54	57	56	57	59	62	67	71	30
Economic old-age dependency ratio (15-74) (6)	40	43	48	54	56	56	56	58	61	66	70	29

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

19. THE NETHERLANDS

Table III.19.1:

Netherlands	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,72	1,72	1,73	1,74	1,75	1,76	1,77	1,77	1,78	1,79	1,80	0,1
Life expectancy at birth												
men	79,3	79,5	80,3	80,9	81,6	82,3	82,9	83,5	84,1	84,7	85,2	6,0
women	82,9	83,2	83,9	84,6	85,3	86,0	86,6	87,2	87,8	88,4	88,9	6,0
Life expectancy at 65												
men	18,0	18,2	18,7	19,1	19,6	20,1	20,6	21,0	21,5	21,9	22,4	4,4
women	20,9	21,1	21,7	22,2	22,7	23,2	23,7	24,1	24,6	25,0	25,5	4,6
Net migration (thousand)	22,1	19,9	24,2	24,0	23,5	20,8	13,0	11,0	8,9	10,6	9,3	-12,8
Net migration as % of population	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	-0,1
Population (million)	16,8	16,9	17,2	17,4	17,6	17,7	17,6	17,5	17,4	17,2	17,1	0,3
Children population (0-14) as % of total population	17,0	16,7	16,0	15,8	15,8	15,8	15,6	15,4	15,2	15,1	15,3	-1,8
Prime age population (25-54) as % of total population	40,7	40,1	38,3	36,5	35,8	35,7	35,6	35,3	35,0	34,8	34,6	-6,2
Working age population (15-64) as % of total population	65,9	65,3	64,0	62,1	59,9	58,0	57,3	57,6	57,9	57,8	57,3	-8,5
Elderly population (65 and over) as % of total population	17,1	18,0	20,0	22,1	24,3	26,2	27,0	27,0	26,9	27,1	27,4	10,3
Very elderly population (80 and over) as % of total population	4,2	4,4	4,9	5,6	7,1	8,1	9,1	10,3	11,3	11,5	11,1	6,9
Very elderly population (80 and over) as % of elderly population	24,7	24,3	24,3	25,4	29,3	31,0	33,8	38,2	42,0	42,5	40,5	15,8
Very elderly population (80 and over) as % of working age population	6,4	6,7	7,6	9,0	11,9	14,0	15,9	17,9	19,5	19,9	19,4	12,9
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	0,1	0,5	1,3	0,9	1,0	1,3	1,4	1,4	1,5	1,4	1,3	1,2
Employment (growth rate)	-0,1	0,0	0,6	-0,1	-0,2	-0,2	-0,2	-0,1	-0,1	-0,2	-0,2	0,0
Labour input : hours worked (growth rate)	-0,1	0,2	0,6	-0,1	-0,3	-0,3	-0,2	-0,1	-0,1	-0,1	-0,2	0,0
Labour productivity per hour (growth rate)	0,2	0,4	0,6	1,0	1,2	1,5	1,5	1,5	1,5	1,5	1,5	1,2
TFP (growth rate)	0,0	0,1	0,4	0,6	0,8	1,0	1,0	1,0	1,0	1,0	1,0	0,8
Capital deepening (contribution to labour productivity growth)	0,2	0,2	0,2	0,4	0,4	0,5	0,5	0,5	0,5	0,5	0,5	0,4
GDP per capita (growth rate)	-0,2	0,2	1,0	0,6	0,8	1,2	1,4	1,6	1,7	1,6	1,5	1,2
GDP per worker (growth rate)	0,2	0,5	0,6	0,9	1,2	1,5	1,5	1,5	1,5	1,5	1,5	1,2
GDP in 2013 prices (in millions euros)	602,7	608,3	641,5	678,0	709,2	751,4	803,4	862,5	928,1	996,6	1066,2	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	11067	11042	10986	10807	10522	10250	10119	10108	10068	9951	9788	-1280
Population growth (working age:15-64)	-0,3	-0,1	-0,2	-0,4	-0,6	-0,6	-0,1	-0,1	-0,1	-0,3	-0,3	0,0
Population (20-64) (in thousands)	10073	10039	9973	9853	9595	9312	9165	9155	9127	9035	8896	-1177
Population growth (20-64)	-0,3	-0,2	-0,1	-0,4	-0,6	-0,7	-0,1	-0,1	-0,1	-0,3	-0,3	0,0
Labour force 15-64 (thousands)	8816	8835	8860	8793	8609	8426	8357	8350	8319	8231	8114	-702
Labour force 20-64 (thousands)	8210	8215	8228	8200	8032	7843	7764	7758	7733	7661	7559	-650
Participation rate (20-64)	81,5	81,8	82,5	83,2	83,7	84,2	84,7	84,7	84,7	84,8	85,0	3,5
Participation rate (15-74)	70,7	70,8	71,0	71,8	71,6	71,6	72,3	73,4	74,1	73,9	73,7	3,0
Participation rate (15-64)	79,7	80,0	80,7	81,4	81,8	82,2	82,6	82,6	82,6	82,7	82,9	3,2
young (15-24)	70,0	70,7	71,2	71,4	71,3	71,0	71,0	71,1	71,2	71,2	71,2	1,2
prime-age (25-54)	87,5	87,6	88,0	88,3	88,4	88,4	88,4	88,3	88,3	88,4	88,4	0,9
older (55-64)	64,1	65,4	68,5	71,6	72,6	73,4	75,3	76,0	76,5	76,8	77,6	13,5
Participation rate (20-64) - WOMEN	75,8	76,6	78,1	79,4	80,5	81,4	82,2	82,3	82,3	82,5	82,5	6,7
Participation rate (15-74) - WOMEN	65,5	65,9	66,6	67,7	67,9	68,2	69,2	70,4	71,1	71,0	70,8	5,3
Participation rate (15-64) - WOMEN	74,6	75,4	76,8	78,0	79,0	79,8	80,5	80,6	80,6	80,6	80,8	6,2
young (15-24)	70,8	71,4	71,9	72,1	72,0	71,8	71,7	71,8	71,9	72,0	71,9	1,2
prime-age (25-54)	82,6	83,3	84,6	85,6	86,1	86,2	86,2	86,2	86,2	86,2	86,2	3,5
older (55-64)	52,9	55,1	59,5	63,5	65,7	67,9	70,7	71,8	72,3	72,6	73,6	20,7
Participation rate (20-64) - MEN	87,1	87,0	86,9	87,0	86,9	87,0	87,1	87,1	87,1	87,1	87,3	0,1
Participation rate (15-74) - MEN	76,0	75,8	75,4	75,8	75,3	74,9	75,3	76,4	76,8	76,8	76,6	0,6
Participation rate (15-64) - MEN	84,7	84,5	84,4	84,6	84,6	84,5	84,6	84,6	84,6	84,7	84,9	0,2
young (15-24)	69,3	70,0	70,5	70,7	70,6	70,3	70,3	70,4	70,5	70,6	70,6	1,2
prime-age (25-54)	92,3	91,9	91,4	91,0	90,7	90,5	90,4	90,4	90,4	90,4	90,4	-1,8
older (55-64)	75,3	75,6	77,5	79,7	79,5	79,1	80,0	80,2	80,6	81,0	81,6	6,3
Employment rate (15-64)	74,3	74,2	75,9	77,8	78,3	78,9	79,3	79,4	79,4	79,5	79,6	5,3
Employment rate (20-64)	76,5	76,3	78,0	79,8	80,4	81,1	81,6	81,7	81,7	81,7	81,9	5,4
Employment rate (15-74)	66,0	65,7	66,9	68,6	68,6	68,7	69,5	70,6	71,2	71,1	70,9	4,9
Unemployment rate (15-64)	6,7	7,3	5,9	4,4	4,2	4,1	3,9	3,9	3,9	3,9	3,9	-2,8
Unemployment rate (20-64)	6,2	6,7	5,4	4,1	3,9	3,7	3,6	3,6	3,6	3,6	3,6	-2,6
Unemployment rate (15-74)	6,7	7,3	5,9	4,4	4,2	4,0	3,9	3,9	3,9	3,9	3,9	-2,8
Employment (20-64) (in millions)	7,7	7,7	7,8	7,9	7,7	7,5	7,5	7,5	7,5	7,4	7,3	-0,4
Employment (15-64) (in millions)	8,2	8,2	8,3	8,4	8,2	8,1	8,0	8,0	8,0	7,9	7,8	-0,4
share of young (15-24)	16%	16%	16%	16%	15%	16%	16%	16%	16%	16%	16%	0%
share of prime-age (25-54)	69%	68%	66%	64%	65%	65%	67%	66%	65%	65%	65%	-4%
share of older (55-64)	16%	16%	18%	20%	20%	18%	17%	18%	19%	19%	20%	4%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	19,6	20,0	21,6	22,8	22,0	19,9	18,9	19,6	20,5	20,8	21,0	1,4
Old-age dependency ratio (2)	26	28	31	36	41	45	47	47	46	47	48	22
Total dependency ratio (3)	52	53	56	61	67	72	74	73	73	73	74	23
Total economic dependency ratio (4)	100	101	98	98	102	105	107	107	106	105	105	5
Economic old-age dependency ratio (15-64) (5)	33	34	37	41	46	51	53	53	53	53	53	20
Economic old-age dependency ratio (15-74) (6)	32	33	36	39	43	48	50	50	50	49	50	18

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

20. AUSTRIA

Austria		EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions												
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,45	1,46	1,48	1,51	1,53	1,54	1,56	1,58	1,59	1,61	1,62	0,2
Life expectancy at birth												
men	78,4	78,7	79,5	80,2	81,0	81,7	82,4	83,0	83,7	84,3	84,9	6,5
women	83,5	83,7	84,4	85,1	85,7	86,3	86,9	87,5	88,0	88,6	89,1	5,6
Life expectancy at 65												
men	17,9	18,1	18,7	19,2	19,7	20,1	20,6	21,1	21,6	22,0	22,4	4,5
women	21,2	21,4	21,9	22,4	22,9	23,3	23,8	24,3	24,7	25,1	25,6	4,4
Net migration (thousand)	55,5	46,9	51,3	52,5	51,9	47,4	41,9	35,1	27,2	26,5	24,8	-30,8
Net migration as % of population	0,7	0,5	0,6	0,6	0,6	0,5	0,4	0,4	0,3	0,3	0,3	-0,4
Population (million)	8,5	8,6	8,8	9,1	9,3	9,5	9,6	9,7	9,7	9,7	9,7	1,2
Children population (0-14) as % of total population	14,4	14,3	14,5	14,6	14,6	14,3	14,0	13,8	13,9	14,0	14,0	-0,3
Prime age population (25-54) as % of total population	43,4	43,0	41,2	39,1	38,1	37,8	37,1	36,5	35,7	35,3	35,1	-8,3
Working age population (15-64) as % of total population	67,4	67,1	66,0	64,2	61,9	60,2	59,6	59,4	58,7	57,9	57,1	-10,3
Elderly population (65 and over) as % of total population	18,2	18,6	19,5	21,1	23,5	25,5	26,4	26,8	27,4	28,1	28,9	10,7
Very elderly population (80 and over) as % of total population	5,0	5,0	5,5	6,3	6,8	7,3	8,4	9,9	11,2	11,4	11,1	6,1
Very elderly population (80 and over) as % of elderly population	27,5	26,9	28,5	29,7	28,9	28,5	31,6	37,2	40,7	40,4	38,6	11,1
Very elderly population (80 and over) as % of working age population	7,4	7,5	8,4	9,8	11,0	12,1	14,0	16,7	19,0	19,6	19,5	12,1
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	1,1	1,5	1,9	1,4	1,5	1,6	1,6	1,5	1,3	1,3	1,3	1,5
Employment (growth rate)	1,0	1,0	0,9	0,1	0,1	0,1	0,1	-0,1	-0,2	-0,3	-0,2	0,1
Labour input : hours worked (growth rate)	0,5	0,9	0,8	0,1	0,0	0,1	0,1	-0,1	-0,2	-0,3	-0,2	0,1
Labour productivity per hour (growth rate)	0,6	0,6	1,1	1,3	1,4	1,5	1,5	1,5	1,5	1,5	1,5	1,4
TFP (growth rate)	0,3	0,4	0,7	0,8	0,9	1,0	1,0	1,0	1,0	1,0	1,0	0,9
Capital deepening (contribution to labour productivity growth)	0,3	0,2	0,3	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
GDP per capita (growth rate)	0,6	0,9	1,3	0,9	1,0	1,3	1,3	1,3	1,3	1,3	1,4	1,2
GDP per worker (growth rate)	0,2	0,5	1,0	1,3	1,4	1,5	1,5	1,5	1,5	1,5	1,5	1,3
GDP in 2013 prices (in millions euros)	313,2	322,0	349,9	378,1	406,1	439,3	476,1	513,8	550,7	586,9	625,6	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	5717	5751	5824	5822	5756	5706	5732	5768	5717	5634	5536	-181
Population growth (working age:15-64)	0,4	0,3	0,2	-0,1	-0,2	-0,1	0,2	0,0	-0,2	-0,3	-0,3	-0,7
Population (20-64) (in thousands)	5242	5296	5390	5380	5293	5221	5242	5287	5245	5164	5062	-180
Population growth (20-64)	0,6	0,5	0,2	-0,2	-0,4	-0,1	0,2	0,0	-0,2	-0,4	-0,3	-0,9
Labour force 15-64 (thousands)	4353	4403	4490	4475	4444	4452	4489	4501	4454	4383	4317	-36
Labour force 20-64 (thousands)	4150	4209	4308	4289	4249	4248	4282	4298	4255	4186	4118	-32
Participation rate (20-64)	79,2	79,5	79,9	79,7	80,3	81,4	81,7	81,3	81,1	81,1	81,3	2,2
Participation rate (15-74)	67,2	67,8	68,6	68,0	67,1	67,0	67,8	68,5	68,3	67,6	67,3	0,1
Participation rate (15-64)	76,1	76,6	77,1	76,9	77,2	78,0	78,3	78,0	77,9	77,8	78,0	1,8
young (15-24)	59,9	61,0	60,6	60,0	59,7	59,6	59,9	60,1	60,1	59,8	59,7	-0,2
prime-age (25-54)	88,8	88,9	89,0	89,1	89,3	89,3	89,3	89,3	89,4	89,4	89,4	0,6
older (55-64)	46,4	48,6	54,9	56,2	56,6	58,4	60,5	60,1	60,1	59,5	59,7	13,3
Participation rate (20-64) - WOMEN	74,1	74,7	75,5	76,1	77,3	79,0	79,6	79,3	79,1	79,0	79,3	5,2
Participation rate (15-74) - WOMEN	62,0	62,8	63,9	63,8	63,3	63,7	64,8	65,7	65,6	64,9	64,7	2,7
Participation rate (15-64) - WOMEN	71,1	71,8	72,6	73,1	74,1	75,4	76,0	75,7	75,6	75,5	75,7	4,6
young (15-24)	55,9	56,5	55,9	55,3	55,0	54,9	55,2	55,4	55,4	55,1	55,0	-0,9
prime-age (25-54)	85,0	85,5	86,5	87,0	87,5	87,7	87,8	87,7	87,7	87,7	87,7	2,7
older (55-64)	36,8	39,2	45,4	49,2	51,5	55,2	58,2	58,2	58,2	57,4	57,7	20,9
Participation rate (20-64) - MEN	84,3	84,2	84,3	83,3	83,2	83,7	83,7	83,3	83,1	83,0	83,3	-1,0
Participation rate (15-74) - MEN	72,5	72,8	73,3	72,3	70,8	70,2	70,7	71,3	71,0	70,2	69,8	-2,7
Participation rate (15-64) - MEN	81,2	81,3	81,5	80,6	80,3	80,6	80,6	80,3	80,2	80,1	80,2	-1,0
young (15-24)	63,7	65,2	65,0	64,5	64,1	64,2	64,4	64,6	64,5	64,3	64,2	0,4
prime-age (25-54)	92,7	92,2	91,5	91,2	91,0	90,9	90,8	90,9	91,0	91,1	91,1	-1,6
older (55-64)	56,6	58,5	64,7	63,4	61,8	61,8	62,8	62,0	62,0	61,5	61,7	5,1
Employment rate (15-64)	72,3	73,0	73,9	73,9	74,2	75,0	75,3	75,1	74,9	74,8	75,0	2,7
Employment rate (20-64)	75,5	76,0	76,8	76,9	77,4	78,5	78,8	78,4	78,2	78,1	78,4	3,0
Employment rate (15-74)	63,9	64,6	65,8	65,5	64,6	64,5	65,3	66,0	65,8	65,1	64,8	0,9
Unemployment rate (15-64)	5,0	4,7	4,2	3,8	3,8	3,8	3,8	3,8	3,8	3,8	3,8	-1,2
Unemployment rate (20-64)	4,7	4,4	4,0	3,6	3,6	3,6	3,6	3,6	3,6	3,6	3,6	-1,1
Unemployment rate (15-74)	4,9	4,6	4,1	3,7	3,7	3,7	3,7	3,7	3,7	3,7	3,7	-1,3
Employment (20-64) (in millions)	4,0	4,0	4,1	4,1	4,1	4,1	4,1	4,1	4,1	4,0	4,0	0,0
Employment (15-64) (in millions)	4,1	4,2	4,3	4,3	4,3	4,3	4,3	4,3	4,3	4,2	4,2	0,0
share of young (15-24)	13%	13%	12%	12%	12%	13%	13%	13%	13%	13%	13%	0%
share of prime-age (25-54)	76%	75%	72%	71%	71%	72%	71%	71%	70%	70%	71%	-5%
share of older (55-64)	11%	12%	16%	17%	16%	15%	16%	17%	17%	17%	16%	5%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	17,8	18,6	21,6	23,3	22,0	19,9	20,1	21,2	22,0	21,8	21,0	3,2
Old-age dependency ratio (2)	27	28	29	33	38	42	44	45	47	49	51	24
Total dependency ratio (3)	48	49	51	56	61	66	68	68	70	73	75	27
Total economic dependency ratio (4)	102	101	100	103	108	111	113	115	118	120	122	20
Economic old-age dependency ratio (15-64) (5)	36	36	38	41	46	52	54	56	58	60	62	27
Economic old-age dependency ratio (15-74) (6)	35	36	37	40	44	49	52	54	55	57	59	24

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

21. POLAND

Table III.21.1:

Poland	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,32	1,34	1,39	1,43	1,47	1,50	1,53	1,55	1,58	1,60	1,62	0,3
Life expectancy at birth												
men	72,8	73,3	74,5	75,6	76,7	77,8	78,8	79,8	80,8	81,7	82,6	9,7
women	80,9	81,3	82,2	83,0	83,8	84,6	85,3	86,1	86,8	87,4	88,1	7,1
Life expectancy at 65												
men	15,4	15,7	16,3	17,0	17,7	18,3	18,9	19,5	20,1	20,7	21,3	5,9
women	19,6	19,9	20,5	21,1	21,7	22,2	22,8	23,4	23,9	24,4	24,9	5,3
Net migration (thousand)	-15,6	0,0	2,9	-4,3	-0,9	13,7	25,4	30,7	29,5	20,3	11,6	27,1
Net migration as % of population	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,1	0,1	0,0	0,1
Population (million)	38,5	38,5	38,4	38,0	37,5	36,8	36,2	35,5	34,8	34,0	33,2	-5,3
Children population (0-14) as % of total population	15,0	15,1	15,3	14,5	13,6	12,8	12,6	12,9	13,2	13,2	13,0	-2,1
Prime age population (25-54) as % of total population	43,6	43,3	43,0	42,4	40,7	38,8	36,3	34,8	33,8	33,5	33,6	-10,0
Working age population (15-64) as % of total population	70,5	69,5	66,3	64,3	63,7	63,5	62,2	59,8	56,9	55,0	54,1	-16,4
Elderly population (65 and over) as % of total population	14,5	15,5	18,4	21,2	22,7	23,7	25,1	27,3	29,9	31,8	33,0	18,5
Very elderly population (80 and over) as % of total population	3,8	4,0	4,4	4,4	5,8	7,7	9,2	9,5	9,5	10,4	12,3	8,5
Very elderly population (80 and over) as % of elderly population	26,2	25,8	23,8	21,0	25,5	32,5	36,8	34,9	31,8	32,7	37,2	10,9
Very elderly population (80 and over) as % of working age population	5,4	5,8	6,6	6,9	9,1	12,1	14,9	16,0	16,8	18,9	22,7	17,3
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	3,2	3,4	2,6	2,5	1,9	1,5	1,3	0,9	0,6	0,5	0,7	1,6
Employment (growth rate)	0,7	0,6	-0,4	-0,4	-0,4	-0,3	-0,6	-0,9	-1,2	-1,1	-0,9	-0,6
Labour input : hours worked (growth rate)	0,4	0,4	-0,5	-0,4	-0,4	-0,4	-0,6	-0,9	-1,2	-1,1	-0,8	-0,6
Labour productivity per hour (growth rate)	2,8	3,0	3,1	2,9	2,3	1,9	1,9	1,9	1,8	1,7	1,5	2,2
TFP (growth rate)	1,4	1,4	1,8	1,8	1,5	1,2	1,2	1,2	1,1	1,1	1,0	1,4
Capital deepening (contribution to labour productivity growth)	1,4	1,5	1,3	1,1	0,8	0,7	0,7	0,7	0,6	0,6	0,5	0,9
GDP per capita (growth rate)	3,3	3,4	2,7	2,8	2,3	1,9	1,6	1,3	1,0	1,0	1,2	1,9
GDP per worker (growth rate)	2,5	2,7	3,1	2,9	2,3	1,9	1,9	1,9	1,8	1,7	1,6	2,2
GDP in 2013 prices (in millions euros)	389,7	415,9	477,2	541,8	603,4	655,7	703,8	742,1	768,9	789,5	813,8	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	27151	26739	25455	24456	23864	23385	22511	21216	19779	18699	17951	-9200
Population growth (working age:15-64)	-0,6	-0,8	-1,0	-0,6	-0,4	-0,5	-1,0	-1,3	-1,4	-1,0	-0,7	0,0
Population (20-64) (in thousands)	24976	24718	23631	22380	21887	21490	20785	19631	18236	17124	16368	-8608
Population growth (20-64)	-0,3	-0,6	-1,0	-0,9	-0,4	-0,4	-0,9	-1,3	-1,5	-1,1	-0,7	-0,4
Labour force 15-64 (thousands)	18296	18178	17732	17111	16668	16273	15699	14874	13890	13099	12557	-5738
Labour force 20-64 (thousands)	18149	18043	17613	16985	16539	16150	15585	14770	13791	12999	12456	-5693
Participation rate (20-64)	72,7	73,0	74,5	75,9	75,6	75,1	75,0	75,2	75,6	75,9	76,1	3,4
Participation rate (15-74)	61,5	61,5	61,2	61,0	61,5	62,2	62,1	61,1	59,9	59,4	59,9	-1,6
Participation rate (15-64)	67,4	68,0	69,7	70,0	69,8	69,6	69,7	70,1	70,2	70,1	70,0	2,6
young (15-24)	33,9	34,3	33,1	29,8	31,9	32,2	33,0	33,0	32,2	31,5	31,6	-2,3
prime-age (25-54)	84,6	84,6	84,3	83,8	83,2	82,7	82,6	82,8	83,0	82,8	82,8	-1,8
older (55-64)	44,2	45,7	50,0	55,2	59,4	61,7	63,7	64,5	64,2	63,8	64,3	20,1
Participation rate (20-64) - WOMEN	65,2	65,4	66,7	68,2	68,3	68,1	68,4	68,9	69,3	69,6	69,8	4,6
Participation rate (15-74) - WOMEN	54,4	54,2	53,7	53,9	54,7	55,8	56,0	55,4	54,5	54,1	54,6	0,2
Participation rate (15-64) - WOMEN	60,6	61,0	62,4	63,0	63,2	63,2	63,7	64,3	64,4	64,2	64,2	3,6
young (15-24)	28,7	29,0	27,9	25,1	26,9	27,2	27,8	27,8	27,1	26,5	26,6	-2,1
prime-age (25-54)	79,1	78,8	78,4	77,9	77,3	76,7	76,4	76,4	76,6	76,7	76,6	-2,5
older (55-64)	33,4	34,9	37,5	42,3	48,7	53,0	57,3	59,5	59,4	58,9	59,3	25,9
Participation rate (20-64) - MEN	80,2	80,6	82,4	83,6	82,8	82,1	81,5	81,5	81,8	82,1	82,2	2,0
Participation rate (15-74) - MEN	68,8	69,0	69,0	68,3	68,5	68,8	68,3	66,8	65,4	64,7	65,1	-3,7
Participation rate (15-64) - MEN	74,2	75,0	76,9	76,9	76,5	76,0	75,8	75,9	75,9	75,7	75,5	1,3
young (15-24)	38,9	39,2	37,9	34,2	36,7	37,0	37,9	37,9	37,0	36,2	36,3	-2,6
prime-age (25-54)	90,1	90,2	90,1	89,6	89,0	88,6	88,7	89,0	89,3	89,2	88,9	-1,2
older (55-64)	56,2	57,7	63,6	69,0	70,8	70,9	70,4	69,7	69,3	69,0	69,3	13,1
Employment rate (15-64)	60,3	61,5	63,6	63,6	63,9	64,1	64,5	64,9	65,0	64,8	64,7	4,4
Employment rate (20-64)	65,2	66,2	68,2	69,1	69,3	69,3	69,5	69,7	70,1	70,4	70,5	5,4
Employment rate (15-74)	55,1	55,7	56,0	55,6	56,4	57,5	57,6	56,8	55,7	55,2	55,6	0,6
Unemployment rate (15-64)	10,5	9,5	8,7	9,1	8,5	7,9	7,5	7,5	7,5	7,5	7,5	-3,1
Unemployment rate (20-64)	10,3	9,3	8,5	8,9	8,4	7,8	7,3	7,3	7,3	7,3	7,3	-3,0
Unemployment rate (15-74)	10,4	9,4	8,5	8,8	8,3	7,7	7,2	7,1	7,0	7,0	7,1	-3,3
Employment (20-64) (in millions)	16,3	16,4	16,1	15,5	15,2	14,9	14,4	13,7	12,8	12,0	11,5	-4,7
Employment (15-64) (in millions)	16,4	16,5	16,2	15,6	15,2	15,0	14,5	13,8	12,9	12,1	11,6	-4,8
share of young (15-24)	7%	7%	6%	6%	7%	7%	7%	6%	6%	7%	7%	0%
share of prime-age (25-54)	79%	79%	79%	80%	77%	73%	70%	69%	71%	73%	74%	-5%
share of older (55-64)	14%	14%	15%	15%	17%	20%	24%	24%	23%	21%	19%	5%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	20,3	20,8	19,9	18,0	19,0	22,2	25,3	26,0	24,5	22,1	20,0	-0,3
Old-age dependency ratio (2)	21	22	28	33	36	37	40	46	53	58	61	40
Total dependency ratio (3)	42	44	51	55	57	57	61	67	76	82	85	43
Total economic dependency ratio (4)	132	130	130	134	135	135	136	141	150	159	166	34
Economic old-age dependency ratio (15-64) (5)	33	35	40	47	51	54	57	64	73	81	87	54
Economic old-age dependency ratio (15-74) (6)	32	34	39	45	49	51	54	59	67	75	81	48

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

22. PORTUGAL

Portugal	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,27	1,29	1,32	1,35	1,37	1,40	1,43	1,45	1,47	1,49	1,52	0,3
Life expectancy at birth												
men	77,4	77,8	78,6	79,4	80,2	81,0	81,7	82,4	83,1	83,8	84,5	7,1
women	83,5	83,8	84,4	85,1	85,7	86,3	86,9	87,5	88,1	88,6	89,2	5,7
Life expectancy at 65												
men	17,6	17,8	18,3	18,8	19,4	19,9	20,4	20,9	21,3	21,8	22,3	4,7
women	21,2	21,4	21,9	22,4	22,9	23,3	23,8	24,3	24,7	25,2	25,6	4,4
Net migration (thousand)	-40,3	-24,9	0,3	6,9	9,2	10,2	11,9	10,2	8,3	8,0	7,9	48,2
Net migration as % of population	-0,4	-0,2	0,0	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,5
Population (million)	10,5	10,3	10,1	9,9	9,8	9,6	9,4	9,1	8,8	8,5	8,2	-2,3
Children population (0-14) as % of total population	14,7	14,1	13,0	12,1	11,6	11,6	11,7	11,7	11,5	11,3	11,3	-3,3
Prime age population (25-54) as % of total population	42,3	41,7	39,9	38,5	36,7	34,9	34,0	33,7	33,3	32,7	32,2	-10,1
Working age population (15-64) as % of total population	65,7	65,4	64,6	63,5	61,5	59,3	56,7	54,6	53,8	54,1	54,1	-11,6
Elderly population (65 and over) as % of total population	19,6	20,4	22,4	24,5	26,8	29,1	31,6	33,7	34,6	34,6	34,6	14,9
Very elderly population (80 and over) as % of total population	5,4	5,8	6,6	7,2	8,1	9,3	10,5	11,9	13,3	14,8	16,1	10,7
Very elderly population (80 and over) as % of elderly population	27,7	28,4	29,4	29,3	30,3	31,9	33,2	35,4	38,3	42,9	46,5	18,8
Very elderly population (80 and over) as % of working age population	8,3	8,9	10,2	11,3	13,2	15,6	18,5	21,9	24,6	27,5	29,7	21,5

Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	-0,7	-0,3	1,7	1,3	1,2	1,0	0,8	0,7	0,7	0,8	0,8	0,9
Employment (growth rate)	-1,5	-1,0	0,7	-0,2	-0,5	-0,8	-1,1	-1,1	-1,1	-0,8	-0,7	-0,6
Labour input : hours worked (growth rate)	-1,2	-0,8	0,7	-0,3	-0,5	-0,8	-1,1	-1,1	-1,0	-0,8	-0,7	-0,6
Labour productivity per hour (growth rate)	0,4	0,5	1,0	1,6	1,7	1,9	1,9	1,9	1,8	1,7	1,5	1,5
TFP (growth rate)	0,5	0,5	0,8	0,9	1,1	1,2	1,2	1,2	1,1	1,1	1,0	1,0
Capital deepening (contribution to labour productivity growth)	-0,1	0,0	0,2	0,6	0,6	0,7	0,7	0,7	0,6	0,6	0,5	0,5
GDP per capita (growth rate)	-0,2	0,3	2,1	1,7	1,6	1,5	1,3	1,3	1,4	1,6	1,6	1,4
GDP per worker (growth rate)	0,7	0,7	1,0	1,5	1,7	1,9	1,9	1,9	1,8	1,7	1,6	1,6
GDP in 2013 prices (in millions euros)	165,7	164,5	171,2	187,0	198,8	209,9	219,7	228,1	236,5	246,1	256,4	

Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	6872	6765	6538	6307	6003	5676	5308	4977	4756	4605	4435	-2437
Population growth (working age:15-64)	-0,9	-0,7	-0,6	-0,8	-1,1	-1,2	-1,4	-1,1	-0,7	-0,7	-0,8	0,1
Population (20-64) (in thousands)	6323	6211	6008	5812	5559	5275	4924	4594	4375	4236	4087	-2236
Population growth (20-64)	-0,9	-0,9	-0,5	-0,7	-0,9	-1,1	-1,5	-1,2	-0,8	-0,7	-0,7	0,1
Labour force 15-64 (thousands)	5021	4960	4842	4718	4531	4299	4022	3771	3595	3468	3334	-1687
Labour force 20-64 (thousands)	4954	4894	4776	4656	4473	4248	3974	3723	3548	3422	3290	-1663
Participation rate (20-64)	78,3	78,8	79,5	80,1	80,5	80,5	80,7	81,0	81,1	80,8	80,5	2,2
Participation rate (15-74)	65,8	65,6	65,6	66,2	66,6	66,5	66,3	65,8	66,0	66,8	67,2	1,4
Participation rate (15-64)	73,1	73,3	74,1	74,8	75,5	75,7	75,8	75,8	75,6	75,3	75,2	2,1
young (15-24)	35,3	35,6	36,2	36,9	37,7	37,6	36,8	36,2	36,2	36,6	36,9	1,6
prime-age (25-54)	88,2	88,2	88,6	88,7	88,8	88,7	88,6	88,5	88,5	88,4	88,4	0,2
older (55-64)	54,3	56,6	61,8	65,2	67,6	68,6	68,6	68,3	68,6	68,8	68,6	14,3
Participation rate (20-64) - WOMEN	74,6	75,6	77,3	78,6	79,3	79,5	79,7	80,0	80,1	79,8	79,5	4,9
Participation rate (15-74) - WOMEN	61,7	62,0	62,9	64,0	64,7	64,8	64,5	63,9	64,2	65,1	65,6	3,9
Participation rate (15-64) - WOMEN	69,8	70,6	72,3	73,6	74,6	74,9	74,9	74,9	74,7	74,4	74,3	4,5
young (15-24)	34,0	34,5	34,9	35,5	36,4	36,4	35,4	34,9	34,8	35,2	35,6	1,5
prime-age (25-54)	85,6	86,0	87,3	88,0	88,2	88,1	87,8	87,8	87,7	87,7	87,7	2,1
older (55-64)	46,8	49,9	57,0	61,8	65,8	67,5	67,9	67,7	67,6	67,8	67,6	20,9
Participation rate (20-64) - MEN	82,3	82,2	81,8	81,7	81,7	81,6	81,8	82,0	82,1	81,7	81,4	-0,9
Participation rate (15-74) - MEN	70,3	69,5	68,5	68,5	68,6	68,4	68,1	67,7	67,9	68,5	68,8	-1,5
Participation rate (15-64) - MEN	76,5	76,2	75,9	76,1	76,4	76,5	76,6	76,6	76,5	76,2	76,0	-0,4
young (15-24)	36,6	36,6	37,4	38,2	38,8	38,8	38,0	37,5	37,4	37,8	38,2	1,5
prime-age (25-54)	91,0	90,6	89,9	89,4	89,4	89,3	89,3	89,3	89,2	89,1	89,1	-1,9
older (55-64)	62,7	64,2	67,1	69,1	69,7	69,8	69,3	69,1	69,6	69,8	69,5	6,8
Employment rate (15-64)	60,6	62,5	64,7	68,1	69,1	69,8	70,1	70,1	69,9	69,7	69,6	8,9
Employment rate (20-64)	65,4	67,5	69,8	73,2	73,9	74,4	74,8	75,2	75,2	74,9	74,7	9,3
Employment rate (15-74)	55,0	56,2	57,7	60,5	61,3	61,7	61,7	61,3	61,5	62,2	62,6	7,6
Unemployment rate (15-64)	17,0	14,8	12,6	8,9	8,4	7,9	7,5	7,5	7,5	7,5	7,5	-9,6
Unemployment rate (20-64)	16,5	14,4	12,2	8,7	8,2	7,7	7,3	7,3	7,3	7,3	7,3	-9,3
Unemployment rate (15-74)	16,5	14,3	12,1	8,5	7,9	7,3	6,9	6,8	6,9	6,9	6,9	-9,6
Employment (20-64) (in millions)	4,1	4,2	4,2	4,3	4,1	3,9	3,7	3,5	3,3	3,2	3,1	-1,1
Employment (15-64) (in millions)	4,2	4,2	4,2	4,3	4,1	4,0	3,7	3,5	3,3	3,2	3,1	-1,1
share of young (15-24)	6%	6%	7%	7%	7%	7%	7%	7%	7%	7%	7%	1%
share of prime-age (25-54)	79%	78%	75%	72%	71%	69%	70%	73%	73%	71%	70%	-9%
share of older (55-64)	15%	16%	19%	20%	22%	24%	23%	21%	20%	21%	22%	7%

Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	19,4	19,9	21,6	22,9	24,5	26,0	25,0	22,6	21,9	23,0	24,1	4,8
Old-age dependency ratio (2)	30	31	35	39	44	49	56	62	64	64	64	34
Total dependency ratio (3)	52	53	55	58	63	69	76	83	86	85	85	33
Total economic dependency ratio (4)	140	135	128	118	118	121	127	134	139	142	142	1
Economic old-age dependency ratio (15-64) (5)	45	46	49	50	55	61	69	76	81	82	82	37
Economic old-age dependency ratio (15-74) (6)	43	44	46	47	51	56	62	68	73	75	74	32

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

23. ROMANIA

Table III.23.1:

Romania		EC-EPC (AWG) 2015 projections										

Main demographic and macroeconomic assumptions												
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,65	1,67	1,73	1,76	1,79	1,80	1,81	1,82	1,82	1,83	1,83	0,2
Life expectancy at birth												
men	71,2	71,7	73,0	74,3	75,5	76,7	77,8	78,8	79,9	80,9	81,8	10,6
women	78,2	78,6	79,7	80,7	81,6	82,6	83,5	84,3	85,1	85,9	86,7	8,5
Life expectancy at 65												
men	14,5	14,8	15,5	16,2	16,9	17,5	18,2	18,8	19,5	20,1	20,7	6,2
women	17,7	18,0	18,6	19,3	20,0	20,6	21,3	21,9	22,6	23,2	23,8	6,1
Net migration (thousand)	-9,2	2,6	0,4	-24,1	-24,7	11,6	11,6	10,0	7,1	5,3	2,4	11,6
Net migration as % of population	0,0	0,0	0,0	-0,1	-0,1	0,1	0,1	0,1	0,0	0,0	0,0	0,1
Population (million)	20,0	19,9	19,7	19,4	19,0	18,7	18,4	18,2	17,9	17,7	17,4	-2,6
Children population (0-14) as % of total population	15,6	15,6	15,6	15,3	15,3	15,0	14,9	15,0	15,2	15,3	15,3	-0,4
Prime age population (25-54) as % of total population	42,5	42,6	42,7	40,4	38,3	36,3	35,2	34,0	34,0	34,0	34,1	-8,5
Working age population (15-64) as % of total population	68,0	67,3	65,5	64,1	63,8	61,8	60,0	58,0	57,0	55,7	55,8	-12,1
Elderly population (65 and over) as % of total population	16,4	17,1	18,9	20,5	20,8	23,2	25,1	27,0	27,8	29,0	28,9	12,5
Very elderly population (80 and over) as % of total population	3,9	4,1	4,7	4,7	5,5	6,8	7,7	7,5	9,0	10,3	11,5	7,7
Very elderly population (80 and over) as % of elderly population	23,6	24,0	24,6	22,9	26,3	29,1	30,6	27,7	32,5	35,4	39,9	16,3
Very elderly population (80 and over) as % of working age population	5,7	6,1	7,1	7,3	8,6	10,9	12,8	12,9	15,9	18,5	20,7	15,0
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	1,9	2,2	2,2	1,9	1,4	1,4	1,5	1,5	1,4	1,3	1,1	1,6
Employment (growth rate)	0,1	-0,1	-0,6	-0,8	-1,1	-0,9	-0,8	-0,8	-0,7	-0,5	-0,4	-0,7
Labour input : hours worked (growth rate)	0,4	0,2	-0,6	-0,8	-1,1	-0,9	-0,8	-0,8	-0,7	-0,5	-0,4	-0,7
Labour productivity per hour (growth rate)	1,5	2,0	2,7	2,7	2,5	2,3	2,3	2,3	2,1	1,8	1,5	2,3
TFP (growth rate)	0,7	1,0	1,5	1,7	1,6	1,5	1,5	1,5	1,3	1,2	1,0	1,4
Capital deepening (contribution to labour productivity growth)	0,8	1,0	1,2	1,1	0,9	0,8	0,8	0,8	0,7	0,6	0,5	0,9
GDP per capita (growth rate)	2,2	2,4	2,4	2,3	1,8	1,7	1,8	1,8	1,6	1,6	1,5	1,9
GDP per worker (growth rate)	1,8	2,3	2,8	2,8	2,5	2,3	2,3	2,3	2,1	1,8	1,5	2,3
GDP in 2013 prices (in millions euros)	142,2	148,4	165,6	183,4	198,4	212,5	228,9	246,3	264,6	282,7	300,7	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	13588	13393	12882	12415	12103	11529	11056	10551	10236	9863	9721	-3867
Population growth (working age:15-64)	-0,8	-0,8	-0,9	-0,6	-0,3	-1,0	-1,0	-0,9	-0,6	-0,6	-0,3	0,5
Population (20-64) (in thousands)	12496	12304	11824	11349	11135	10512	10082	9609	9311	8939	8801	-3695
Population growth (20-64)	-0,9	-0,8	-0,9	-0,6	-0,3	-1,0	-1,0	-0,9	-0,6	-0,7	-0,3	0,6
Labour force 15-64 (thousands)	8683	8615	8344	8008	7655	7196	6844	6557	6351	6166	6073	-2610
Labour force 20-64 (thousands)	8560	8494	8225	7888	7548	7081	6734	6450	6247	6063	5970	-2590
Participation rate (20-64)	68,5	69,0	69,6	69,5	67,8	67,4	66,8	67,1	67,1	67,8	67,8	-0,7
Participation rate (15-74)	59,0	58,6	57,7	56,9	56,4	55,1	53,5	53,3	53,4	53,8	54,1	-4,9
Participation rate (15-64)	63,9	64,3	64,8	64,5	63,2	62,4	61,9	62,1	62,0	62,5	62,5	-1,4
young (15-24)	29,8	28,8	28,7	28,4	29,1	28,0	29,1	29,0	28,8	28,6	28,6	-1,1
prime-age (25-54)	80,1	79,9	79,1	78,5	77,8	77,7	77,4	77,5	77,6	77,6	77,6	-2,5
older (55-64)	43,0	44,5	46,3	51,3	50,0	49,7	48,4	49,4	47,8	48,6	48,7	5,7
Participation rate (20-64) - WOMEN	59,7	59,9	60,1	59,9	58,1	57,7	57,1	57,5	57,5	58,2	58,2	-1,5
Participation rate (15-74) - WOMEN	51,1	50,5	49,2	48,3	47,7	46,6	45,0	44,9	45,0	45,6	45,8	-5,2
Participation rate (15-64) - WOMEN	55,7	55,9	56,0	55,7	54,3	53,5	53,0	53,2	53,2	53,7	53,6	-2,1
young (15-24)	24,7	24,1	24,2	23,9	24,5	23,6	24,5	24,4	24,2	24,1	24,1	-0,6
prime-age (25-54)	72,0	71,7	70,3	69,4	68,6	68,4	68,0	68,1	68,2	68,2	68,1	-3,8
older (55-64)	33,4	33,8	35,2	39,9	39,0	39,0	37,7	38,5	36,9	37,7	37,7	4,3
Participation rate (20-64) - MEN	77,3	78,1	78,9	78,9	77,3	76,8	76,3	76,5	76,5	77,2	77,2	-0,1
Participation rate (15-74) - MEN	67,1	66,9	66,3	65,7	65,2	63,8	62,0	61,7	61,7	62,0	62,2	-4,9
Participation rate (15-64) - MEN	72,0	72,7	73,4	73,2	72,0	71,1	70,7	70,8	70,7	71,1	71,1	-1,0
young (15-24)	34,6	33,3	33,1	32,7	33,5	32,3	33,5	33,4	33,2	33,0	33,0	-1,6
prime-age (25-54)	87,8	87,8	87,7	87,2	86,8	86,7	86,5	86,6	86,6	86,7	86,6	-1,2
older (55-64)	53,9	56,6	58,4	63,3	61,5	60,9	59,5	60,5	58,8	59,8	59,9	6,0
Employment rate (15-64)	59,1	59,8	60,2	60,0	58,9	58,1	57,7	57,9	57,8	58,2	58,2	-1,0
Employment rate (20-64)	63,6	64,4	64,9	64,9	63,3	63,0	62,5	62,8	62,7	63,4	63,4	-0,2
Employment rate (15-74)	54,8	54,6	53,7	53,1	52,6	51,5	50,0	49,8	49,9	50,3	50,5	-4,2
Unemployment rate (15-64)	7,4	7,1	7,1	7,0	7,0	6,9	6,9	6,9	6,9	6,9	6,9	-0,6
Unemployment rate (20-64)	7,1	6,8	6,7	6,6	6,6	6,5	6,5	6,5	6,5	6,5	6,5	-0,6
Unemployment rate (15-74)	7,1	6,9	6,8	6,7	6,7	6,6	6,5	6,5	6,5	6,5	6,5	-0,6
Employment (20-64) (in millions)	8,0	7,9	7,7	7,4	7,0	6,6	6,3	6,0	5,8	5,7	5,6	-2,4
Employment (15-64) (in millions)	8,0	8,0	7,8	7,4	7,1	6,7	6,4	6,1	5,9	5,7	5,7	-2,4
share of young (15-24)	7%	6%	6%	6%	6%	6%	7%	7%	7%	7%	7%	1%
share of prime-age (25-54)	79%	79%	80%	77%	75%	74%	74%	74%	75%	76%	77%	-3%
share of older (55-64)	14%	14%	13%	16%	19%	20%	19%	19%	18%	16%	16%	2%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	20,3	20,2	18,1	19,9	23,2	23,9	23,2	23,1	22,0	20,1	19,9	-0,4
Old-age dependency ratio (2)	24	25	29	32	33	38	42	47	49	52	52	28
Total dependency ratio (3)	47	49	53	56	57	62	67	72	75	80	79	32
Total economic dependency ratio (4)	138	139	143	148	156	165	172	180	187	191	192	54
Economic old-age dependency ratio (15-64) (5)	36	39	44	49	51	59	66	74	78	84	84	47
Economic old-age dependency ratio (15-74) (6)	35	37	42	46	49	56	62	70	74	79	79	45

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

24. SLOVENIA

Slovenia	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,59	1,60	1,63	1,65	1,67	1,69	1,70	1,71	1,73	1,74	1,75	0,2
Life expectancy at birth												
men	77,2	77,5	78,4	79,2	80,0	80,8	81,5	82,3	83,0	83,6	84,3	7,1
women	83,1	83,4	84,1	84,7	85,4	86,0	86,7	87,3	87,8	88,4	88,9	5,9
Life expectancy at 65												
men	17,1	17,4	17,9	18,5	19,0	19,5	20,0	20,6	21,1	21,5	22,0	4,9
women	20,9	21,1	21,6	22,2	22,7	23,2	23,6	24,1	24,6	25,0	25,5	4,6
Net migration (thousand)	0,8	3,9	4,1	4,0	4,6	4,8	5,5	5,7	5,4	4,7	4,5	3,7
Net migration as % of population	0,0	0,2	0,2	0,2	0,2	0,2	0,3	0,3	0,3	0,2	0,2	0,2
Population (million)	2,1	2,1	2,1	2,1	2,1	2,1	2,1	2,1	2,1	2,1	2,0	0,0
Children population (0-14) as % of total population	14,5	14,8	15,4	14,9	14,0	13,4	13,6	14,3	14,9	14,9	14,7	0,2
Prime age population (25-54) as % of total population	43,8	43,1	40,6	38,4	36,4	34,9	34,2	33,8	34,1	34,5	35,0	-8,9
Working age population (15-64) as % of total population	68,2	67,0	64,0	62,2	61,0	59,9	58,5	56,6	55,3	55,0	55,9	-12,2
Elderly population (65 and over) as % of total population	17,3	18,1	20,6	22,9	25,0	26,7	27,9	29,2	29,9	30,0	29,4	12,1
Very elderly population (80 and over) as % of total population	4,6	4,9	5,5	6,0	6,8	8,4	9,6	10,6	11,1	11,6	12,4	7,8
Very elderly population (80 and over) as % of elderly population	26,5	26,9	26,7	26,0	27,3	31,5	34,6	36,2	37,2	38,6	42,3	15,8
Very elderly population (80 and over) as % of working age population	6,7	7,3	8,6	9,6	11,2	14,0	16,5	18,7	20,1	21,1	22,2	15,5
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	-0,6	0,5	1,9	1,5	1,4	1,4	1,2	1,3	1,3	1,4	1,6	1,3
Employment (growth rate)	-1,4	-0,3	0,7	-0,3	-0,5	-0,4	-0,5	-0,5	-0,4	-0,2	0,1	-0,3
Labour input : hours worked (growth rate)	-1,8	-0,5	0,5	-0,3	-0,4	-0,4	-0,5	-0,5	-0,4	-0,2	0,1	-0,3
Labour productivity per hour (growth rate)	1,2	0,9	1,4	1,8	1,8	1,8	1,8	1,8	1,7	1,6	1,5	1,6
TFP (growth rate)	0,4	0,5	1,0	1,1	1,1	1,1	1,1	1,1	1,1	1,0	1,0	1,0
Capital deepening (contribution to labour productivity growth)	0,8	0,4	0,4	0,7	0,6	0,6	0,6	0,6	0,6	0,6	0,5	0,6
GDP per capita (growth rate)	-0,8	0,2	1,8	1,5	1,4	1,4	1,3	1,3	1,4	1,6	1,8	1,3
GDP per worker (growth rate)	0,8	0,8	1,3	1,8	1,8	1,8	1,8	1,8	1,7	1,6	1,5	1,6
GDP in 2013 prices (in millions euros)	35,3	35,4	37,5	41,1	44,1	47,2	50,4	53,6	57,1	61,1	65,9	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	1404	1387	1336	1301	1273	1246	1215	1174	1144	1132	1141	-263
Population growth (working age:15-64)	-0,6	-0,6	-0,8	-0,4	-0,5	-0,4	-0,6	-0,7	-0,4	0,0	0,2	0,8
Population (20-64) (in thousands)	1307	1292	1242	1191	1158	1137	1115	1079	1046	1027	1032	-275
Population growth (20-64)	-0,5	-0,6	-0,9	-0,8	-0,4	-0,2	-0,5	-0,7	-0,5	-0,2	0,2	0,7
Labour force 15-64 (thousands)	993	993	995	971	938	915	892	866	847	838	842	-151
Labour force 20-64 (thousands)	981	982	984	959	925	902	880	855	836	826	829	-152
Participation rate (20-64)	75,1	76,0	79,2	80,5	79,8	79,3	78,9	79,3	79,9	80,4	80,4	5,3
Participation rate (15-74)	63,2	63,4	64,2	63,7	63,3	63,2	63,1	63,0	62,8	63,3	64,1	0,9
Participation rate (15-64)	70,7	71,6	74,5	74,6	73,7	73,4	73,4	73,8	74,1	74,1	73,8	3,1
young (15-24)	33,1	34,1	33,7	31,6	32,6	34,1	34,6	34,2	33,4	32,7	32,9	-0,2
prime-age (25-54)	90,8	90,6	90,4	90,1	89,5	89,1	89,1	89,4	89,5	89,5	89,4	-1,4
older (55-64)	35,6	39,5	55,5	62,8	64,7	65,1	63,6	62,8	62,4	63,0	63,4	27,9
Participation rate (20-64) - WOMEN	71,0	71,7	75,5	78,0	77,7	77,1	76,7	77,0	77,6	78,1	78,1	7,1
Participation rate (15-74) - WOMEN	58,8	59,1	60,3	60,6	60,6	60,6	60,6	60,5	60,3	60,7	61,6	2,8
Participation rate (15-64) - WOMEN	66,8	67,6	71,0	72,3	71,6	71,3	71,2	71,6	71,9	71,9	71,6	4,9
young (15-24)	30,3	31,2	30,9	28,9	30,0	31,4	31,8	31,5	30,7	30,0	30,2	0,0
prime-age (25-54)	88,7	88,5	88,3	88,1	87,3	86,9	86,9	87,2	87,3	87,3	87,2	-1,5
older (55-64)	26,4	30,3	48,1	60,4	63,6	63,8	62,2	61,4	60,9	61,6	62,0	35,7
Participation rate (20-64) - MEN	79,0	80,0	82,7	82,9	81,9	81,4	81,0	81,5	82,1	82,6	82,5	3,5
Participation rate (15-74) - MEN	67,5	67,7	68,0	66,7	66,0	65,7	65,6	65,4	65,2	65,7	66,5	-1,0
Participation rate (15-64) - MEN	74,4	75,3	77,8	76,9	75,6	75,3	75,4	75,8	76,1	76,1	75,8	1,4
young (15-24)	35,9	36,9	36,3	34,0	35,1	36,7	37,1	36,8	35,9	35,2	35,4	-0,4
prime-age (25-54)	92,7	92,6	92,3	92,1	91,5	91,1	91,2	91,4	91,6	91,6	91,4	-1,3
older (55-64)	44,7	48,6	62,9	65,2	65,7	66,3	65,0	64,3	63,8	64,5	64,8	20,1
Employment rate (15-64)	63,4	64,6	67,7	69,5	68,7	68,6	68,7	69,1	69,4	69,4	69,1	5,7
Employment rate (20-64)	67,4	68,6	72,1	75,0	74,5	74,2	73,9	74,3	74,9	75,4	75,3	7,9
Employment rate (15-74)	56,8	57,3	58,5	59,4	59,2	59,2	59,3	59,2	59,0	59,4	60,2	3,4
Unemployment rate (15-64)	10,2	9,8	9,1	6,9	6,7	6,5	6,4	6,4	6,4	6,4	6,4	-3,9
Unemployment rate (20-64)	10,2	9,8	9,0	6,9	6,6	6,5	6,3	6,3	6,3	6,3	6,3	-3,9
Unemployment rate (15-74)	10,1	9,7	8,9	6,7	6,5	6,2	6,1	6,1	6,1	6,1	6,1	-4,0
Employment (20-64) (in millions)	0,9	0,9	0,9	0,9	0,9	0,8	0,8	0,8	0,8	0,8	0,8	-0,1
Employment (15-64) (in millions)	0,9	0,9	0,9	0,9	0,9	0,9	0,8	0,8	0,8	0,8	0,8	-0,1
share of young (15-24)	6%	6%	6%	6%	7%	8%	8%	7%	7%	7%	8%	2%
share of prime-age (25-54)	83%	82%	77%	75%	73%	71%	71%	73%	75%	76%	76%	-7%
share of older (55-64)	11%	12%	17%	19%	20%	21%	21%	20%	18%	17%	16%	5%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	20,6	21,2	22,0	22,3	22,3	23,2	23,9	22,9	20,8	18,9	18,3	-2,3
Old-age dependency ratio (2)	25	27	32	37	41	45	48	52	54	55	53	27
Total dependency ratio (3)	47	49	56	61	64	67	71	77	81	82	79	32
Total economic dependency ratio (4)	128	128	127	125	129	132	137	143	148	150	148	21
Economic old-age dependency ratio (15-64) (5)	38	40	46	50	55	60	65	69	73	74	72	33
Economic old-age dependency ratio (15-74) (6)	38	40	45	49	53	58	62	66	69	70	69	31

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

25. SLOVAKIA

Slovakia	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,28	1,29	1,32	1,35	1,38	1,41	1,44	1,46	1,48	1,51	1,53	0,3
Life expectancy at birth												
men	72,7	73,1	74,3	75,4	76,5	77,6	78,6	79,6	80,5	81,5	82,3	9,7
women	79,9	80,2	81,1	82,0	82,8	83,7	84,5	85,2	86,0	86,7	87,4	7,5
Life expectancy at 65												
men	14,7	15,0	15,6	16,3	17,0	17,7	18,3	19,0	19,6	20,2	20,8	6,1
women	18,4	18,7	19,3	20,0	20,6	21,2	21,8	22,4	23,0	23,6	24,2	5,8
Net migration (thousand)	2,0	2,4	3,0	2,0	2,5	2,8	4,7	4,9	4,7	3,9	2,4	0,4
Net migration as % of population	0,0	0,0	0,1	0,0	0,0	0,1	0,1	0,1	0,1	0,1	0,1	0,0
Population (million)	5,4	5,4	5,4	5,4	5,3	5,2	5,1	5,0	4,9	4,7	4,6	-0,9
Children population (0-14) as % of total population	15,3	15,2	15,0	14,0	12,8	12,1	11,7	11,8	11,8	11,7	11,5	-3,8
Prime age population (25-54) as % of total population	45,1	45,1	44,7	43,7	41,5	39,0	37,0	35,0	33,5	33,0	32,8	-12,3
Working age population (15-64) as % of total population	71,4	70,6	68,1	66,5	65,6	64,8	62,8	59,7	56,9	54,6	53,3	-18,0
Elderly population (65 and over) as % of total population	13,3	14,2	16,9	19,5	21,6	23,2	25,5	28,5	31,3	33,6	35,2	21,9
Very elderly population (80 and over) as % of total population	3,0	3,1	3,3	3,9	5,0	6,7	7,9	8,8	9,4	10,8	13,1	10,1
Very elderly population (80 and over) as % of elderly population	22,6	21,8	19,8	20,0	23,1	28,7	31,1	30,8	30,0	32,3	37,1	14,6
Very elderly population (80 and over) as % of working age population	4,2	4,4	4,9	5,8	7,6	10,3	12,6	14,7	16,5	19,8	24,5	20,3
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	2,3	2,5	2,6	3,0	2,5	1,3	0,7	0,6	0,5	0,6	0,8	1,5
Employment (growth rate)	0,5	0,3	-0,6	-0,2	-0,1	-0,4	-1,0	-1,1	-1,1	-1,0	-0,8	-0,6
Labour input : hours worked (growth rate)	0,4	0,2	-0,7	-0,2	-0,1	-0,4	-1,0	-1,1	-1,1	-1,0	-0,8	-0,7
Labour productivity per hour (growth rate)	2,0	2,3	3,2	3,2	2,6	1,7	1,7	1,7	1,7	1,6	1,5	2,2
TFP (growth rate)	2,2	2,3	2,5	2,4	1,7	1,1	1,1	1,1	1,1	1,0	1,0	1,6
Capital deepening (contribution to labour productivity growth)	-0,2	0,1	0,7	0,9	0,9	0,6	0,6	0,6	0,6	0,6	0,5	0,6
GDP per capita (growth rate)	2,2	2,5	2,7	3,2	2,8	1,7	1,1	1,1	1,1	1,2	1,5	1,9
GDP per worker (growth rate)	1,9	2,2	3,2	3,2	2,6	1,7	1,7	1,7	1,7	1,6	1,6	2,2
GDP in 2013 prices (in millions euros)	72,1	75,7	85,5	97,9	112,0	122,4	129,2	133,3	137,0	141,0	145,9	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	3863	3827	3688	3575	3479	3373	3203	2978	2763	2576	2429	-1433
Population growth (working age:15-64)	-0,3	-0,5	-0,7	-0,5	-0,7	-0,7	-1,3	-1,5	-1,5	-1,3	-0,9	-0,6
Population (20-64) (in thousands)	3553	3538	3424	3292	3198	3123	2975	2769	2564	2378	2233	-1320
Population growth (20-64)	0,1	-0,3	-0,8	-0,6	-0,5	-0,6	-1,2	-1,5	-1,6	-1,4	-1,0	-1,0
Labour force 15-64 (thousands)	2706	2693	2623	2533	2446	2355	2222	2077	1941	1824	1736	-971
Labour force 20-64 (thousands)	2687	2676	2608	2517	2429	2340	2208	2064	1930	1812	1724	-963
Participation rate (20-64)	75,6	75,6	76,2	76,5	75,9	74,9	74,2	74,6	75,3	76,2	77,2	1,6
Participation rate (15-74)	63,4	63,1	62,1	60,9	60,6	60,5	59,6	58,4	58,0	58,6	59,8	-3,6
Participation rate (15-64)	70,1	70,4	71,1	70,9	70,3	69,8	69,4	69,7	70,2	70,8	71,4	1,4
young (15-24)	31,2	32,3	30,7	28,5	29,6	31,1	30,8	30,9	30,3	29,6	29,7	-1,5
prime-age (25-54)	87,2	86,5	85,5	84,7	83,9	83,3	82,8	82,7	82,9	83,0	82,9	-4,3
older (55-64)	49,6	50,2	53,8	57,2	60,5	61,3	61,2	62,9	64,5	66,8	70,4	20,8
Participation rate (20-64) - WOMEN	67,5	67,3	68,4	68,9	68,2	66,9	65,8	65,9	66,4	67,3	68,2	0,7
Participation rate (15-74) - WOMEN	55,7	55,2	54,7	53,9	53,7	53,4	52,4	51,1	50,7	51,2	52,3	-3,4
Participation rate (15-64) - WOMEN	62,6	62,6	63,9	63,8	63,1	62,3	61,5	61,7	62,0	62,5	63,1	0,5
young (15-24)	24,1	24,7	23,4	21,7	22,5	23,8	23,5	23,5	23,1	22,6	22,6	-1,5
prime-age (25-54)	80,5	79,2	77,6	76,3	75,1	74,2	73,3	72,7	72,9	73,1	73,2	-7,3
older (55-64)	40,5	42,0	49,6	54,8	58,1	57,8	56,8	58,5	59,7	61,4	64,9	24,4
Participation rate (20-64) - MEN	83,7	84,0	83,9	84,0	83,6	82,8	82,5	83,1	83,9	84,9	85,9	2,2
Participation rate (15-74) - MEN	71,3	71,2	69,6	68,1	67,7	67,7	66,9	65,6	65,2	65,9	67,1	-4,2
Participation rate (15-64) - MEN	77,5	78,0	78,3	77,8	77,4	77,1	77,0	77,6	78,3	78,8	79,5	2,0
young (15-24)	38,0	39,6	37,6	34,9	36,3	38,1	37,8	37,9	37,1	36,3	36,4	-1,5
prime-age (25-54)	93,7	93,6	93,2	92,8	92,4	92,2	92,1	92,3	92,5	92,5	92,3	-1,4
older (55-64)	59,7	59,2	58,4	59,8	63,0	64,8	65,6	67,4	69,5	72,2	75,9	16,2
Employment rate (15-64)	60,1	61,3	62,1	61,9	62,7	63,6	64,2	64,5	65,0	65,5	66,1	6,0
Employment rate (20-64)	65,2	66,1	66,7	67,0	67,9	68,4	68,8	69,1	69,8	70,7	71,6	6,4
Employment rate (15-74)	54,4	55,0	54,2	53,3	54,1	55,2	55,2	54,1	53,8	54,4	55,5	1,0
Unemployment rate (15-64)	14,2	12,9	12,8	12,7	10,8	9,0	7,5	7,5	7,5	7,5	7,5	-6,7
Unemployment rate (20-64)	13,9	12,6	12,5	12,4	10,6	8,8	7,3	7,3	7,3	7,3	7,3	-6,6
Unemployment rate (15-74)	14,2	12,9	12,7	12,6	10,7	8,9	7,3	7,3	7,2	7,2	7,2	-7,0
Employment (20-64) (in millions)	2,3	2,3	2,3	2,2	2,2	2,1	2,0	1,9	1,8	1,7	1,6	-0,7
Employment (15-64) (in millions)	2,3	2,3	2,3	2,2	2,2	2,1	2,1	1,9	1,8	1,7	1,6	-0,7
share of young (15-24)	6%	6%	5%	5%	6%	6%	6%	6%	6%	6%	6%	0%
share of prime-age (25-54)	80%	80%	80%	79%	76%	72%	71%	70%	70%	71%	72%	-8%
share of older (55-64)	14%	14%	15%	16%	18%	22%	24%	25%	25%	23%	22%	9%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	18,9	19,3	19,4	18,9	20,4	23,9	26,1	26,6	26,2	24,1	22,1	3,3
Old-age dependency ratio (2)	19	20	25	29	33	36	41	48	55	62	66	47
Total dependency ratio (3)	40	42	47	50	53	54	59	67	76	83	88	47
Total economic dependency ratio (4)	132	130	134	140	139	138	141	148	156	162	165	33
Economic old-age dependency ratio (15-64) (5)	31	32	39	46	51	54	60	69	79	87	93	62
Economic old-age dependency ratio (15-74) (6)	30	32	39	45	50	53	58	66	75	82	86	56

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

26. FINLAND

Finland	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,80	1,80	1,81	1,82	1,83	1,83	1,84	1,85	1,85	1,85	1,86	0,1
Life expectancy at birth												
men	77,7	78,0	78,9	79,7	80,4	81,2	81,9	82,6	83,3	84,0	84,6	6,9
women	83,5	83,8	84,5	85,1	85,8	86,4	87,0	87,6	88,1	88,7	89,2	5,6
Life expectancy at 65												
men	17,8	18,0	18,5	19,0	19,5	20,0	20,5	21,0	21,5	21,9	22,4	4,6
women	21,4	21,6	22,1	22,6	23,1	23,5	24,0	24,4	24,9	25,3	25,7	4,3
Net migration (thousand)	17,2	20,3	22,0	22,3	21,7	20,2	17,7	14,1	9,6	9,4	8,9	-8,3
Net migration as % of population	0,3	0,4	0,4	0,4	0,4	0,3	0,3	0,2	0,2	0,2	0,1	-0,2
Population (million)	5,4	5,5	5,6	5,8	5,9	6,0	6,1	6,1	6,2	6,2	6,2	0,8
Children population (0-14) as % of total population	16,4	16,4	16,6	16,6	16,6	16,4	16,3	16,3	16,4	16,3	16,2	-0,2
Prime age population (25-54) as % of total population	38,4	38,0	37,3	36,6	36,6	36,6	36,3	36,2	35,7	35,5	35,3	-3,1
Working age population (15-64) as % of total population	64,5	63,4	61,2	59,9	59,0	58,7	59,3	59,3	58,9	58,5	57,8	-6,7
Elderly population (65 and over) as % of total population	19,1	20,2	22,1	23,4	24,5	24,8	24,4	24,4	24,7	25,2	26,0	7,0
Very elderly population (80 and over) as % of total population	5,0	5,1	5,6	6,2	7,9	8,9	9,4	9,7	9,7	9,5	9,8	4,8
Very elderly population (80 and over) as % of elderly population	26,1	25,3	25,1	26,4	32,4	35,9	38,4	39,6	39,2	37,5	37,5	11,3
Very elderly population (80 and over) as % of working age population	7,7	8,1	9,1	10,3	13,5	15,2	15,8	16,3	16,5	16,2	16,9	9,2
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	0,0	0,4	0,9	1,2	1,6	1,9	1,8	1,7	1,5	1,5	1,5	1,4
Employment (growth rate)	-0,3	0,0	0,0	0,0	0,2	0,3	0,3	0,1	0,0	-0,1	0,0	0,1
Labour input : hours worked (growth rate)	-0,4	0,0	0,0	0,0	0,2	0,3	0,3	0,1	0,0	-0,1	0,0	0,1
Labour productivity per hour (growth rate)	0,4	0,4	0,9	1,1	1,4	1,5	1,5	1,5	1,5	1,5	1,5	1,3
TFP (growth rate)	-0,1	0,1	0,5	0,8	0,9	1,0	1,0	1,0	1,0	1,0	1,0	0,8
Capital deepening (contribution to labour productivity growth)	0,5	0,3	0,4	0,4	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
GDP per capita (growth rate)	-0,5	-0,2	0,4	0,7	1,2	1,6	1,6	1,5	1,4	1,3	1,4	1,1
GDP per worker (growth rate)	0,3	0,4	0,9	1,1	1,4	1,5	1,5	1,5	1,5	1,5	1,5	1,3
GDP in 2013 prices (in millions euros)	193,4	194,2	202,0	213,4	228,8	249,8	273,6	298,1	322,6	347,2	373,8	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	3508	3481	3449	3458	3474	3519	3596	3629	3630	3626	3608	100
Population growth (working age:15-64)	-0,5	-0,3	-0,1	0,1	0,1	0,4	0,3	0,1	0,0	-0,1	-0,1	0,4
Population (20-64) (in thousands)	3191	3176	3148	3137	3149	3183	3255	3290	3292	3286	3264	73
Population growth (20-64)	-0,3	-0,2	-0,2	0,0	0,1	0,4	0,3	0,2	0,0	-0,1	-0,1	0,2
Labour force 15-64 (thousands)	2634	2632	2622	2622	2633	2670	2718	2742	2744	2734	2724	89
Labour force 20-64 (thousands)	2528	2529	2523	2516	2525	2559	2605	2629	2632	2622	2610	82
Participation rate (20-64)	79,2	79,6	80,1	80,2	80,2	80,4	80,0	79,9	80,0	79,8	80,0	0,8
Participation rate (15-74)	65,8	65,5	65,0	65,4	65,6	66,0	66,4	66,5	65,9	65,5	65,3	-0,5
Participation rate (15-64)	75,1	75,6	76,0	75,8	75,8	75,9	75,6	75,5	75,6	75,4	75,5	0,4
young (15-24)	52,4	53,1	52,3	51,5	52,1	51,9	52,0	52,1	52,0	51,8	51,8	-0,6
prime-age (25-54)	86,8	86,6	86,2	86,0	85,9	86,0	86,0	86,0	86,0	86,0	86,1	-0,7
older (55-64)	62,7	64,4	66,8	67,3	66,3	67,0	66,1	65,9	66,4	65,5	65,7	3,0
Participation rate (20-64) - WOMEN	77,0	77,5	78,0	78,1	78,3	78,7	78,5	78,5	78,6	78,5	78,6	1,6
Participation rate (15-74) - WOMEN	63,4	63,2	62,8	63,3	63,7	64,2	65,0	65,2	64,7	64,3	64,1	0,7
Participation rate (15-64) - WOMEN	73,5	74,0	74,4	74,3	74,4	74,7	74,6	74,6	74,8	74,6	74,7	1,2
young (15-24)	53,7	54,5	53,8	53,1	53,7	53,5	53,6	53,7	53,6	53,4	53,4	-0,2
prime-age (25-54)	83,3	83,1	83,0	83,0	83,3	83,6	83,8	83,8	83,8	83,9	83,9	0,6
older (55-64)	63,9	65,8	67,5	67,6	66,5	67,1	66,2	66,4	67,3	66,5	66,7	2,9
Participation rate (20-64) - MEN	81,4	81,7	82,2	82,2	82,0	82,1	81,6	81,3	81,3	81,1	81,3	-0,1
Participation rate (15-74) - MEN	68,1	67,7	67,1	67,5	67,5	67,7	67,9	67,8	67,0	66,6	66,4	-1,8
Participation rate (15-64) - MEN	76,7	77,1	77,6	77,3	77,1	77,0	76,6	76,4	76,4	76,2	76,3	-0,4
young (15-24)	51,2	51,7	50,9	50,0	50,5	50,3	50,5	50,6	50,5	50,3	50,3	-0,9
prime-age (25-54)	90,1	89,9	89,3	88,9	88,5	88,3	88,2	88,1	88,1	88,2	88,1	-1,9
older (55-64)	61,5	62,9	66,2	67,0	66,0	66,8	66,0	65,4	65,5	64,5	64,8	3,3
Employment rate (15-64)	68,8	69,3	70,4	70,5	70,5	70,6	70,4	70,4	70,4	70,2	70,3	1,5
Employment rate (20-64)	73,2	73,6	74,8	75,1	75,2	75,5	75,1	75,0	75,1	74,9	75,1	1,8
Employment rate (15-74)	60,3	60,1	60,3	60,9	61,1	61,5	62,0	62,1	61,5	61,1	60,9	0,6
Unemployment rate (15-64)	8,4	8,4	7,3	7,1	7,0	6,9	6,9	6,9	6,9	6,9	6,9	-1,6
Unemployment rate (20-64)	7,5	7,5	6,6	6,3	6,2	6,2	6,1	6,1	6,1	6,1	6,1	-1,4
Unemployment rate (15-74)	8,3	8,2	7,2	6,9	6,8	6,7	6,7	6,7	6,7	6,7	6,7	-1,6
Employment (20-64) (in millions)	2,3	2,3	2,4	2,4	2,4	2,4	2,4	2,5	2,5	2,5	2,5	0,1
Employment (15-64) (in millions)	2,4	2,4	2,4	2,4	2,4	2,5	2,5	2,6	2,6	2,5	2,5	0,1
share of young (15-24)	11%	11%	11%	11%	12%	12%	12%	12%	12%	12%	12%	0%
share of prime-age (25-54)	70%	70%	70%	70%	72%	72%	71%	71%	70%	70%	71%	1%
share of older (55-64)	18%	18%	19%	18%	17%	17%	17%	18%	18%	18%	17%	-1%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	21,7	21,4	21,1	20,5	18,8	18,5	19,6	19,9	20,4	20,3	19,6	-2,1
Old-age dependency ratio (2)	30	32	36	39	41	42	41	41	42	43	45	15
Total dependency ratio (3)	55	58	63	67	70	70	69	69	70	71	73	18
Total economic dependency ratio (4)	121	122	125	129	133	133	133	133	134	136	138	17
Economic old-age dependency ratio (15-64) (5)	41	44	48	52	55	56	55	55	56	58	61	20
Economic old-age dependency ratio (15-74) (6)	40	43	47	50	53	55	54	54	55	56	58	19

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

27. SWEDEN

Table III.27.1:

Sweden	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,93	1,93	1,93	1,93	1,93	1,93	1,93	1,93	1,92	1,92	1,92	0,0
Life expectancy at birth												
men	80,1	80,3	81,0	81,6	82,2	82,8	83,4	84,0	84,5	85,1	85,6	5,5
women	83,6	83,9	84,5	85,2	85,8	86,4	87,0	87,6	88,1	88,6	89,2	5,5
Life expectancy at 65												
men	18,6	18,8	19,2	19,7	20,1	20,6	21,0	21,4	21,9	22,3	22,7	4,1
women	21,1	21,3	21,8	22,3	22,8	23,3	23,8	24,2	24,7	25,1	25,6	4,5
Net migration (thousand)	65,8	51,3	55,3	56,6	56,0	53,5	49,1	42,8	34,7	32,9	31,2	-34,6
Net migration as % of population	0,7	0,5	0,5	0,5	0,5	0,5	0,4	0,4	0,3	0,3	0,2	-0,4
Population (million)	9,6	9,8	10,2	10,6	11,0	11,4	11,8	12,1	12,5	12,8	13,1	3,5
Children population (0-14) as % of total population	17,0	17,3	18,0	18,2	18,1	17,7	17,4	17,4	17,6	17,6	17,4	0,5
Prime age population (25-54) as % of total population	39,0	39,1	39,0	37,6	36,8	37,0	37,2	36,9	36,3	36,4	36,2	-2,8
Working age population (15-64) as % of total population	63,8	62,9	61,6	60,9	60,4	60,2	60,2	60,2	59,9	59,1	58,4	-5,4
Elderly population (65 and over) as % of total population	19,3	19,8	20,4	20,9	21,5	22,2	22,5	22,4	22,5	23,3	24,2	4,9
Very elderly population (80 and over) as % of total population	5,2	5,1	5,3	6,2	7,2	7,5	7,6	8,0	8,5	8,9	8,9	3,7
Very elderly population (80 and over) as % of elderly population	26,9	25,8	25,8	29,6	33,5	33,9	34,0	35,7	37,8	38,1	36,8	9,9
Very elderly population (80 and over) as % of working age population	8,1	8,1	8,5	10,2	12,0	12,5	12,7	13,3	14,2	15,0	15,2	7,1
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	2,2	2,3	1,9	2,1	2,1	2,2	2,2	2,1	1,9	1,8	1,8	2,0
Employment (growth rate)	1,0	0,9	0,6	0,6	0,6	0,7	0,7	0,6	0,4	0,2	0,3	0,5
Labour input : hours worked (growth rate)	1,2	1,2	0,6	0,6	0,6	0,7	0,7	0,6	0,4	0,2	0,3	0,6
Labour productivity per hour (growth rate)	0,9	1,1	1,3	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5
TFP (growth rate)	0,8	0,7	0,9	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Capital deepening (contribution to labour productivity growth)	0,2	0,4	0,4	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
GDP per capita (growth rate)	1,3	1,5	1,0	1,2	1,4	1,5	1,6	1,5	1,4	1,3	1,4	1,4
GDP per worker (growth rate)	1,1	1,4	1,3	1,4	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5
GDP in 2013 prices (in millions euros)	420,1	439,0	482,4	534,9	593,8	661,1	736,5	819,7	905,1	990,5	1083,0	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	6121	6141	6273	6476	6667	6865	7083	7304	7472	7564	7637	1516
Population growth (working age:15-64)	0,1	0,2	0,5	0,7	0,5	0,7	0,6	0,5	0,4	0,1	0,3	0,2
Population (20-64) (in thousands)	5567	5623	5725	5861	6020	6175	6372	6600	6768	6835	6877	1310
Population growth (20-64)	0,6	0,5	0,4	0,6	0,4	0,7	0,7	0,6	0,4	0,1	0,3	-0,3
Labour force 15-64 (thousands)	4977	5032	5153	5307	5460	5627	5819	6015	6155	6218	6286	1310
Labour force 20-64 (thousands)	4783	4855	4972	5103	5244	5397	5580	5778	5919	5975	6033	1250
Participation rate (20-64)	85,9	86,4	86,8	87,1	87,1	87,4	87,6	87,5	87,5	87,4	87,7	1,8
Participation rate (15-74)	71,7	71,8	72,3	72,8	72,6	72,3	72,5	73,2	73,4	72,7	72,0	0,3
Participation rate (15-64)	81,3	82,0	82,1	82,0	81,9	82,0	82,2	82,3	82,4	82,2	82,3	1,0
young (15-24)	55,4	56,1	53,4	52,7	53,4	53,2	53,6	54,0	53,7	53,3	53,2	-2,2
prime-age (25-54)	90,9	91,1	91,7	92,3	92,3	92,5	92,5	92,5	92,5	92,6	92,6	1,7
older (55-64)	77,7	78,0	77,1	77,3	77,3	78,1	78,7	79,2	79,2	78,0	78,9	1,3
Participation rate (20-64) - WOMEN	82,9	83,2	83,6	83,8	83,9	84,2	84,4	84,4	84,3	84,3	84,7	1,8
Participation rate (15-74) - WOMEN	68,9	68,9	69,3	69,8	69,6	69,4	69,6	70,3	70,6	69,9	69,3	0,4
Participation rate (15-64) - WOMEN	79,0	79,5	79,6	79,4	79,4	79,5	79,7	79,9	79,9	79,8	80,0	1,0
young (15-24)	56,0	56,5	54,1	53,6	54,2	54,1	54,4	54,7	54,5	54,1	54,0	-2,0
prime-age (25-54)	88,1	88,3	88,9	89,5	89,8	89,8	89,8	89,8	89,9	90,0	90,0	1,9
older (55-64)	73,6	73,6	72,3	72,5	72,3	73,0	73,6	74,2	74,3	72,9	74,0	0,4
Participation rate (20-64) - MEN	88,9	89,4	90,0	90,2	90,2	90,5	90,6	90,6	90,5	90,4	90,7	1,8
Participation rate (15-74) - MEN	74,5	74,7	75,2	75,7	75,5	75,2	75,3	75,9	76,1	75,4	74,6	0,1
Participation rate (15-64) - MEN	83,5	84,3	84,6	84,4	84,4	84,4	84,5	84,7	84,7	84,5	84,6	1,0
young (15-24)	54,8	55,7	52,7	51,9	52,7	52,4	52,9	53,3	53,0	52,5	52,4	-2,4
prime-age (25-54)	93,6	93,8	94,4	95,0	95,1	95,1	95,1	95,0	95,1	95,1	95,2	1,6
older (55-64)	81,7	82,4	81,8	81,9	82,3	83,1	83,7	84,1	84,0	83,0	83,6	1,9
Employment rate (15-64)	74,6	76,1	76,9	77,1	77,0	77,1	77,3	77,5	77,5	77,3	77,4	2,8
Employment rate (20-64)	79,8	80,9	82,0	82,6	82,7	83,0	83,1	83,1	83,0	83,0	83,3	3,5
Employment rate (15-74)	66,0	66,8	67,8	68,6	68,4	68,1	68,3	68,9	69,1	68,5	67,9	1,9
Unemployment rate (15-64)	8,2	7,2	6,4	5,9	5,9	5,9	5,9	5,9	5,9	5,9	5,9	-2,3
Unemployment rate (20-64)	7,1	6,3	5,5	5,1	5,1	5,1	5,1	5,1	5,1	5,1	5,1	-2,0
Unemployment rate (15-74)	8,1	7,0	6,2	5,8	5,8	5,8	5,8	5,8	5,8	5,8	5,8	-2,3
Employment (20-64) (in millions)	4,4	4,5	4,7	4,8	5,0	5,1	5,3	5,5	5,6	5,7	5,7	1,3
Employment (15-64) (in millions)	4,6	4,7	4,8	5,0	5,1	5,3	5,5	5,7	5,8	5,8	5,9	1,3
share of young (15-24)	11%	11%	10%	10%	11%	11%	12%	11%	11%	11%	11%	0%
share of prime-age (25-54)	70%	71%	72%	71%	70%	71%	71%	70%	69%	70%	71%	1%
share of older (55-64)	19%	18%	18%	19%	19%	18%	17%	18%	20%	19%	18%	-1%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	18,9	18,6	19,0	19,7	19,4	18,3	17,7	18,7	20,1	19,1	18,0	-0,8
Old-age dependency ratio (2)	30	31	33	34	36	37	37	37	38	39	41	11
Total dependency ratio (3)	57	59	62	64	66	66	66	66	67	69	71	14
Total economic dependency ratio (4)	103	102	104	106	107	108	107	107	108	111	112	9
Economic old-age dependency ratio (15-64) (5)	37	38	39	41	43	44	45	45	45	47	49	12
Economic old-age dependency ratio (15-74) (6)	36	37	38	39	41	42	43	43	44	45	47	11

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

28. UNITED KINGDOM

United-Kingdom	EC-EPC (AWG) 2015 projections

Main demographic and macroeconomic assumptions

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,93	1,93	1,93	1,93	1,93	1,93	1,93	1,93	1,93	1,93	1,93	0,0
Life expectancy at birth												
men	79,1	79,4	80,2	80,9	81,6	82,3	82,9	83,6	84,2	84,8	85,3	6,2
women	82,8	83,1	83,9	84,6	85,3	85,9	86,6	87,2	87,8	88,4	89,0	6,1
Life expectancy at 65												
men	18,4	18,6	19,1	19,5	20,0	20,5	21,0	21,4	21,9	22,3	22,7	4,3
women	20,8	21,0	21,6	22,1	22,7	23,2	23,7	24,2	24,6	25,1	25,6	4,8
Net migration (thousand)	165,0	166,6	172,1	192,9	203,3	210,1	209,3	203,0	190,2	180,7	171,2	6,2
Net migration as % of population	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,2	0,2	0,2	0,0
Population (million)	64,1	64,9	66,9	68,8	70,6	72,3	74,0	75,7	77,3	78,8	80,1	16,0
Children population (0-14) as % of total population	17,6	17,8	18,4	18,3	17,8	17,3	17,0	17,1	17,3	17,3	17,2	-0,4
Prime age population (25-54) as % of total population	40,8	40,6	39,3	37,7	36,6	36,5	36,3	36,1	35,8	35,8	36,0	-4,8
Working age population (15-64) as % of total population	65,1	64,4	63,0	61,9	60,8	60,0	59,6	59,4	58,8	58,2	58,0	-7,0
Elderly population (65 and over) as % of total population	17,3	17,8	18,7	19,8	21,4	22,7	23,3	23,5	23,9	24,4	24,8	7,5
Very elderly population (80 and over) as % of total population	4,7	4,8	5,1	5,6	6,6	7,1	7,7	8,6	9,3	9,5	9,5	4,8
Very elderly population (80 and over) as % of elderly population	27,1	26,8	27,2	28,3	30,8	31,1	32,8	36,5	38,9	39,0	38,2	11,2
Very elderly population (80 and over) as % of working age population	7,2	7,4	8,1	9,0	10,9	11,8	12,8	14,4	15,8	16,3	16,3	9,1
Macroeconomic assumptions*	**2013**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055**	**2060**	**AVG 13-60**
Potential GDP (growth rate)	0,7	1,4	1,1	1,3	1,7	2,0	2,1	2,0	1,8	1,8	1,8	1,7
Employment (growth rate)	0,7	0,9	0,3	0,4	0,4	0,5	0,5	0,4	0,3	0,2	0,3	0,4
Labour input : hours worked (growth rate)	1,1	1,3	0,3	0,3	0,4	0,5	0,5	0,4	0,3	0,2	0,3	0,4
Labour productivity per hour (growth rate)	-0,4	0,1	0,8	1,0	1,3	1,5	1,5	1,5	1,5	1,5	1,5	1,2
TFP (growth rate)	-0,4	0,0	0,4	0,6	0,8	1,0	1,0	1,0	1,0	1,0	1,0	0,8
Capital deepening (contribution to labour productivity growth)	0,0	0,1	0,4	0,3	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
GDP per capita (growth rate)	0,2	0,8	0,5	0,7	1,2	1,6	1,6	1,5	1,4	1,4	1,5	1,2
GDP per worker (growth rate)	0,0	0,5	0,8	0,9	1,3	1,5	1,5	1,5	1,5	1,5	1,5	1,3
GDP in 2013 prices (in millions euros)	1899,8	1947,9	2064,5	2188,2	2360,0	2598,6	2879,8	3181,9	3488,9	3809,5	4165,5	
Labour force assumptions	**2013**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055**	**2060**	**Ch 13-60**
Working age population (15-64) (in thousands)	41678	41770	42111	42644	42952	43394	44139	44966	45446	45872	46461	4783
Population growth (working age:15-64)	0,0	0,1	0,2	0,2	0,1	0,2	0,4	0,2	0,2	0,2	0,3	0,3
Population (20-64) (in thousands)	37796	37988	38501	38576	38671	38986	39775	40669	41130	41411	41827	4031
Population growth (20-64)	0,1	0,3	0,2	0,0	0,1	0,3	0,5	0,3	0,2	0,1	0,3	0,2
Labour force 15-64 (thousands)	31820	32141	32647	33060	33450	34037	34880	35641	36075	36411	36902	5082
Labour force 20-64 (thousands)	30317	30668	31280	31520	31815	32344	33198	33987	34423	34711	35132	4815
Participation rate (20-64)	80,2	80,7	81,2	81,7	82,3	83,0	83,5	83,6	83,7	83,8	84,0	3,8
Participation rate (15-74)	68,7	68,8	68,9	68,9	68,6	68,8	69,8	70,9	71,0	70,6	70,6	1,8
Participation rate (15-64)	76,3	76,9	77,5	77,5	77,9	78,4	79,0	79,3	79,4	79,4	79,4	3,1
young (15-24)	58,3	58,9	58,2	56,5	57,3	57,7	58,1	58,1	57,8	57,4	57,4	-0,9
prime-age (25-54)	85,8	85,9	86,6	87,2	87,7	87,9	88,1	88,2	88,2	88,3	88,3	2,5
older (55-64)	62,9	64,7	66,5	67,7	68,6	70,2	72,2	72,7	73,2	73,1	73,3	10,4
Participation rate (20-64) - WOMEN	74,0	74,7	75,8	76,9	78,0	78,9	79,4	79,4	79,6	79,8	80,0	6,0
Participation rate (15-74) - WOMEN	63,2	63,5	64,0	64,6	64,9	65,4	66,5	67,4	67,5	67,1	67,2	4,0
Participation rate (15-64) - WOMEN	70,9	71,6	72,7	73,3	74,1	74,9	75,5	75,6	75,7	75,8	75,9	5,0
young (15-24)	56,5	57,2	56,4	54,9	55,7	56,0	56,4	56,4	56,2	55,8	55,7	-0,8
prime-age (25-54)	79,6	79,9	81,0	82,1	82,8	83,2	83,5	83,6	83,6	83,7	83,8	4,2
older (55-64)	55,4	57,6	60,8	63,8	66,2	68,3	70,3	70,1	70,6	70,8	71,1	15,7
Participation rate (20-64) - MEN	86,5	86,8	86,7	86,5	86,5	87,0	87,4	87,6	87,7	87,7	87,8	1,3
Participation rate (15-74) - MEN	74,3	74,2	73,8	73,3	72,3	72,1	73,1	74,4	74,5	74,0	73,8	-0,6
Participation rate (15-64) - MEN	81,9	82,3	82,4	81,8	81,6	81,9	82,5	82,8	82,9	82,8	82,8	0,9
young (15-24)	60,0	60,6	59,9	58,0	58,8	59,2	59,7	59,8	59,5	59,0	58,9	-1,1
prime-age (25-54)	92,0	92,0	92,1	92,4	92,6	92,5	92,5	92,6	92,6	92,6	92,6	0,6
older (55-64)	70,7	72,0	72,4	71,8	71,1	72,3	74,3	75,4	75,7	75,4	75,5	4,8
Employment rate (15-64)	70,4	72,1	72,5	72,5	72,9	73,6	74,2	74,4	74,4	74,5	74,6	4,2
Employment rate (20-64)	74,8	76,3	76,7	77,1	77,8	78,5	79,1	79,2	79,3	79,4	79,6	4,8
Employment rate (15-74)	63,5	64,6	64,5	64,5	64,3	64,6	65,7	66,7	66,9	66,5	66,4	2,9
Unemployment rate (15-64)	7,8	6,3	6,5	6,5	6,4	6,2	6,1	6,1	6,1	6,1	6,1	-1,7
Unemployment rate (20-64)	6,7	5,5	5,6	5,6	5,5	5,3	5,2	5,3	5,3	5,2	5,2	-1,5
Unemployment rate (15-74)	7,6	6,2	6,3	6,4	6,2	6,0	5,9	5,9	5,9	5,9	5,9	-1,7
Employment (20-64) (in millions)	28,3	29,0	29,5	29,8	30,1	30,6	31,5	32,2	32,6	32,9	33,3	5,0
Employment (15-64) (in millions)	29,3	30,1	30,5	30,9	31,3	31,9	32,8	33,5	33,9	34,2	34,6	5,3
share of young (15-24)	13%	13%	12%	12%	13%	13%	13%	13%	13%	13%	13%	0%
share of prime-age (25-54)	72%	72%	71%	70%	69%	70%	69%	69%	69%	70%	70%	-2%
share of older (55-64)	15%	15%	17%	19%	18%	17%	18%	18%	19%	18%	17%	2%
Dependency ratios:	**2013**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2055**	**2060**	**Ch 13-60**
Share of older population (55-64) (1)	17,5	17,8	19,7	20,7	19,9	18,6	18,7	19,5	19,7	19,0	18,0	0,4
Old-age dependency ratio (2)	27	28	30	32	35	38	39	40	41	42	43	16
Total dependency ratio (3)	54	55	59	61	64	67	68	68	70	72	72	19
Total economic dependency ratio (4)	112	109	113	116	117	117	116	116	117	119	119	8
Economic old-age dependency ratio (15-64) (5)	35	35	38	41	44	47	48	48	49	51	52	17
Economic old-age dependency ratio (15-74) (6)	34	34	37	40	43	45	46	46	47	48	49	16

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

29. NORWAY

Norway	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1.85	1.85	1.85	1.86	1.86	1.86	1.87	1.87	1.87	1.88	1.88	0.0
Life expectancy at birth												
men	79.6	79.9	80.5	81.2	81.9	82.5	83.1	83.7	84.3	84.8	85.4	5.8
women	83.5	83.8	84.5	85.1	85.8	86.4	87.0	87.5	88.1	88.6	89.1	5.6
Life expectancy at 65												
men	18.4	18.6	19.0	19.5	20.0	20.4	20.9	21.3	21.8	22.2	22.6	4.2
women	21.1	21.3	21.8	22.3	22.8	23.3	23.8	24.3	24.7	25.1	25.6	4.5
Net migration (thousand)	39.2	48.7	53.4	53.6	51.8	48.1	42.3	34.6	24.9	23.7	22.4	-16.8
Net migration as % of population	0.8	0.9	1.0	0.9	0.8	0.7	0.6	0.5	0.3	0.3	0.3	-0.5
Population (million)	5.1	5.2	5.6	6.0	6.4	6.8	7.1	7.4	7.7	7.9	8.2	3.1
Children population (0-14) as % of total population	18.3	18.1	18.2	18.2	18.3	18.2	17.9	17.6	17.4	17.2	17.0	-1.3
Prime age population (25-54) as % of total population	41.1	41.0	40.6	39.8	39.0	39.0	38.7	38.3	37.6	36.9	36.5	-4.6
Working age population (15-64) as % of total population	65.9	65.7	64.7	63.8	62.7	61.8	61.4	61.4	61.1	60.5	59.7	-6.3
Elderly population (65 and over) as % of total population	15.8	16.2	17.1	18.1	19.0	20.0	20.7	21.0	21.5	22.3	23.3	7.5
Very elderly population (80 and over) as % of total population	4.4	4.2	4.1	4.6	5.6	6.1	6.6	7.1	7.8	8.3	8.5	4.1
Very elderly population (80 and over) as % of elderly population	27.6	25.9	24.0	25.5	29.4	30.7	31.9	33.8	36.2	37.1	36.3	8.7
Very elderly population (80 and over) as % of working age population	6.6	6.4	6.4	7.2	8.9	9.9	10.8	11.5	12.7	13.7	14.2	7.6
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	2.4	2.4	2.4	2.7	2.6	2.4	2.4	2.3	2.1	1.9	1.8	2.3
Employment (growth rate)	1.2	0.8	0.9	1.1	1.0	0.9	0.9	0.8	0.5	0.4	0.3	0.8
Labour input : hours worked (growth rate)	0.5	1.0	1.0	1.1	1.0	0.9	0.9	0.8	0.5	0.4	0.3	0.8
Labour productivity per hour (growth rate)	1.5	1.3	1.7	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5
TFP (growth rate)	0.9	0.9	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Capital deepening (contribution to labour productivity growth)	0.6	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
GDP per capita (growth rate)	1.2	1.0	0.9	1.3	1.3	1.3	1.4	1.5	1.4	1.3	1.3	1.3
GDP per worker (growth rate)	1.2	1.5	1.4	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5
GDP in 2013 prices (in millions euros)	296.9	311.3	350.3	396.3	451.6	511.5	576.3	647.1	720.0	793.0	868.2	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	3349	3423	3615	3823	4019	4198	4383	4574	4716	4805	4865	1516
Population growth (working age:15-64)	1.1	1.1	1.1	1.1	0.9	0.9	0.9	0.8	0.5	0.3	0.2	-0.9
Population (20-64) (in thousands)	3024	3095	3290	3468	3651	3800	3958	4132	4266	4349	4401	1378
Population growth (20-64)	1.2	1.2	1.2	1.1	1.0	0.8	0.9	0.8	0.5	0.3	0.2	-1.0
Labour force 15-64 (thousands)	2620	2686	2849	3017	3173	3319	3474	3624	3736	3804	3849	1229
Labour force 20-64 (thousands)	2485	2550	2714	2871	3021	3155	3298	3442	3550	3615	3657	1172
Participation rate (20-64)	82.2	82.4	82.5	82.8	82.8	83.0	83.3	83.3	83.2	83.1	83.1	0.9
Participation rate (15-74)	71.2	71.1	70.9	71.0	70.9	70.6	70.6	70.9	71.1	70.6	69.9	-1.2
Participation rate (15-64)	78.2	78.5	78.8	78.9	79.0	79.1	79.3	79.2	79.2	79.2	79.1	0.9
young (15-24)	57.4	58.9	59.4	58.4	58.8	58.3	58.3	58.5	58.5	58.5	58.4	1.0
prime-age (25-54)	86.6	86.8	87.0	87.5	87.9	88.0	88.2	88.3	88.3	88.3	88.3	1.7
older (55-64)	72.1	70.9	70.9	70.9	69.8	69.7	70.4	70.5	71.1	71.0	70.8	-1.4
Participation rate (20-64) - WOMEN	79.4	79.8	80.3	80.8	80.9	81.3	81.7	81.8	81.7	81.7	81.6	2.2
Participation rate (15-74) - WOMEN	68.4	68.6	68.6	69.0	69.0	68.9	69.0	69.4	69.6	69.1	68.5	0.1
Participation rate (15-64) - WOMEN	76.0	76.5	77.1	77.3	77.6	77.8	78.1	78.2	78.2	78.1	78.1	2.1
young (15-24)	58.4	60.0	60.4	59.6	60.0	59.6	59.7	59.9	59.7	59.7	59.7	1.3
prime-age (25-54)	84.0	84.3	84.9	85.5	86.0	86.3	86.6	86.7	86.7	86.7	86.7	2.7
older (55-64)	67.9	67.4	67.9	68.2	67.8	67.5	68.2	68.8	69.4	69.4	69.2	1.3
Participation rate (20-64) - MEN	84.9	84.8	84.6	84.7	84.5	84.7	84.9	84.8	84.7	84.6	84.5	-0.3
Participation rate (15-74) - MEN	73.8	73.6	73.1	73.0	72.8	72.3	72.1	72.4	72.4	71.9	71.3	-2.5
Participation rate (15-64) - MEN	80.3	80.4	80.5	80.4	80.3	80.3	80.4	80.3	80.2	80.1	80.1	-0.2
young (15-24)	56.5	57.9	58.4	57.2	57.7	57.1	57.1	57.3	57.3	57.3	57.2	0.8
prime-age (25-54)	89.1	89.2	89.1	89.3	89.7	89.6	89.7	89.8	89.9	89.9	89.9	0.8
older (55-64)	76.2	74.4	73.8	73.5	71.8	71.8	72.4	72.1	72.7	72.6	72.3	-4.0
Employment rate (15-64)	75.5	75.4	76.2	76.1	76.2	76.3	76.4	76.4	76.4	76.3	76.3	0.8
Employment rate (20-64)	79.7	79.6	80.1	80.2	80.2	80.5	80.8	80.7	80.7	80.6	80.5	0.8
Employment rate (15-74)	68.7	68.4	68.6	68.6	68.5	68.2	68.1	68.5	68.6	68.1	67.5	-1.2
Unemployment rate (15-64)	3.5	3.9	3.3	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	0.0
Unemployment rate (20-64)	3.1	3.4	2.9	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	0.0
Unemployment rate (15-74)	3.4	3.8	3.2	3.4	3.4	3.4	3.5	3.5	3.5	3.5	3.4	0.0
Employment (20-64) (in millions)	2.4	2.5	2.6	2.8	2.9	3.1	3.2	3.3	3.4	3.5	3.5	1.1
Employment (15-64) (in millions)	2.5	2.6	2.8	2.9	3.1	3.2	3.4	3.5	3.6	3.7	3.7	1.2
share of young (15-24)	14%	14%	14%	13%	13%	13%	14%	14%	13%	13%	13%	0%
share of prime-age (25-54)	69%	70%	70%	70%	70%	71%	71%	70%	69%	68%	69%	-1%
share of older (55-64)	17%	16%	17%	17%	17%	16%	16%	16%	18%	18%	18%	1%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	17.8	17.8	18.1	18.7	18.8	17.8	17.4	18.1	19.1	19.7	19.5	1.8
Old-age dependency ratio (2)	24	25	26	28	30	32	34	34	35	37	39	15
Total dependency ratio (3)	52	52	55	57	59	62	63	63	64	65	68	16
Total economic dependency ratio (4)	95	95	96	99	102	104	105	106	107	108	111	16
Economic old-age dependency ratio (15-64) (5)	28	29	31	34	36	39	40	41	42	44	47	18
Economic old-age dependency ratio (15-74) (6)	28	28	30	33	35	37	39	40	41	43	45	17

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

30. EUROPEAN UNION

European Union	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											

Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,60	1,61	1,64	1,66	1,68	1,69	1,71	1,72	1,74	1,75	1,76	0,2
Life expectancy at birth												
men	77,6	78,0	78,9	79,7	80,5	81,3	82,0	82,8	83,5	84,1	84,8	7,1
women	83,1	83,4	84,1	84,8	85,5	86,1	86,8	87,4	88,0	88,5	89,1	6,0
Life expectancy at 65												
men	17,6	17,9	18,4	18,9	19,5	20,0	20,5	21,0	21,5	22,0	22,4	4,8
women	21,0	21,2	21,8	22,3	22,8	23,3	23,8	24,3	24,7	25,2	25,6	4,6
Net migration (thousand)	35,9	890,9	976,3	1101,1	1244,1	1369,3	1363,8	1304,6	1188,3	1129,9	1036,7	1000,8
Net migration as % of population	0,0	0,2	0,2	0,2	0,2	0,3	0,3	0,2	0,2	0,2	0,2	0,2
Population (million)	507,2	508,7	512,8	516,0	518,8	521,4	523,7	525,3	525,5	524,5	522,8	15,6
Children population (0-14) as % of total population	15,6	15,6	15,6	15,2	14,9	14,6	14,6	14,8	15,0	15,0	15,0	-0,6
Prime age population (25-54) as % of total population	41,9	41,5	39,9	38,1	36,7	35,9	35,3	34,9	34,8	34,8	34,8	-7,1
Working age population (15-64) as % of total population	66,0	65,4	63,9	62,6	61,1	59,6	58,4	57,5	56,9	56,6	56,6	-9,4
Elderly population (65 and over) as % of total population	18,4	19,0	20,5	22,2	24,1	25,8	27,0	27,7	28,2	28,4	28,4	10,0
Very elderly population (80 and over) as % of total population	5,1	5,3	5,9	6,3	7,2	8,1	9,1	10,1	11,0	11,5	11,8	6,7
Very elderly population (80 and over) as % of elderly population	27,8	27,9	28,6	28,3	29,9	31,4	33,6	36,4	39,0	40,5	41,6	13,8
Very elderly population (80 and over) as % of working age population	7,7	8,1	9,2	10,1	11,8	13,6	15,5	17,5	19,3	20,3	20,8	13,1

Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	0,7	1,1	1,4	1,3	1,4	1,5	1,4	1,4	1,4	1,5	1,5	1,4
Employment (growth rate)	0,1	0,3	0,3	0,0	-0,1	-0,1	-0,2	-0,2	-0,2	-0,1	0,0	0,0
Labour input : hours worked (growth rate)	0,1	0,3	0,3	0,0	-0,1	-0,1	-0,2	-0,2	-0,2	-0,1	0,0	-0,1
Labour productivity per hour (growth rate)	0,6	0,8	1,1	1,3	1,5	1,6	1,6	1,6	1,6	1,6	1,6	1,4
TFP (growth rate)	0,3	0,4	0,7	0,9	1,0	1,1	1,1	1,1	1,0	1,0	1,0	0,9
Capital deepening (contribution to labour productivity growth)	0,3	0,3	0,4	0,5	0,5	0,6	0,6	0,6	0,6	0,6	0,6	0,5
GDP per capita (growth rate)	0,6	0,9	1,3	1,3	1,3	1,4	1,4	1,4	1,5	1,5	1,6	1,3
GDP per worker (growth rate)	0,6	0,8	1,1	1,4	1,5	1,7	1,7	1,7	1,6	1,6	1,6	1,5
GDP in 2013 prices (in millions euros)	13067,6	13325,9	14167,6	15170,4	16236,0	17493,7	18910,7	20372,2	21936,8	23629,8	25490,6	

Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	334932	332662	327747	322976	316783	310691	305921	301949	298829	296709	296030	-38902
Population growth (working age:15-64)	-0,4	-0,3	-0,3	-0,3	-0,4	-0,4	-0,3	-0,3	-0,2	-0,1	0,0	0,4
Population (20-64) (in thousands)	307605	305702	301227	295141	289325	283376	279186	275589	272343	269729	268714	-38891
Population growth (20-64)	-0,3	-0,3	-0,3	-0,4	-0,4	-0,4	-0,3	-0,3	-0,2	-0,2	0,0	0,3
Labour force 15-64 (thousands)	241068	241314	241114	238529	234477	230626	227874	225351	223101	221447	220930	-20138
Labour force 20-64 (thousands)	235358	235669	235633	232867	228742	224812	222110	219674	217451	215736	215135	-20222
Participation rate (20-64)	76,5	77,1	78,2	78,9	79,1	79,3	79,6	79,7	79,8	80,0	80,1	3,5
Participation rate (15-74)	64,0	64,2	64,5	64,6	64,4	64,2	64,5	64,9	65,1	65,2	65,4	1,4
Participation rate (15-64)	72,0	72,5	73,6	73,9	74,0	74,2	74,5	74,6	74,7	74,6	74,6	2,7
young (15-24)	42,4	42,6	42,1	41,2	42,0	42,4	42,8	42,8	42,5	42,2	42,2	-0,2
prime-age (25-54)	85,3	85,5	85,8	85,9	85,9	85,7	85,8	85,8	85,9	85,9	85,9	0,6
older (55-64)	54,4	56,6	62,2	66,1	67,6	68,6	69,5	69,7	69,7	69,9	70,2	15,8
Participation rate (20-64) - WOMEN	70,0	70,9	72,6	73,7	74,3	74,8	75,2	75,4	75,6	75,8	75,9	5,9
Participation rate (15-74) - WOMEN	58,0	58,4	59,2	59,7	59,8	60,0	60,4	60,8	61,1	61,3	61,6	3,6
Participation rate (15-64) - WOMEN	66,0	66,8	68,4	69,1	69,6	70,1	70,4	70,6	70,7	70,7	70,7	4,7
young (15-24)	39,5	39,7	39,2	38,4	39,2	39,6	40,0	40,0	39,7	39,4	39,4	-0,1
prime-age (25-54)	79,2	79,6	80,5	81,0	81,2	81,2	81,1	81,1	81,2	81,3	81,3	2,1
older (55-64)	46,5	49,0	55,5	60,1	62,6	64,6	66,2	66,6	66,7	67,0	67,4	20,9
Participation rate (20-64) - MEN	83,0	83,3	83,8	84,1	83,8	83,8	83,9	84,0	84,1	84,1	84,2	1,1
Participation rate (15-74) - MEN	70,1	70,0	69,9	69,6	69,0	68,6	68,9	69,0	69,0	69,1	69,1	-1,0
Participation rate (15-64) - MEN	77,9	78,2	78,7	78,6	78,3	78,3	78,4	78,5	78,5	78,4	78,4	0,4
young (15-24)	45,1	45,3	44,8	43,8	44,7	45,1	45,5	45,5	45,1	44,8	44,8	-0,3
prime-age (25-54)	91,4	91,3	91,0	90,7	90,5	90,3	90,3	90,3	90,3	90,3	90,3	-1,1
older (55-64)	62,8	64,6	69,2	72,2	72,7	72,8	72,8	72,8	72,8	72,8	73,0	10,2
Employment rate (15-64)	64,0	65,1	66,8	67,7	68,3	69,0	69,6	69,7	69,7	69,7	69,7	5,7
Employment rate (20-64)	68,4	69,5	71,3	72,6	73,2	74,0	74,6	74,7	74,8	74,9	75,0	6,6
Employment rate (15-74)	57,0	57,7	58,7	59,4	59,6	59,8	60,4	60,7	60,9	61,0	61,2	4,2
Unemployment rate (15-64)	11,0	10,2	9,2	8,4	7,7	7,1	6,6	6,6	6,6	6,6	6,6	-4,4
Unemployment rate (20-64)	10,6	9,8	8,8	8,0	7,4	6,8	6,3	6,3	6,3	6,3	6,3	-4,3
Unemployment rate (15-74)	10,8	10,1	9,0	8,1	7,5	6,9	6,4	6,4	6,4	6,4	6,4	-4,4
Employment (20-64) (in millions)	210,4	212,5	214,9	214,2	211,8	209,6	208,1	205,9	203,8	202,2	201,6	-8,9
Employment (15-64) (in millions)	214,5	216,7	219,0	218,6	216,4	214,3	212,9	210,5	208,4	206,9	206,4	-8,2
share of young (15-24)	9%	9%	8%	8%	9%	9%	9%	9%	9%	9%	10%	1%
share of prime-age (25-54)	76%	75%	73%	71%	70%	70%	70%	70%	71%	71%	71%	-5%
share of older (55-64)	15%	16%	18%	20%	21%	21%	20%	20%	20%	19%	19%	4%

Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	19,2	19,6	21,0	22,0	22,1	21,7	21,4	21,2	20,8	20,1	19,8	0,6
Old-age dependency ratio (2)	28	29	32	36	39	43	46	48	50	50	50	22
Total dependency ratio (3)	51	53	56	60	64	68	71	74	76	77	77	25
Total economic dependency ratio (4)	132	130	128	128	129	132	134	137	139	141	141	9
Economic old-age dependency ratio (15-64) (5)	41	43	45	49	53	58	61	64	66	67	66	25
Economic old-age dependency ratio (15-74) (6)	41	42	44	47	51	55	58	61	62	63	63	22

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

31. EURO AREA

Euro-Area	EC-EPC (AWG) 2015 projections										
Main demographic and macroeconomic assumptions											
Demographic projections - EUROPOP2013 (EUROSTAT)	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Fertility rate	1,56	1,57	1,59	1,61	1,63	1,65	1,67	1,68	1,69	1,71	1,72	0,2
Life expectancy at birth												
men	78,7	79,0	79,8	80,5	81,3	82,0	82,7	83,3	84,0	84,6	85,2	6,5
women	84,0	84,3	84,9	85,6	86,2	86,8	87,3	87,9	88,5	89,0	89,5	5,5
Life expectancy at 65												
men	18,2	18,4	18,9	19,4	19,9	20,4	20,9	21,4	21,8	22,2	22,7	4,5
women	21,7	21,9	22,4	22,9	23,3	23,8	24,3	24,7	25,1	25,5	26,0	4,3
Net migration (thousand)	-180,6	643,6	715,1	846,9	957,0	992,9	976,3	941,0	865,8	833,7	769,6	950,3
Net migration as % of population	-0,1	0,2	0,2	0,2	0,3	0,3	0,3	0,3	0,3	0,2	0,2	0,3
Population (million)	334,5	335,3	337,7	339,6	341,4	343,2	344,6	345,2	344,6	343,1	341,2	6,7
Children population (0-14) as % of total population	15,3	15,2	15,0	14,6	14,3	14,2	14,2	14,4	14,5	14,6	14,6	-0,7
Prime age population (25-54) as % of total population	42,0	41,4	39,3	37,3	36,0	35,3	34,9	34,7	34,6	34,6	34,6	-7,4
Working age population (15-64) as % of total population	65,5	65,0	63,8	62,4	60,6	58,7	57,4	56,6	56,3	56,3	56,5	-9,0
Elderly population (65 and over) as % of total population	19,2	19,8	21,3	23,0	25,1	27,1	28,3	29,0	29,2	29,2	28,9	9,7
Very elderly population (80 and over) as % of total population	5,5	5,8	6,4	6,8	7,6	8,5	9,6	10,8	11,9	12,4	12,5	7,0
Very elderly population (80 and over) as % of elderly population	28,8	29,1	30,3	29,7	30,4	31,4	33,7	37,4	40,7	42,4	43,2	14,5
Very elderly population (80 and over) as % of working age population	8,4	8,9	10,1	11,0	12,6	14,5	16,6	19,1	21,1	22,0	22,1	13,7
Macroeconomic assumptions*	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	AVG 13-60
Potential GDP (growth rate)	0,5	0,8	1,3	1,3	1,3	1,4	1,3	1,3	1,4	1,5	1,5	1,3
Employment (growth rate)	0,0	0,1	0,4	0,1	-0,1	-0,2	-0,3	-0,3	-0,2	-0,1	0,0	-0,1
Labour input : hours worked (growth rate)	-0,2	0,0	0,4	0,1	-0,1	-0,2	-0,3	-0,3	-0,2	-0,1	0,0	-0,1
Labour productivity per hour (growth rate)	0,6	0,7	0,9	1,2	1,4	1,6	1,6	1,6	1,6	1,6	1,5	1,4
TFP (growth rate)	0,3	0,4	0,6	0,8	0,9	1,0	1,0	1,0	1,0	1,0	1,0	0,9
Capital deepening (contribution to labour productivity growth)	0,2	0,3	0,3	0,4	0,5	0,6	0,6	0,6	0,6	0,6	0,5	0,5
GDP per capita (growth rate)	0,4	0,6	1,2	1,1	1,2	1,3	1,3	1,3	1,5	1,6	1,6	1,3
GDP per worker (growth rate)	0,5	0,7	0,9	1,2	1,4	1,6	1,6	1,6	1,6	1,6	1,5	1,4
GDP in 2013 prices (in millions euros)	9601,3	9744,9	10292,0	10968,0	11661,2	12478,2	13400,3	14340,7	15381,8	16539,8	17814,7	
Labour force assumptions	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Working age population (15-64) (in thousands)	219172	217837	215311	211962	206768	201617	197914	195449	193871	193090	192937	-26235
Population growth (working age:15-64)	-0,4	-0,2	-0,3	-0,4	-0,5	-0,5	-0,3	-0,2	-0,1	-0,1	0,0	0,4
Population (20-64) (in thousands)	201711	200330	197798	194093	189230	184350	180949	178555	176805	175779	175522	-26190
Population growth (20-64)	-0,3	-0,3	-0,3	-0,4	-0,6	-0,5	-0,3	-0,3	-0,1	-0,1	0,0	0,3
Labour force 15-64 (thousands)	158290	158358	158519	156772	153414	150117	147755	145817	144467	143681	143425	-14865
Labour force 20-64 (thousands)	154853	154912	155103	153388	150044	146748	144426	142532	141196	140406	140147	-14705
Participation rate (20-64)	76,8	77,3	78,4	79,0	79,3	79,6	79,8	79,8	79,9	79,9	79,8	3,1
Participation rate (15-74)	63,8	64,0	64,4	64,6	64,2	63,8	64,1	64,5	64,8	65,0	65,2	1,4
Participation rate (15-64)	72,2	72,7	73,6	74,0	74,2	74,5	74,7	74,6	74,5	74,4	74,3	2,1
young (15-24)	41,3	41,2	40,9	40,4	40,8	41,0	41,2	41,0	40,6	40,3	40,3	-1,0
prime-age (25-54)	85,5	85,7	86,1	86,1	86,1	85,9	85,8	85,8	85,8	85,8	85,8	0,3
older (55-64)	54,8	57,1	63,3	67,3	69,0	70,1	70,8	70,5	70,4	70,5	70,7	15,9
Participation rate (20-64) - WOMEN	70,3	71,3	73,1	74,2	74,9	75,6	75,9	75,9	76,0	76,0	76,1	5,8
Participation rate (15-74) - WOMEN	57,8	58,4	59,4	60,0	59,9	59,9	60,3	60,8	61,1	61,3	61,7	3,8
Participation rate (15-64) - WOMEN	66,2	67,1	68,7	69,5	70,1	70,7	71,0	71,0	70,9	70,8	70,8	4,5
young (15-24)	38,6	38,5	38,2	37,6	38,0	38,3	38,4	38,2	37,8	37,5	37,5	-1,1
prime-age (25-54)	79,1	79,7	80,9	81,5	81,8	81,6	81,4	81,4	81,5	81,5	81,5	2,4
older (55-64)	47,3	50,0	57,2	61,8	64,4	66,8	68,4	68,3	68,0	68,2	68,4	21,1
Participation rate (20-64) - MEN	83,3	83,4	83,7	83,8	83,6	83,6	83,6	83,6	83,6	83,6	83,5	0,2
Participation rate (15-74) - MEN	69,8	69,7	69,4	69,2	68,5	67,8	67,9	68,2	68,4	68,6	68,6	-1,2
Participation rate (15-64) - MEN	78,2	78,3	78,5	78,4	78,2	78,2	78,2	78,2	78,0	77,9	77,8	-0,4
young (15-24)	43,8	43,8	43,5	43,0	43,4	43,7	43,9	43,6	43,3	43,0	42,9	-0,9
prime-age (25-54)	91,8	91,6	91,2	90,7	90,3	90,0	90,0	89,9	89,9	89,9	89,9	-1,9
older (55-64)	62,7	64,5	69,7	73,0	73,7	73,6	73,4	72,9	72,8	72,8	72,9	10,2
Employment rate (15-64)	63,5	64,4	66,2	67,4	68,2	69,0	69,7	69,7	69,6	69,5	69,4	5,9
Employment rate (20-64)	67,7	68,7	70,8	72,2	73,1	74,0	74,7	74,7	74,7	74,7	74,7	7,0
Employment rate (15-74)	56,1	56,8	58,1	59,0	59,2	59,4	60,0	60,4	60,7	60,8	61,0	4,9
Unemployment rate (15-64)	12,1	11,4	10,0	8,9	8,1	7,3	6,6	6,6	6,6	6,7	6,7	-5,4
Unemployment rate (20-64)	11,8	11,1	9,7	8,6	7,8	7,0	6,4	6,4	6,4	6,4	6,4	-5,3
Unemployment rate (15-74)	12,0	11,3	9,9	8,7	7,8	7,0	6,4	6,4	6,4	6,4	6,4	-5,5
Employment (20-64) (in millions)	136,6	137,7	140,0	140,2	138,3	136,4	135,2	133,4	132,1	131,4	131,1	-5,5
Employment (15-64) (in millions)	139,1	140,2	142,6	142,9	141,0	139,2	138,0	136,2	134,9	134,1	133,9	-5,3
share of young (15-24)	8%	8%	8%	8%	9%	9%	9%	9%	9%	9%	9%	1%
share of prime-age (25-54)	77%	76%	73%	70%	69%	70%	70%	71%	71%	71%	71%	-5%
share of older (55-64)	15%	16%	19%	22%	22%	21%	21%	20%	20%	20%	20%	5%
Dependency ratios:	2013	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	Ch 13-60
Share of older population (55-64) (1)	19,2	19,7	21,8	23,2	23,0	22,1	21,5	21,0	20,5	20,2	20,3	1,2
Old-age dependency ratio (2)	29	31	33	37	42	46	49	51	52	52	51	22
Total dependency ratio (3)	53	54	57	60	65	70	74	77	78	78	77	24
Total economic dependency ratio (4)	137	135	131	129	131	134	137	141	143	143	142	6
Economic old-age dependency ratio (15-64) (5)	44	46	48	51	56	61	65	68	69	69	68	24
Economic old-age dependency ratio (15-74) (6)	44	45	47	49	53	58	62	65	66	66	65	21

LEGENDA:
* The potential GDP and its components is used to estimate the rate of potential output growth, net of normal cyclical variations
(1) Share of older population = Population aged 55 to 64 as % of population aged 15-64
(2) Old-age dependency ratio = Population aged 65 and over as a percentage of the population aged 15-64
(3) Total dependency ratio = Population under 15 and over 64 as a percentage of the population aged 15-64
(4) Total economic dependency ratio = Total population less employed as % of employed population 15-74
(5) Economic old-age dependency ratio (15-64) = Inactive population aged 65+ as % of employed population 15-64
(5) Economic old-age dependency ratio (15-74) = Inactive population aged 65+ as % of employed population 15-74
NB: : = data not provided

Source: Commission Services (DG ECFIN), Eurostat (EUROPOP2013), EPC (AWG).

Part IV

Resources

1. REFERENCES

Aprile, R. (2013), "Death-related costs in projecting acute health care expenditure – A new methodological approach", draft paper presented at the 28th May 2013 meeting of the AWG.

D'Auria, F., C. Denis, K. Havik, K. Mc Morrow, C. Planas, R. Raciborski, W. Röger, A. Rossi, (2010) *'The production function methodology for calculating potential growth rates and output gaps'*, European Economy Economic Papers No. 420

Bassanini A. and Duval R. (2006), "Employment patterns in OECD countries: reassessing the role of policies and institutions", OECD Economics Department Working Paper No. 486.

Burniaux J., Duval R., and Jaumotte F. (2003), "Coping with ageing: a dynamic approach to quantify the impact of alternative policy options on future labour supply in OECD countries", OECD Economic Department Working Papers, No. 371.

Carone G. (2005): 'Long-term labour force projections for the EU25 Member States: a set of data for assessing the impact of ageing', DG ECFIN, European Economy, Economic Papers No. 235.

Clements B., Coady D., and Gupta S. (2012), "The Economics of Public Health Care Reform in Advanced and Emerging Economies", IMF.

Duval R. (2003), 'The retirement effects of old-age pension and early retirement schemes in OECD countries', OECD Economic Department Working Papers, No. 370.

Dybczak K. and Przywara B. (2010), *"The role of technology in health care expenditure in the EU"*, European Economy, Economic Papers No. 400.

Eurostat (2004), *"Classification of funded pension schemes and impact on government finance"*, Economy and finance Collection: Methodologies and working papers, Luxemburg, No 30/2004

Eurostat (2014), *'Comparison between Eurostat population projections 2010-based (EUROPOP2010) and 2013-based (EUROPOP2013).'* Eurostat technical note, ESTAT/F2/GL, 18 April 2014.

European Commission, Key data on education in Europe 2005, Eurydice, Eurostat, 2005.

European Commission–DG ECFIN (2011a), *"Health and long-term care expenditure projections: availability/collection of data"*, ECFIN/C2(2011)128176.

Eurostat (2014): *"EUROPOP2013: European Population projections 2013-based"*. Available at: http://epp.eurostat.ec.europa.eu/portal/page/portal/ statistics/search_database

Eurostat (2011): "EUROPOP2013: European Population projections 2013-based", News release 80/2011, 8 June 2011.

Economic Policy Committee (AWG) and European Commission (DG ECFIN) (2009), *The 2009 Ageing Report: economic and budgetary projections for the EU-27 Member States (2008-2060)*, European Economy, No. 2/2009, Directorate General Economic and Financial Affairs, European Commission 2009. Available at: http://ec.europa.eu/economy_finance/publications/ publication14992_en.pdf

European Commission (DG ECFIN) and Economic Policy Committee (AWG), *The 2012 Ageing Report Economic and budgetary projections for the 27 EU Member States (2010-2060)*, European Economy, no.2/2012 http://ec.europa.eu/economy_finance/publications/ european_economy/2012/2012-ageing-report_en.htm

European Commission (2014-forthcoming), "The production function methodology for calculating potential growth rates and output gaps", European Economy, Economic Papers (forthcoming).

EU-SILC (2013), The European Statistics on Income and Living Conditions, see: http://epp.eurostat.ec.europa.eu/portal/page/portal/ microdata/eu_silc

Fallick B. and Pingle J. (2007), "A cohort-based model of labor force participation", FEDS Working Paper No. 2007-09.

Gabriele S., Cislaghi C., Costantini F., Innocenti F., Lepore V., Tediosi F., Valerio M., ZOCCHETTI C. (2005), Demographic factors and health expenditure profiles by age: the case of Italy. A deliverable for ENEPRI AHEAD (Ageing, Health Status and Determinants of Health Expenditure) project.

Getzen, T.E. (2000), '*Health care is an individual necessity and a national luxury: Applying multilevel decision models to the analysis of health care expenditures'*, Journal of Health Economics, Vol. 19(2), pp. 259-270.

Gruber J. and D.A. Wise (2002), "Social Security Programs and Retirement Around the World: Micro Estimation", NBER Working Paper No. 9407.

Gruber J. and D.A. Wise (2005a), "Social security programs and retirement around the world: fiscal implications-Introduction and summary", NBER Working Paper No. 11290.

Gruber J and D.A. Wise (editors) (2005b), "Social Security Programs and Retirement around the World: Fiscal Implications", NBER Website. 26 July 2005. http://www.nber.com/books/intlSS-p3/index.html.

Latulippe D. (1996), *'Effective retirement age and duration of retirement in industrial countries between 1950 and 1990'*, ILO, Issues in Social Protection DP No.2.

Lubitz J.D., Riley G.F. (1993), "Trends in Medicare payment in the last year of life", New England Journal of Medicine, 328, 15, 1092-1096.

Madsen M. (2004), "*Methodologies to incorporate 'death-related' costs in projections of health and long-term care based on Danish data*", Ministry of Finance, Denmark.

Maisonneuve C. and Martins J.O. (2013), *"A projection method of public health and long-term care expenditures"*, OECD Economic Department WP No. 1048.

Medeiros J., and C. Schwierz (2013), *"Estimating the drivers and projecting long-term public health expenditure in the European Union: Baumol's 'cost disease' revisited"*, European Economy, Economic Papers No. 507.

Orlandi F. (2012), "Structural unemployment and its determinants in the EU", European Commission, Economic Papers No. 445.

Raitano, M. (2006), "*The Impact of Death-Related Costs on Health-Care Expenditure: A Survey*", ENEPRI Research Report No. 17.

Schwan, A. and Sail, E., (2013), *'Assessing the economic and budgetary impact of linking retirement ages and pension benefits to increases in longevity'*, European Economy, Economic Papers 512.

SHA Manual (2011), System of Health Accounts (2011), http://who.int/nha/sha_revision/sha_2011_final1.pdf

Sherer P. (2002), 'Age of withdrawal from the labour force in the OECD countries', Labour Market and Social Policy Occasional Papers, No 49-DELSA.

UNESCO-UIS/OECD/EUROSTAT (UOE) data collection on education statistics, (http://www.oecd.org/dataoecd/32/53/33712760.pdf).

United Nations, Department of Economic and Social Affairs, Population Division (2014). *'World Population Prospects: The 2012 Revision, Methodology of the United Nations Population Estimates and Projections'*.ESA/P/WP.235.

VAN VLIET R.C., LAMERS L.M. (1998), "The high costs of death: should health plans get higher payments when members die?", Medical Care, 36, 1451-1460.

Wiley Publishing (2008), *Webster's New World Medical Dictionary*

Whitehouse, E. R. (2010), *"Decomposing National Defined-Contribution Pensions: Experience of OECD Countries' Reforms",* OECD Social, Employment and Migration Working Paper, n. 109, OECD.

EUROPEAN ECONOMY SERIES

Previous titles in the European Economy series can be accessed and downloaded free of charge from the following address:
http://ec.europa.eu/economy_finance/publications/european_economy/index_en.htm

Alternatively, hard copies may be ordered via the "Print-on-demand" service offered by the EU Bookshop:
http://bookshop.europa.eu.

HOW TO OBTAIN EU PUBLICATIONS

Free publications:
- one copy:
  via EU Bookshop (http://bookshop.europa.eu);

- more than one copy or posters/maps:
  from the European Union's representations (http://ec.europa.eu/represent_en.htm);
  from the delegations in non-EU countries (http://eeas.europa.eu/delegations/index_en.htm);
  by contacting the Europe Direct service (http://europa.eu/europedirect/index_en.htm) or
  calling 00 800 6 7 8 9 10 11 (freephone number from anywhere in the EU) (*).

  (*)   The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).

Priced publications:
- via EU Bookshop (http://bookshop.europa.eu).

Priced subscriptions:
- via one of the sales agents of the Publications Office of the European Union
  (http://publications.europa.eu/others/agents/index_en.htm).