

Health in Europe 7



Financial crisis, austerity, and health in Europe

Marina Karanikolos, Philipa Mladovsky, Jonathan Cylus, Sarah Thomson, Sanjay Basu, David Stuckler, Johan P Mackenbach, Martin McKee

The financial crisis in Europe has posed major threats and opportunities to health. We trace the origins of the economic crisis in Europe and the responses of governments, examine the effect on health systems, and review the effects of previous economic downturns on health to predict the likely consequences for the present. We then compare our predictions with available evidence for the effects of the crisis on health. Whereas immediate rises in suicides and falls in road traffic deaths were anticipated, other consequences, such as HIV outbreaks, were not, and are better understood as products of state retrenchment. Greece, Spain, and Portugal adopted strict fiscal austerity; their economies continue to recede and strain on their health-care systems is growing. Suicides and outbreaks of infectious diseases are becoming more common in these countries, and budget cuts have restricted access to health care. By contrast, Iceland rejected austerity through a popular vote, and the financial crisis seems to have had few or no discernible effects on health. Although there are many potentially confounding differences between countries, our analysis suggests that, although recessions pose risks to health, the interaction of fiscal austerity with economic shocks and weak social protection is what ultimately seems to escalate health and social crises in Europe. Policy decisions about how to respond to economic crises have pronounced and unintended effects on public health, yet public health voices have remained largely silent during the economic crisis.

Introduction

The economic crisis that has engulfed Europe since 2008 has raised concerns about the health of ordinary people. Despite more than 100 years of research about the effects of economic turbulence on health, the relation between the two is not yet fully understood. We briefly review the origins of the financial crisis and examine what European countries have done in terms of health policy to respond, with a focus on changes to health systems. In the absence of comprehensive data for health during this crisis, we postulate what might be expected to occur on the basis of previous experiences, and review what has actually happened (as far as can be ascertained). We conclude with recommendations for the development of epidemiology of resilience¹—ie, understanding how people, households, communities, and entire societies cope with difficult economic circumstances and shocks, and how public health policy can improve health outcomes in this context.

Causes of the financial crisis

The financial crisis was avoidable. The US Government's Financial Crisis Inquiry Commission² is the most exhaustive analysis of the economic downturn. It focused on events in the USA, but these events are widely agreed to have triggered the crisis in Europe; however, specific problems in European countries exacerbated the situation. The Financial Crisis Inquiry Commission concluded that the crisis was caused by an overabundance of investments in mortgage-backed securities based on valuations of high-risk mortgages that were poorly (sometimes fraudulently) administered. In a chain reaction, a rise in interest rates led to borrower defaults, which led to bank defaults and a crash in the housing and stock markets (panel 1). By the beginning of 2008, nearly 9 million US home owners owed more than the value of

their property.³ More and more home owners defaulted on their loans, and the value of mortgage-backed securities plummeted.⁴ Because many mortgage-backed securities were sold in Europe, the turmoil in the US housing sector quickly spread to European banks. Countries such as Ireland, Spain, and Italy, which had developed so-called property bubbles that were similarly fuelled by artificially low interest rates (partly because of Eurozone membership), were among the worst affected, as demand for housing contemporaneously fell and banks subsequently collapsed.

These financial crises soon led to economic crises. In 2009, gross domestic product (GDP) fell in real terms in all countries of the European Union (EU) except Poland; the mean decrease was 4·3%, but losses ranged from 1·9% in Cyprus to 17·7% in Latvia.⁵ Between 2007

Lancet 2013; 381: 1323–31

Published Online

March 27, 2013

[http://dx.doi.org/10.1016/S0140-6736\(13\)60102-6](http://dx.doi.org/10.1016/S0140-6736(13)60102-6)

This is the seventh in a **Series** of seven papers about health in Europe

European Observatory on Health Systems and Policies (M Karanikolos MSc, J Cylus MSc, Prof M McKee MD), and European Centre on Health of Societies in Transition (M Karanikolos, Prof M McKee), London School of Hygiene & Tropical Medicine, London, UK; European Observatory on Health Systems and Policies, London School of Economics and Political Science, London, UK (P Mladovsky MSc, J Cylus, S Thomson PhD); Stanford Prevention Research Center, Department of Medicine, Stanford University, Stanford, CA, USA (S Basu PhD); Department of Sociology, University of Cambridge, Cambridge, UK (D Stuckler PhD); and Department of Public Health, Erasmus MC, University Medical Center Rotterdam, Rotterdam, Netherlands (Prof J P Mackenbach PhD)

Key messages

- The public health effects of the economic crisis are already visible, particularly in the countries most affected by recession; however, Iceland has so far avoided negative health effects
- Strong social protection mechanisms (both formal and informal) can mitigate some negative effects of recession on health, such as increasing suicides
- Austerity measures can exacerbate the short-term public health effect of economic crises—eg, through cost-cutting or increased cost-sharing in health care, which reduce access and shift the financial burden to households
- Policy responses to a similar set of economic shocks varied between countries and have led to differing health outcomes, creating potential for future research about how economic changes affect health, policy responses that can mitigate risks, and why some societies are more resilient than others
- Economic crises and their countermeasures have pronounced and unintended effects on public health, yet public health experts have remained largely silent during this crisis

Correspondence to:
Prof Martin McKee, London
School of Hygiene & Tropical
Medicine, 15–17 Tavistock Place,
London WC1H 9SH, UK
martin.mckee@lshtm.ac.uk

and 2010, unemployment increased substantially and rapidly—eg, by 3% in Portugal, Slovakia, and Bulgaria, 4% in Denmark, Hungary, and Greece, 5% in Iceland, 9% in Ireland, 12% in Spain and Estonia, 13% in Latvia, and 14% in Lithuania.⁵

Falling tax revenues and increased spending (especially on bank bailouts but to some extent on the costs of unemployment) in affected countries increased government deficits. Some countries adopted austerity policies,

and made large cuts to public expenditure. Austerity policies, including large-scale cuts and public sector reforms, were imposed as a pre-condition by the so-called troika (ie, the International Monetary Fund, European Commission, and European Central Bank) for financial rescue packages, in countries that needed such bailouts—ie, Greece, Ireland, and Portugal.

The austerity policies pursued have been extremely controversial (panel 2), and the International Monetary Fund's most recent World Economic Outlook report⁹ showed that austerity has affected economic growth much more adversely than previously believed, leading to calls for relaxation of these policies. Notably, countries that opted for fiscal stimulus (eg, Germany) have recovered more quickly—a finding interpreted by many commentators as evidence for an alternative to austerity (figure 1).¹¹

Effects on health systems

Much work has been done to establish how health outcomes might be affected by economic crises, but little previous research has assessed what might happen to health systems.¹² Thus, theory-based testable hypotheses should be developed for comparison with empirical data. When confronted by a fiscal crisis, policy makers might face pressure to maintain, decrease, or increase public expenditure on health (and could also reallocate funds within the health system).¹³ Changes to public expenditure on health can implicate several policy instruments (or combinations thereof) aimed at affecting the provision of publicly financed care.

In a study¹³ of responses of health systems to the global financial crisis (as of March or April, 2011), a questionnaire was sent to health policy experts (most of whom were based in universities, WHO country offices, and other non-governmental organisations) in all WHO member states in the European region to gather information about policy responses—ie, those introduced directly, partially, or possibly in response to the crisis. These data were analysed and verified, and showed that countries in Europe had responded to the financial crisis in various ways. Within the EU, some countries (eg, the Czech Republic, Estonia, Italy, Lithuania, Slovakia) were better prepared than others because of fiscal measures adopted before the crisis. These countries were able to draw on countercyclical policies, such as holding of financial reserves earmarked for health or linking of government contributions for economically inactive groups to earnings in previous years.¹⁴ In other countries, health budgets were protected (Belgium, Denmark) or frozen (the UK, although actual expenditure did decrease, contrary to government assertions), whereas other sectors experienced cuts.¹³

Some countries used the crisis to cut costs, particularly in the hospital and pharmaceutical sectors. For example, the governments of Austria, Latvia, Poland, and Slovenia strengthened their position in price negotiations with

Panel 1: Causes of the financial crisis—verdict in the USA

- Widespread failures in financial regulation and supervision proved devastating to the stability of financial markets
- Substantial failures of corporate governance and risk management at many systemically important financial institutions
- A combination of excessive borrowing, risky investments, and little transparency
- The US Government was ill prepared, and its inconsistent response added to uncertainty and panic in the financial markets
- A systemic breakdown in accountability and ethics
- Collapse of the mortgage-lending standards and the mortgage securitisation pipeline
- Over-the-counter derivatives contributed substantially
- Failures of credit rating agencies

Source: US Financial Crisis Inquiry Commission.⁷

Panel 2: Approaches taken by the troika in Greece

In Greece, the troika's main target is to achieve a surplus of 4.5% of gross domestic product (GDP) in the next 3 years. Specifically, in 2012, Greece has to implement spending cuts of 1.5% of GDP, equivalent to €3.3 billion. Additional savings of 5.5% of GDP need to be made in 2013–14.⁶

The austerity plan includes major reforms in the public sector workforce, with a reduction of 150 000 jobs between 2011 and 2015, 15 000 job losses in 2012, and employment freezes. Minimum wages have been cut by more than 20%.

Greece's social sector accounts for a large share of government spending, and thus a bulk of austerity measures will be implemented in this sector. Reductions in social transfers are hoped to save around 4% of GDP, and will mainly be achieved through cuts to pensions and social benefits and elimination of social support programmes.

Despite health being deemed a matter of internal governance, the troika has demanded that public spending on health should not exceed 6% of GDP, setting a precedent for the European Union on acquisition of control over national health systems in individual countries.⁷ The savings will mainly come from reduced public spending on drugs, decreases in workforce, and changes to purchasing of health services. The aim was to achieve substantial cost savings compared with 2010 by the end of 2012, including a 25% reduction in spending on medical services and goods through price-volume agreements, 50% reduction in administrative personnel at the central social security fund and 25% reduction in doctors contracted by the fund, 30% reduction in costs of services outsourced to private providers, 15% reduction in hospital costs, and 25% reduction in physicians' wages and fees.⁸

The restructuring of the public hospital sector in 2011 to generate further savings and efficiency gains included elimination or merging of 370 specialist units, reduction in public hospital beds from 35 000 to 33 000 (and a further 500 beds were designated for priority use by private patients), a freeze on hiring new physicians, and permission for private doctors contracted with the insurance fund to work in public hospitals once weekly.⁸

pharmaceutical companies, and those of Denmark, Greece, Latvia, Portugal, and Slovenia sped up the restructuring of their hospital sectors.¹³ Some countries reduced (eg, Cyprus, Greece, Ireland, Lithuania, Portugal, Romania) or froze (eg, England, Slovenia) the salaries of health professionals, or reduced the rate of salary increase (eg, Denmark).¹³ These policies could exacerbate wage imbalances between (depending on the relative change in wages in net immigration countries compared with that in net emigration countries) or within (if health-sector wages fall at a different rate from private-sector wages) countries, which could increase health-worker brain drain.

Initially no major changes were made to the scope (ie, statutory benefits package and services provided to the population that are covered by the state) or the breadth (ie, the population covered by the state) of health coverage, although some reductions were made (usually minor). Thus, in a few countries, some services were removed from the benefits package (eg, in-vitro fertilisation and physiotherapy in the Netherlands).¹³ In some countries, benefits for low-income groups were expanded (eg, Moldova).¹³ However, some countries—specifically, the Czech Republic, Denmark, Estonia, Finland, France, Greece, Ireland, Italy, Latvia, the Netherlands, Portugal, Romania, and Slovenia—decreased the extent of coverage by instituting or increasing user charges for some health services in response to the crisis. In most countries, the scarcity of data and potential lagged effects mean that assessment of the effects of these reforms on access to care and health outcomes is not yet possible. However, evidence from the wider medical literature suggests probable consequences. Rises in user charges are a particular cause of concern, because they increase the financial burden on households¹⁵ and probably reduce the use of high-value and low-value care equally, especially by people with low incomes and high users of health care, even when user charges are low.^{16,17} Introduction or increases of user charges in primary or ambulatory specialist care might worsen health outcomes and lead to increased use of free but resource-intensive services—eg emergency care. Thus, cost savings and enhanced efficiency are scarce.

Some countries have increased taxes on alcohol or tobacco, or both. A combination of motives—such as raising of revenue and promotion of health—is often behind such measures. For example, in 2012, alcohol taxes increased in both Finland and the UK, where alcohol-related mortality has risen in the 2000s.^{18,19} Cigarettes and alcohol have price elasticities of less than one; tax rises both generate additional revenue and decrease consumption and thus offer dual benefits for governments facing falling revenues and increasing alcohol-related problems because of the financial crisis.²⁰ Some countries (eg, Finland, France, Hungary) have introduced taxes on soft drinks, but these taxes are small,

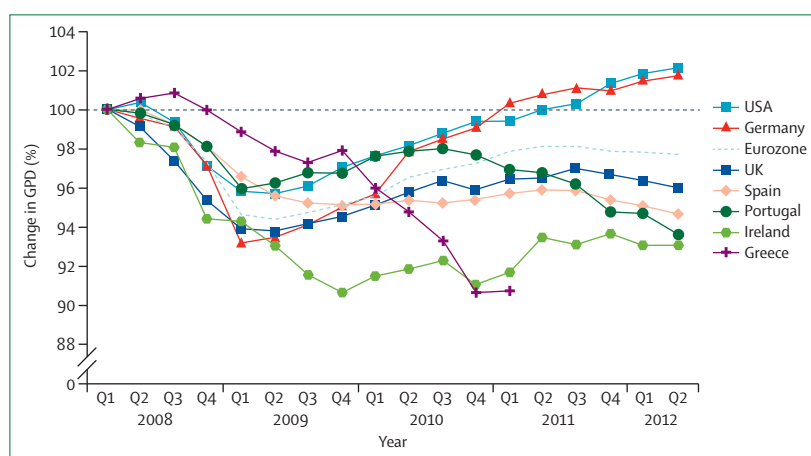


Figure 1: Changes to GDPs in selected countries, 2008–12

GDP in Q1, 2008=100%. Source: Organisation for Economic Co-operation and Development database.³⁰ GDP=gross domestic product. Q=quarter.

and, in France, the tax is explicitly a revenue-raising rather than health-promoting measure (it applies equally to drinks with artificial sweeteners).

Previous economic crises and expectations of health consequences

Research about the health effects of previous recessions has produced findings that might seem conflicting. Some aggregate data have shown that economic downturns might have few adverse effects on health overall in high-income countries and even that mortality might fall when the economy slows down and rise when the economy speeds up.^{21–24} These effects on health have been noted, at least in the short term, in several settings; the extent of the effects varies by age group,²⁵ sex,²⁶ and disease,²⁷ and depends on the indicators used to measure economic change.^{28–31} Although these findings have been deemed counterintuitive by some researchers,³² a possible explanation is that recessions improve health behaviours by providing increased sleep and leisure time that can be used for health-improving activities (eg, exercise), and cause people to reduce consumption of unhealthy foods and alcohol (because they have less money) and drive less (resulting in fewer deaths from road traffic accidents).

Other research about economic fluctuations in Europe, which was also based on aggregate data,³³ showed that worsening employment and other economic indicators (GDP per person, hours worked, and alternative measures of unemployment) affected mortality from specific causes in different ways. A rise in unemployment of 1% was associated with increases in suicides and murders but decreases in road traffic deaths, whereas a rise of 3% or more was associated with an increase in alcohol-related deaths. The effects of rising unemployment were not uniform and could have been mitigated substantially by social protection.³³ Two countries—Finland and

Sweden—clearly stood out because they dissociated rapid increases in unemployment in the early 1990s, from suicide rates (which continued to decrease).^{32,34} Both countries showed commitment to strong social support during times of crises—eg, through the use of active-labour-market programmes—which could have had protective effects on population health.^{35,36}

Further insights can be gained from individual-level research, which shows that unemployment adversely affects health. For example, the prevalence of psychological problems in unemployed people (34%) is more than twice that in employed people (16%),³⁷ and the negative effects of unemployment on mental health were less in countries with strong employment protection systems than in those with poor employment protection. Poor health in unemployed groups is partly a result of reduced financial resources,^{38,39} because loss of income can lead to poor nutrition and potentially to barriers in accessing health care. Martikainen and Valkonen⁴⁰ showed that, when demographic and socioeconomic factors are controlled for, unemployed people have higher mortality than do employed counterparts. Morris and colleagues⁴¹ reported that duration of unemployment correlates with increased risk of mortality. Unemployment is associated with increased unhealthy behaviours^{41–43} and affects mental health,⁴⁴ leading to increased psychological and behavioural disorders^{41,45} and increased risk of psychosomatic diseases and suicides.^{39,46,47}

Contrasting findings between individual-level and some aggregate studies generate controversy, not least because some of the health improvements noted in analyses of economic downturns have no obvious biological mechanisms—eg, reductions in cancer deaths. Adverse effects on the most vulnerable groups in the population might be masked by improvements in other groups.⁴⁸

Caution is needed in extrapolation from the usual variations in economic cycle to large-scale economic

crises. Analysis of previous major crises in the 20th century might help with the anticipation of the health effects of major economic downturns. Research about the health of Americans during the Great Depression showed that, although suicides became more common, overall mortality fell (driven by decreases in infectious diseases and road traffic accidents).⁴⁹ Analysis at state level showed that suicides and road traffic deaths were associated with local bank failures; however, previous research looked at nation-wide deaths, which masked the rise in suicides because infectious and non-communicable diseases were falling at the same time as a result of epidemiological transition that was unrelated to the financial crisis.⁵⁰

The break-up of the Soviet Union was followed by economic collapse in successor republics,^{51,52} which had devastating consequences on population health across the region. Mortality increased by as much as 20% in some countries. The falls in life expectancy were greatest in countries where socioeconomic transitions were most rapid,⁵³ and were caused by radical privatisation policies—a finding similar to those in different regions of Russia and across the former Soviet Union.⁵⁴ To some extent, the adverse consequences were mitigated in countries with high levels of membership of trade unions, religious groups, or sports clubs, all of which are widely used as markers of social capital.

The effect of economic change on health outcomes depends on the extent to which people are protected from self-harm. The Great Depression coincided with prohibition in the USA, which made alcohol difficult to obtain. By contrast, after the break-up of the Soviet Union, the wide availability of cheap alcohol in various forms boosted the culture of heavy drinking at a time of rapid economic and social changes.⁵⁵

Anticipation of any effect on the incidence of infectious diseases is difficult because of the complex interactions between people and pathogens and the many ways in which pathogens can be affected by economic changes. Nonetheless, a systematic review⁵⁶ showed deteriorating infectious disease outcomes during economic recession, often as a result of worsening living conditions, restricted access to care, or poor retention in treatment. Infants and people older than 65 years were the most susceptible to infections, and some high-risk groups (eg, migrants, homeless people, prisoners) were particularly vulnerable conduits of epidemics.

Maintenance of spending in other sectors might be as important as is safeguarding of health budgets in the protection of population health. A historical study⁵⁷ during 25 years of selected countries in the Organisation for Economic Co-operation and Development showed that each US\$100 increase per person per year in social-welfare spending was associated with a 1.19% decrease in all-cause mortality. In countries spending less than \$70 per person—eg, Spain and countries that joined the EU since 2004 (mostly eastern European)—

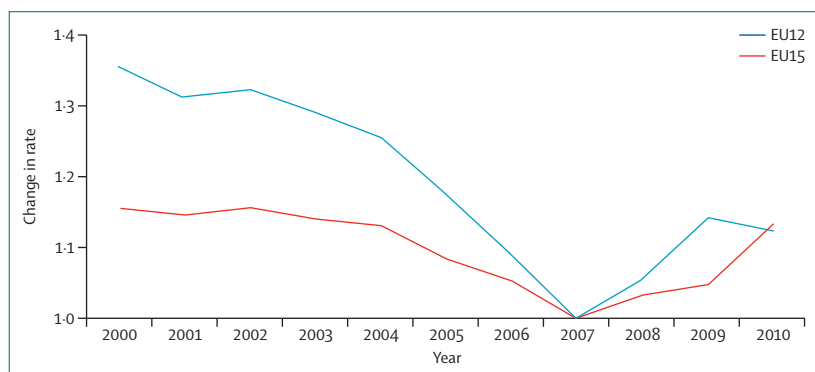


Figure 2: Suicide rates before and after 2007 in the 12 post-2004 (EU12) and 15 pre-2004 (EU15) countries of the European Union

Sources: WHO Mortality Database⁶² and Eurostat (for France, Greece, and Luxembourg for 2010).⁵ No data were available for Italy and Denmark for 2010. Rate of suicide in 2007=1. Data were adjusted relative to countries' populations.

a deteriorating economy correlated with a rise in suicide. But in Finland and Sweden, where at least \$300 was spent per person, economic change had no discernible short-term effects on overall population health.³³ Crucially, these findings related specifically to social-welfare spending rather than general government spending. Increased social-welfare spending significantly reduced mortality from diseases related to social circumstances (such as alcohol-related deaths), whereas health-care spending did not. Thus, the reduction was due to spending on areas other than health, suggesting that some aspects of population health (eg, mental health) are more sensitive in the short term to spending on social support than to spending on health care. A study⁵⁸ about social welfare and suicides in Europe showed that high social expenditure decreased suicide mortality and that population confidence in welfare provision had a preventive effect in relation to suicide. Economic change results in additional threats to mental health, including unemployment, loss of income, and growing household debt. Apart from ensuring accessible and responsive mental health services, these risks can be mitigated by social welfare and family support programmes.⁵⁹

Changes to health

By contrast with the rapidity with which economic data are published, often several years pass before

information about the health of populations becomes available. The most complete and accurate data are mortality estimates. Detailed data for causes, age groups, and different population groups can help to detect changes in mortality. Data for disease prevalence and incidence are less accurate and more difficult to compare between countries than are mortality data, and, on many occasions, are simply not available. The lag of about 2 years in the publication of mortality and other health data means that only the very early effects of the crisis are apparent so far. Many countries in Europe have had prolonged recessions, and cuts to health expenditure will probably affect services and the economic wellbeing of the population well into the future. Thus the full scale of consequences in severely affected countries will become apparent only in several years.

Some effects, however, are already clear. The incidence of mental disorders has increased in Greece and Spain,^{60,61} and self-reported general health and access to health-care services have worsened in Greece.⁶⁰ The number of suicides in people younger than 65 years has grown in the EU since 2007, reversing a steady decrease in many countries (figure 2).⁶³ In the member states that joined the EU in or after 2004, suicides peaked in 2009 and remained high in 2010, whereas a further increase was noted in 2010 in the 15 pre-2004 countries of the EU. In England, the increase in suicides in

Panel 3: Greece

Evidence is accruing of worsening mental health in Greece in the past 2 years. The Greek Ministry of Health reported a 40% rise in suicides between January and May, 2011, compared with the same period in 2010 (albeit from a low initial rate).⁶⁶ The results⁶⁷ of two nationwide cross-sectional surveys, done in 2008 and 2009, respectively, showed that 1 month prevalence of major depressive disorders doubled during this period and that people facing serious economic hardship were most at risk.

An analysis by Kentikelenis and colleagues⁶⁰ showed that self-reported general health has deteriorated—more people reported their health status as “bad” or “very bad” in 2009 than did in 2007. Deterioration in self-reported health was also reported in a study⁶⁸ comparing a cross-national survey from 2006 with another from 2011. The proportion of people who felt that they needed but did not access medical care rose significantly; long waiting times, travel distance, and waiting to get better were the main reasons given for not seeking care. Such responses are substantiated by reports of 40% cuts to hospital budgets, shortages of staff and medical supplies, and corruption in health care.⁶⁰ Data for use of health services in 2009–11 showed increases in admissions to public hospitals and falls in those to private hospitals, because patients could no longer afford private health insurance.^{69,70} Although Greece has secured cheaper prices for many generic drugs through negotiations with pharmaceutical companies, widespread drug shortages have

been reported in pharmacies as wholesalers turn to markets with higher profits. Meanwhile, health insurance funds have delayed reimbursement to pharmacies, resulting in accumulation of debts, which led pharmacies to ask patients to pay for drugs in cash and subsequently be reimbursed by the funds. This process continued until the Ministry of Health agreed to pay some of the pharmacists' debts.⁷¹

An HIV outbreak in injecting drug users that started in 2011 worsened in 2012. Between 2007 and 2010, between ten and 15 HIV infections were reported yearly in injecting drug users in Greece; the number of infections increased to 256 in 2011, and to 314 in the first 8 months of 2012.⁷² Low provision of preventive services has been an important contributor to increased HIV transmission, and non-governmental organisations reported disruption of needle exchange programmes and other preventive initiatives since 2008.

User fees for visiting outpatient clinics have increased from €3 to €5,⁷³ and many health-care facilities have closed.⁷⁴ Press reports of adverse social consequences, including homelessness,⁷⁵ surging crime,⁷⁶ and children being taken into care have become more common.⁷⁷

The rescue package prescribed by the troika came with conditions of stringent austerity, including cuts to social welfare, education, and health during the next five years, leaving Greece with very few options to counteract the escalating social crisis.

Panel 4: Spain

Between 2006 and 2010,⁶¹ the prevalences of mental health disorders in people attending primary care increased significantly, especially those of mood, anxiety, somatoform, and alcohol-related disorders; the rise in the prevalence of major depression was the biggest. Gili and colleagues⁶¹ estimated that at least half the rise in attendance with mental health disorders could be attributed to the combined risks of individual or family unemployment and difficulties with mortgage payments. Loss of family income particularly affects the weakest and most vulnerable members of society. In Catalonia between 2005 and 2010, the proportion of children at risk of poverty increased from 20.6% to 23.7%, and that living in unemployed families from 3.7% to 11.2%.⁷⁸ Families are increasingly turning to non-governmental organisations for food, housing, employment, legal advice, and psychological support.⁷⁸

Closure of health-care services and reductions in the number of hospital beds and working hours have been reported in Catalonia.⁷⁹ Copayments for drugs for pensioners and increases in cost-sharing for drugs for people with higher incomes have been introduced.⁸⁰ A new law shifting health coverage from universal to employment based was introduced in April, 2012, by a royal decree (the parliament was bypassed). An implication of this law is that hundreds of thousands of illegal immigrants will have access only to emergency, maternity and paediatric care.⁸¹

Panel 5: Portugal

In total, savings of €670 million were demanded in Portuguese health care as a condition of the memorandum of understanding between the troika and the Portuguese Government.⁸² Drug expenditure, prescriptions, workforce, and user charges were targeted.

A target for public expenditure on drugs of 1.25% of gross domestic product was aimed for by the end of 2012 (down from 1.55% in 2010) and 1% by the end of 2013. The main savings have been made in public retail pharmaceutical expenditure through measures including reductions in pricing, promotion of competition, electronic prescribing, and prescription monitoring.⁸³ In addition to initial salary freezes in 2010, public sector employees' incomes were cut in 2011 and 2012.

Since January, 2012, the Portuguese Government has increased citizens' copayments for primary care appointments from €2.25 to €5.00, while the cost of emergency visits rose from €3.80 to €10.00 in primary care and from €9.60 to €20.00 in secondary care.⁸⁴ Although these increases have ostensibly been introduced to reduce non-urgent and inappropriate visits, about 15% of the Portuguese population are not registered with a general practitioner, and rely on emergency services.⁸⁴ User charges are capped at €50 per visit, but exceptions include people with low income, those with disabilities and those with chronic illnesses (if the visit is related to their illness), who are exempt from fees.⁸² Children are exempt from user charges in health care. However, their welfare has been placed at risk because expenditure on family support was reduced by 30% in 2011, and in January, 2012, 67 000 families lost eligibility for child-care benefits.⁸⁵

Winter deaths in people older than 75 years increased by 10% in 2012 compared with 2011, which caused substantial alarm; subsequently, however, the rise was attributed to increased influenza activity and unusually cold weather.⁸⁶ However, concerns remain, because more than 40% of Portuguese people older than 65 years who live alone are unable to keep their homes adequately heated.⁸⁷ Some health-care professionals have suggested that reduced access to health services and poor diet might have contributed to the increase in deaths, but this view is contested.⁸⁸

2008–10 was significantly associated with increased unemployment, and resulted in an estimated 1000 excess deaths.⁶⁴

The most vulnerable people are those in countries facing the largest cuts to public budgets and increasing unemployment. Both job loss and fear of job loss have adverse effects on mental health,⁶⁵ and income reduction, growing health-care costs, and cuts in services prevent patients from accessing care in time. Such effects have been noted in Greece, Spain, and Portugal (panels 3–5). In Ireland, which was also bailed out by the troika, the health effects are unclear so far, but health coverage for patients older than 70 years has been reduced (entitlement to medical cards, which allow holders to access some services for free, has been removed for those with high incomes), prescription charges have been introduced for low-income households, and dentistry benefits have been reduced, all of which will probably affect access to care.⁸⁹

Such effects are not, however, inevitable. Iceland was one of the first European countries to be hit by the financial crisis; the debt-to-GDP ratio increased from 28% in 2007, to 130% in 2011, and the value of the currency fell by 35% before trading was suspended. Yet at all stages in its response, Iceland rejected the economic orthodoxy that advocated austerity, refused to be accountable for the irresponsibility of a few bankers, and invested in its people who, evidence suggests, have had very few adverse health consequences (panel 6). Iceland's choice of policies might have been influenced by widespread protests, in which roughly 10% of the population took part, suggesting high social cohesion. However, the health and economic effects of the policy choices can be assessed independently of the underlying determinants. Continuing study of the European countries most severely hit by the crisis is warranted, because each has encountered unique circumstances; Greece had, for many years, submitted falsified data for the state of its public finances,⁹³ Ireland had a major banking issue, and Portugal's economic growth had stagnated for a decade.

A financial crisis could lead to increases in healthy behaviours (eg, walking, cycling) and reductions in risky behaviours (eg, consumption of less alcohol or tobacco). Increased taxes on alcohol and tobacco can prompt reductions in hazardous drinking⁹⁴ and smoking.^{95,96} An analysis⁹⁷ of the effects of alcohol policy and economic downturn in Estonia suggested that the reduction in alcohol consumption since 2008 was a result of the combined effects of economic crisis and strengthening of alcohol policies since 2005. However, a more complex situation was noted in a study⁹⁸ of the economic crisis in the USA, in which the number of people drinking any alcohol had fallen but binge drinking had increased.

Consistent with previous experience,^{33,49} deaths from road traffic accidents are falling in many countries,⁶³ with drivers switching to cheaper transport or reducing their travel. The decrease in accidents is further shown by shortages of organ donations and transplants in Spain—normally a leading country in terms of both.⁹⁹ Organ donation has also fallen substantially in Ireland.¹⁰⁰

The exception is the UK, where a long-term decrease in road traffic deaths has been reversed, although this reversal coincides with the removal of road safety targets by the government.¹⁰¹

Looking to the future

The first signs of recovery in the global financial sector were noted in 2009.¹⁰² However, the economy in many countries has not yet recovered, and 2012 growth is projected to be minimum in countries including France, Germany, and the UK, and negative in Iceland, Ireland, Italy, the Netherlands, Portugal, and Spain, among others. Greece is not expected to begin to recover before 2014. An absence of economic growth means loss of income and employment, and reductions in social assistance for ordinary people, which have consequences that are likely to last for many months, during which time protection of health and access to health and social care services for the most vulnerable members of society are particularly important.

Several lessons can be learnt. First, by stark contrast with the availability of information on the economy, the absence of up-to-date morbidity and mortality data have clearly made the immediate effects of the crisis on health impossible to analyse, leaving policy attention focused on economic aspects. Second, remarkably little research has been done about the health consequences of the crisis and much of that done has been undertaken by individual researchers without additional funding. The major funders of health research have been largely absent. A potentially substantial research agenda exists, and would include investigations of why some populations seem to cope with and recover from economic crises better than others. The financial crisis created a set of economic shocks that resulted in widely varying policy responses and differing health outcomes, and thus has presented a so-called quasinatural experiment for future research about the effects of economic changes on health and which policy responses can mitigate risks. Multilevel notions of resilience—ie, how individuals, communities, and entire societies positively adapt to shocks—can be expanded to cover wider social and economic determinants of public health.¹⁰³ Such an inclusive notion of resilience provides an explanatory framework that implicates the physical, psychosocial, and economic factors that help populations to resist and adapt to public health threats, such as the economic crisis.

Finally, public health voices have been largely absent from the debate about how to respond. Many health ministries have been silent. The Directorate-General for Health and Consumer Protection of the European Commission, despite its legal obligation to assess the health effects of EU policies, has not assessed the effects of the troika's drive for austerity, and has instead limited EU commentary to advice about how health ministries can cut their budgets. A small source of optimism is that

Panel 6: Iceland

What would have happened if European governments had refused to rescue failing banks? Every country is different, but Iceland's experience is instructive. In the mid 1990s, a few Icelandic bankers and politicians decided that their country's future prosperity depended on becoming a global financial centre. The previously strict banking regulations were overturned and the banks enticed investors in many countries with interest rates that seemed too good to be true. A few experts, such as the UK economist Robert Wade,⁹⁰ predicted problems, but these warnings were dismissed by the global financial establishment. When the US subprime mortgage market collapsed, Icelandic banks faced massive losses. The International Monetary Fund (IMF) was called in and prescribed a rescue package whereby the Icelandic Government would assume liability for the banks' losses, which would have resulted in 50% of the national income between 2016 and 2023 being paid to the UK and Dutch Governments. The Icelandic Government agreed but the president refused to approve the deal. A referendum was held, and 93% of the population rejected the rescue package. The Icelandic banks' creditors were incandescent; the UK Government invoked antiterrorist legislation to freeze Icelandic assets. Iceland let the value of its króna collapse, so that the price of imports rocketed, and many Icelanders faced major reductions in income. Yet the effects on health were almost imperceptible. Suicides did not increase. When the crisis broke, the frequency of cardiac emergencies increased slightly, but this peak subsided within a week.⁹¹ A national survey of health and wellbeing showed that the crisis had few effects on the nation's happiness.⁹²

How can the absence of adverse effects be explained? First, Iceland ignored the advice of the IMF, and instead invested in social protection. This investment was coupled with active measures to get people back into work. Second, diet improved. McDonald's pulled out of the country because of the rising costs of importation of onions and tomatoes (the most expensive ingredients in its burgers). Icelanders began cooking at home more (especially fish, boosting the income of the country's fishing fleet). Third, Iceland retained its restrictive policies on alcohol, again contrary to the advice of the IMF. Finally, the Icelandic people drew on strong reserves of social capital, and everyone really felt that they were united in the crisis. Although extrapolation to other countries should be undertaken with care, Iceland, by challenging the economic orthodoxy at every step of its response, has shown that an alternative to austerity exists.

European civil society organisations, including professional bodies, have spoken out about the adverse health effects of cuts to health and social spending.¹⁰⁴ The question is whether anyone will listen.

Contributors

MK drafted the paper on the basis of an outline developed by MM and DS. MK, PM, and JC surveyed the crisis responses by European governments, with input from ST and MM. MK analysed the data and wrote the country case studies. The paper was revised by all authors.

Conflicts of interest

We declare that we have no conflicts of interest.

Acknowledgments

DS is supported by an EU-FP7 DEMETRIQ project grant.

References

- 1 Luthar S, Cicchetti D, Becker B. The construct of resilience: a critical evaluation and guidelines for future work. *Child Dev* 2000; **71**: 543–62.
- 2 The Financial Crisis Inquiry Commission. The financial crisis inquiry report. Washington, DC: US Government Printing Office, 2011.
- 3 Andrews E, Uchitelle L. Rescues for homeowners in debt weighed. <http://www.nytimes.com/2008/02/22/business/22homes.html?pagewanted=all> (accessed Feb 7, 2013).

- 4 Obstfeld M, Rogoff K. Global imbalances and the financial crisis: products of common causes. Federal Reserve Bank of San Francisco Asia Economic Policy Conference; Santa Barbara, CA, USA; Oct 18–20, 2009.
- 5 European Commission. Eurostat statistics database 2012. http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database (accessed Feb 12, 2013).
- 6 European Commission. The second economic adjustment programme for Greece. Occasional papers 94. Brussels: European Commission, 2012.
- 7 Fahy N. Who is shaping the future of European health systems? *BMJ* 2012; **344**: e1712.
- 8 Economou C. The performance of the Greek healthcare system and the economic adjustment programme: “economic crisis” versus “system-specific deficits” driven reform. *Int J Soc Political Theory* 2012; **2**: 33–68.
- 9 International Monetary Fund. World economic outlook, October 2012. Coping with high debt and sluggish growth. Washington, DC: International Monetary Fund, 2012.
- 10 Organisation for Economic Co-operation and Development. Statistics database, <http://www.oecd.org/statistics/> (accessed Feb 7, 2013).
- 11 McKee M, Karanikolos M, Belcher P, Stuckler D. Austerity: a failed experiment on the people of Europe. *Clin Med* 2012; **12**: 346–50.
- 12 Cylus J, Mladovsky P, McKee M. Is there a statistical relationship between economic crises and changes in government health expenditure growth? An analysis of twenty-four European countries. *Health Serv Res* 2012; **47**: 2204–24.
- 13 Mladovsky P, Srivastava D, Cylus J, et al. Policy summary 5. Health policy responses to the financial crisis in Europe. Copenhagen: World Health Organization (on behalf of the European Observatory on Health Systems and Policies), 2012.
- 14 WHO Regional Office for Europe. Interim report on implementation of the Tallin Charter. Copenhagen: World Health Organization, 2011.
- 15 Wagstaff A, van Doorslaer E, Calonge S, et al. Equity in the finance of health care: some international comparisons. *J Health Econ* 1992; **11**: 361–87.
- 16 Newhouse JP, Rand Corporation Insurance Experiment Group. Free for all?: lessons from the Rand Health Insurance Experiment. Cambridge, MA: Harvard University Press, 1993.
- 17 Gemmill MC, Thomson S, Mossialos E. What impact do prescription drug charges have on efficiency and equity? Evidence from high-income countries. *Int J Equity Health* 2008; **7**: 12.
- 18 Makela P, Osterberg E. Weakening of one more alcohol control pillar: a review of the effects of the alcohol tax cuts in Finland in 2004. *Addiction* 2009; **104**: 554–63.
- 19 Davies SC. On the state of the public’s health 2011. London: Department of Health, 2012.
- 20 Lhachimi SK, Cole KJ, Nusselder WJ, et al. Health impacts of increasing alcohol prices in the European Union: a dynamic projection. *Prev Med* 2012; **55**: 237–43.
- 21 Ruhm CJ. Are recessions good for your health? *Q J Econ* 2000; **115**: 617–50.
- 22 Ruhm CJ. Good times make you sick. *J Health Econ* 2003; **22**: 637–58.
- 23 Gerdtham UG, Ruhm CJ. Deaths rise in good economic times: evidence from the OECD. *Econ Hum Biol* 2006; **4**: 298–316.
- 24 Ruhm CJ. A healthy economy can break your heart. *Demography* 2008; **44**: 829–48.
- 25 Joyce T, Mocan N. Unemployment and infant health: time-series evidence from the state of Tennessee. *J Hum Resour* 1993; **28**: 185–203.
- 26 Chang SS, Gunnell D, Sterne JA, Lu TH, Cheng AT. Was the economic crisis 1997–1998 responsible for rising suicide rates in East/Southeast Asia? A time-trend analysis for Japan, Hong Kong, South Korea, Taiwan, Singapore and Thailand. *Soc Sci Med* 2009; **68**: 1322–31.
- 27 Waters H, Saadah F, Pradhan M. The impact of the 1997–98 East Asian economic crisis on health and health care in Indonesia. *Health Policy Plan* 2003; **18**: 172–81.
- 28 Economou A, Nikolau A, Theodossiou I. Are recessions harmful to health after all? Evidence from the European Union. *J Econ St* 2008; **35**: 368–84.
- 29 Svensson M. Do not go breaking your heart: do economic upturns really increase heart attack mortality? *Soc Sci Med* 2007; **65**: 833–41.
- 30 Stuckler D, Meissner CM, King LP. Can a bank crisis break your heart? *Global Health* 2008; **4**: 1.
- 31 Gerdtham UG, Johannesson M. Business cycles and mortality: results from Swedish microdata. *Soc Sci Med* 2005; **60**: 205–18.
- 32 Catalano R, Bellows B. Commentary: if economic expansion threatens public health, should epidemiologists recommend recession? *Int J Epidemiol* 2005; **34**: 1212–13.
- 33 Stuckler D, Basu S, Suhrcke M, Coutts A, McKee M. The public health effect of economic crises and alternative policy responses in Europe: an empirical analysis. *Lancet* 2009; **374**: 315–23.
- 34 Jäntti M, Martikainen P, Valkonen T. When the welfare state works: unemployment and mortality in Finland. In: Cornia A, Panizza R, eds. The mortality crisis in transitional economies. Oxford: Oxford University Press, 2000: 351–69.
- 35 Vuori J, Silvenen J. The benefit of a preventive job search program on re-employment and mental health at two years follow-up. *J Occup Organ Psychol* 2005; **78**: 43–52.
- 36 Westerlund H, Theorell T, Bergstrom A. Psychophysiological effects of temporary alternative employment. *Soc Sci Med* 2001; **52**: 405–15.
- 37 Paul K, Moser K. Unemployment impairs mental health: meta-analyses. *J Vocational Behav* 2009; **74**: 264–82.
- 38 Creed P. Improving the mental and physical health of unemployed people: why and how? *Med J Aust* 1998; **168**: 177–78.
- 39 Ungváry G, Morvai V, Nagy I. Health risk of unemployment. *Central Eur J OBM* 1999; **5**: 91–112.
- 40 Martikainen PT, Valkonen T. Excess mortality of unemployed men and women during a period of rapidly increasing unemployment. *Lancet* 1996; **348**: 909–12.
- 41 Morris J, Cook D, Shaper G. Loss of employment and mortality. *BMJ* 1994; **308**: 1135–39.
- 42 Schuring M, Burdorf L, Kunst A, Mackenbach J. The effects of ill health on entering and maintaining paid employment: evidence in European countries. *J Epidemiol Community Health* 2007; **61**: 597–604.
- 43 Hammarström A. Health consequences of youth unemployment—review from a gender perspective. *Soc Sci Med* 1994; **38**: 699–709.
- 44 Stern J. The relationship between unemployment, morbidity and mortality in Britain. *Popul Stud (Camb)* 1983; **37**: 61–74.
- 45 Theodossiou I. The effects of low-pay and unemployment on psychological well-being: a logistic regression approach. *J Health Econ* 1998; **17**: 85–104.
- 46 Moser KA, Jones DR, Fox AJ, Goldblatt PO. Unemployment and mortality: further evidence from the OPCS longitudinal study 1971–81. *Lancet* 1986; **327**: 365–67.
- 47 Junankar PN. Unemployment and mortality in England and Wales: a preliminary analysis. *Oxford Econ Papers* 1991; **43**: 305–20.
- 48 Suhrcke M, Stuckler D. Recession and health in Europe: what to expect? London: London School of Economics and Political Science, 2009.
- 49 Fishback P, Haines M, Kantor S. Births, deaths, and new deal relief during the Great Depression. *Rev Econ Stats* 2007; **89**: 1–14.
- 50 Stuckler D, Meissner C, Fishback D, Basu S, McKee M. Banking crises and mortality during the Great Depression: evidence from US urban populations, 1929–1937. *J Epidemiol Community Health* 2012; **66**: 410–19.
- 51 Sachs J. Understanding ‘shock therapy’. London: SM Foundation, 1994.
- 52 Wedel J. Collision and collusion: the strange case of western aid to eastern Europe. New York: Palgrave, 2001.
- 53 Stuckler D, King L, McKee M. Mass privatisation and the post-communist mortality crisis: a cross-national analysis. *Lancet* 2009; **373**: 399–407.
- 54 Walberg P, McKee M, Shkolnikov V, Chenet L, Leon DA. Economic change, crime, and mortality crisis in Russia: regional analysis. *BMJ* 1998; **317**: 312–18.
- 55 Stuckler D, Basu S, Suhrcke M, McKee M. The health implications of financial crisis: a review of the evidence. *Ulster Med J* 2009; **78**: 142–45.

- 56 Suhrcke M, Stuckler D, Suk JE, et al. The impact of economic crises on communicable disease transmission and control: a systematic review of the evidence. *PLoS One* 2011; 6: e20724.
- 57 Stuckler D, Basu S, McKee M. Budget crises, health, and social welfare programmes. *BMJ* 2010; 340: c3311.
- 58 Yur'yev A, Varnik A, Varnik P, Sisask M, Leppik L. Role of social welfare in European suicide prevention. *Int J Soc Welfare* 2011; 21: 26–33.
- 59 Wahlbeck K, McDavid D. Actions to alleviate the mental health impact of the economic crisis. *World Psychiatry* 2012; 11: 139–45.
- 60 Kentikelenis A, Kariniakos M, Papanicolas I, Basu S, McKee M, Stuckler D. Health effects of financial crisis: omens of a Greek tragedy. *Lancet* 2011; 378: 1457–58.
- 61 Gili M, Roca M, Basu S, McKee M, Stuckler D. The mental health risks of economic crisis in Spain: evidence from primary care centres, 2006 and 2010. *Eur J Public Health* 2013; 23: 103–08.
- 62 WHO (2012) Detailed mortality database. <http://www.who.int/whosis/mort/download/en/index.html> (accessed Feb 7, 2013).
- 63 Stuckler D, Basu S, Suhrcke M, Coutts A, McKee M. Effects of the 2008 recession on health: a first look at European data. *Lancet* 2011; 378: 124–25.
- 64 Barr B, Taylor-Robinson D, Scott-Samuel A, McKee M, Stuckler D. Suicides associated with the 2008–10 economic recession in England: time trend analysis. *BMJ* 2012; 345: e5142.
- 65 Reichert A, Tauchmann H. The causal impact of fear of unemployment on psychological health. Essen: Rheinisch-Westfälisches Institut für Wirtschaftsforschung, 2011.
- 66 Economou M, Madianos M, Theleritis C, Peppou LE, Stefanis CN. Increased suicidality amid economic crisis in Greece. *Lancet* 2011; 378: 1459.
- 67 Madianos M, Economou M, Alexiou T, Stefanis C. Depression and economic hardship across Greece in 2008 and 2009: two cross-sectional surveys nationwide. *Soc Psychiatry Psychiatr Epidemiol* 2011; 46: 943–52.
- 68 Zavras D, Tsiantou V, Pavi E, Mylonas K, Kyriopoulos J. Impact of economic crisis and other demographic and socio-economic factors on self-rated health in Greece. *Eur J Public Health* 2012; published online Oct 23. DOI:10.1093/eurpub/cks143.
- 69 Karamanoli E. Debt crisis strains Greece's ailing health system. *Lancet* 2011; 378: 303–04.
- 70 Kentikelenis A, Papanicolas I. Economic crisis, austerity and the Greek public health system. *Eur J Public Health* 2012; 22: 4–5.
- 71 Karamanoli E. Greece's financial crisis dries up drug supply. *Lancet* 2012; 379: 302.
- 72 European Centre for Disease Prevention and Control. Risk assessment on HIV in Greece. <http://ecdc.europa.eu/en/publications/Publications/20121130-Risk-Assessment-HIV-in-Greece.pdf> (accessed Feb 11, 2013).
- 73 Zarocostas J. Rise in user fees in Greece could reduce access to healthcare, charity warns. *BMJ* 2011; 342: d200.
- 74 Carassava A. Euro crisis: why Greece is the sick man of Europe. <http://www.bbc.co.uk/news/world-europe-16256235> (accessed Feb 7, 2013).
- 75 Lowen M. Meeting the 'new homeless' on Greece's freezing streets. <http://www.bbc.co.uk/news/world-europe-16878756> (accessed Feb 8, 2013).
- 76 Glader P. Greeks vexed by growing crime. <http://www.spiegel.de/international/europe/a-symptom-of-the-crisis-greeks-vexed-by-growing-crime-a-796733.html> (accessed Feb 8, 2013).
- 77 Hadjimatheou C. The Greek parents too poor to care for their children. <http://www.bbc.co.uk/news/magazine-16472310> (accessed Feb 8, 2013).
- 78 Rajmil L. Destruction of a less developed welfare state and impact on the weakest, the youths (rapid response to McKee M, Stuckler D: The assault on universalism: how to destroy the welfare state). <http://www.bmj.com/content/343/bmj.d7973?tab=responses> (accessed Feb 8, 2013).
- 79 Gene-Badia J, Gallo P, Hernandez-Quevedo C, Garcia-Armesto S. Spanish health care cuts: penny wise and pound foolish? *Health Policy* 2012; 106: 23–28.
- 80 Casino G. Spanish health cuts could create "humanitarian problem". *Lancet* 2012; 379: 1777.
- 81 Garcia Rada A. New legislation transforms Spain's health system from universal access to one based on employment. *BMJ* 2012; 344: e3196.
- 82 Pita Barros P. Health policy reform in tough times: the case of Portugal. *Health Policy* 2012; 106: 17–22.
- 83 Pita Barros P. Pharmaceutical market reforms in Portugal under the memorandum of understanding. *Eurohealth* 2012; 18: 33–36.
- 84 Augusto GF. Cuts in Portugal's NHS could compromise care. *Lancet* 2012; 379: 400.
- 85 Muižnieks N. Report of the Commissioner for Human Rights of the Council of Europe following his visit to Portugal from 7 to 9 May 2012. Strasbourg: Council of Europe, 2012.
- 86 Mazick A, Gergonne B, Nielsen J, et al. Excess mortality among the elderly in 12 European countries, February and March 2012. *Eurosurveillance* 2012; 17.
- 87 WHO Regional Office for Europe. Environmental health inequalities in Europe. Assessment report. Copenhagen, World Health Organization, 2012.
- 88 Quieroz M. Winter of crisis killing the elderly in Portugal. <http://www.ipsnews.net/2012/03/winter-of-crisis-killing-the-elderly-in-portugal> (accessed Feb 7, 2013).
- 89 Thomas S, Keegan C, Barry S, Layte R. The Irish health system and the economic crisis. *Lancet* 2012; 380: 1056–57.
- 90 Wade R. From global imbalances to global reorganisations. *Cambridge J Econom* 2009; 33: 539–62.
- 91 Guethjónsdóttir GR, Kristjánsson M, Ólafsson O, et al. Immediate surge in female visits to the cardiac emergency department following the economic collapse in Iceland: an observational study. *Emerg Med J* 2012; 29: 694–98.
- 92 Guðmundsdóttir D. The impact of economic crisis on happiness. *Soc Indic Res* 2013; 110: 1083–101.
- 93 Rauch B, Götsche M, Brähler G, Engel S. Fact and fiction in EU-governmental economic data. *German Econom Rev* 2011; 12: 243–55.
- 94 Rabinovich L, Brutscher P, de Vries H, Tiessen J, Clift J, Reding A. The affordability of alcoholic beverages in the European Union. Cambridge, RAND Europe, 2009.
- 95 Ahmad S, Franz GA. Raising taxes to reduce smoking prevalence in the US: a simulation of the anticipated health and economic impacts. *Public Health* 2008; 122: 3–10.
- 96 Townsend J. Price and consumption of tobacco. *Br Med Bull* 1996; 52: 132–42.
- 97 Lai T, Habicht J. Decline in alcohol consumption in Estonia: combined effects of strengthened alcohol policy and economic downturn. *Alcohol Alcoholism* 2011; 46: 200–03.
- 98 Bor J, Basu S, Coutts A, McKee M, Stuckler D. Alcohol use during the great recession of 2008–2009. *Alcohol Alcoholism* 2013; published online Jan 29. DOI:10.1093/alcalc/agt002.
- 99 De Lago M. Organ donors and transplantations decrease in Spain, the leading country in both. *BMJ* 2011; 342: d242.
- 100 Houston M. Ireland has record fall in number of organ donations. *BMJ* 2011; 342: d982.
- 101 British Broadcasting Corporation. UK road deaths rise puts government under pressure. <http://www.bbc.co.uk/news/uk-politics-18881049> (accessed Oct 30, 2012).
- 102 International Monetary Fund. Global Financial Stability Report. Washington, DC: International Monetary Fund, 2009.
- 103 Castleden M, McKee M, Murray V, Leonardi G. Resilience thinking in health protection. *J Public Health (Oxf)* 2011; 33: 369–77.
- 104 European Public Health Alliance. Open letter to the European Council. EU leaders must focus on sustainable equitable Europe that fosters, and is sustained by, a healthy population. http://www.eph.org/IMG/pdf/FINAL_letter_to_European_Council_SECURED.pdf (accessed Oct 30, 2012).