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Report Card 9

The children left behind

A league table of inequality in child well-being in the world's rich countries

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Innocenti Report Card 9 was written by Peter Adamson.

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The *Report Card* series is designed to monitor and compare the performance of economically advanced countries in securing the rights of their children.

The UNICEF Innocenti Research Centre in Florence, Italy, was established in 1988 to strengthen the research capability of the United Nations Children's Fund (UNICEF) and to support its advocacy for children worldwide.

The Centre helps to identify and research current and future areas of UNICEF's work. Its prime objectives are to improve international understanding of issues relating to children's rights and to help facilitate the full implementation of the United Nations Convention on the Rights of the Child in all countries.

The Centre's publications are contributions to a global debate on child rights issues and include a wide range of opinions. The views expressed are those of the author and researchers and do not necessarily reflect the policies or views of UNICEF.

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Whether in health, in education, or in material well-being, some children will always fall behind the average. The critical question is – how far behind? Is there a point beyond which falling behind is not inevitable but policy susceptible, not unavoidable but unacceptable, not inequality but inequity?

There are no widely agreed theoretical answers to these questions. Report Card 9 *seeks to stimulate debate on the issue by introducing a common measure of 'bottom-end inequality'. This permits each country's performance to be assessed according to the standard of what the best-performing countries have been able to achieve. Such a standard may not represent the best that may be aspired to in theory, but in practice it suggests a level below which 'falling behind' is manifestly not inevitable.*

The Report Card *series is premised on the belief that the true measure of a nation's standing is how well it attends to its children – their health and safety, their material security, their education and socialization, and their sense of being loved, valued, and included in the families and societies into which they are born. Its common theme is that protecting children during their vital, vulnerable years of growth is both the mark of a civilized society and the means of building a better future.*

This ninth report in the series builds on previous issues by focusing specifically on those children in all OECD countries who are at risk of being left behind – of being neither included nor protected – by the wealthy societies in which they live.

THE CHILDREN LEFT BEHIND

A league table of inequality in child well-being in the world's rich countries

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Fig. 1a A league table of inequality in child well-being

The table summarizes the findings of Report Card 9, ranking 24 OECD countries by their performance in each of three dimensions of inequality in child well-being.

inequality lower than OECD average | inequality close to OECD average | inequality higher than OECD average

Material well-being	rank	Education well-being	rank	Health well-being	rank
Switzerland	1	Finland	1	Netherlands	1
Iceland	2	Ireland	2	Norway	2
Netherlands	3	Canada	3	Portugal	3
Denmark	4	Denmark	4	Germany	4
France	5	Poland	5	Switzerland	5
Finland	6	Hungary	6	Belgium	6
Austria	7	Sweden	7	Ireland	7
Norway	8	Netherlands	8	Denmark	8
Sweden	9	Spain	9	Canada	9
Germany	10	Iceland	10	Czech Republic	10
Czech Republic	11	Norway	11	United Kingdom	11
Luxembourg	12	Switzerland	12	Slovakia	12
Ireland	13	United Kingdom	13	Austria	13
Spain	14	Portugal	14	Sweden	14
Belgium	15	Slovakia	15	France	15
Portugal	16	Luxembourg	16	Finland	16
Canada	17	Czech Republic	17	Iceland	17
Greece	18	Greece	18	Poland	18
United Kingdom	19	United States	19	Luxembourg	19
Italy	20	Germany	20	Greece	20
Poland	21	Italy	21	Spain	21
Hungary	22	Austria	22	United States	22
United States	23	France	23	Italy	23
Slovakia	24	Belgium	24	Hungary	24

Fig. 1b The overall record

Figure 1b ranks each country by its overall inequality record. Three points have been awarded for a better than average performance, 2 points for a performance at or close to the OECD average, and 1 point for a below average performance (see note for definitions). Countries in alphabetical order within groups.

Higher score = greater equality	
8	Denmark
	Finland
	Netherlands
	Switzerland
7	Iceland
	Ireland
	Norway
	Sweden
6	Austria
	Canada
	France
	Germany
	Poland
	Portugal
5	Belgium
	Czech Republic
	Hungary
	Luxembourg
	Slovakia
	Spain
	United Kingdom
3	Greece
	Italy
	United States

Figs. 1a and 1b are limited to the 24 OECD countries with available data for all three dimensions of inequality in child well-being.

Note: To compare the inequality performance of the featured countries in each dimension of child well-being, inequality scores for the individual indicators used are first converted to standard scores (i.e. inequality is measured in standard deviations from the OECD unweighted average). The standardized scores are then averaged to arrive at an inequality score for each dimension. For purposes of Figs. 1a and 1b, 'inequality close to average' is defined as a score within the range of -0.5 to +0.5 standard deviations from the OECD average. 'inequality lower than OECD average' is defined as having a standard deviation score greater than +0.5 from the OECD unweighted average. 'inequality higher than OECD average' is defined as having a standard score of less than -0.5 from the OECD unweighted average.

Source: *See page 30 (Data for* Report Card 9*: the surveys) for data sources used in the measurement of inequality in the different dimensions of children's well-being.*

Part 1

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Introduction

This *Report Card* presents a first overview of inequalities in child well-being for 24 of the world's richest countries.

Three dimensions of inequality are examined: material well-being, education, and health. In each case and for each country, the question asked is *'how far behind are children being allowed to fall?'*

Figure 1a summarizes the results. Within the limitations of the available data, it represents an overview of how well the world's developed nations are living up to the ideal of *'no child left behind'*.

Figure 1b presents the same data from a different perspective, showing each nation's performance in relation to the average for the nations of the OECD as a whole.

Both charts show that a small group of countries – Denmark, Finland, the Netherlands, and Switzerland – are leading the way in promoting equality in children's well-being. Greece, Italy and the United States, on the other hand, are allowing children to fall furthest behind.

Why inequality matters

The increase in inequality over the last three decades – its economic causes, its social costs, its possible remedies – is the subject of considerable debate in OECD countries today.[i] On the one hand it is argued that, after a certain level of economic development has been achieved, greater equality "*would increase the well-being and quality of life for all*".[ii] On the other, it is maintained that inequality is a justifiable reflection of differences in ability and effort and provides incentives for further progress in all fields of human endeavour.

This is an important debate. But it is not one that affects the premise of this report.

The idea that inequality is justified as a reflection of differences in merit cannot reasonably be applied to children. Few would deny that children's early circumstances are beyond their own control. Or that those early circumstances have a profound effect on their present lives and future prospects. Or that growing up in poverty incurs a substantially higher risk of lower standards of health, of reduced cognitive development, of underachievement at school, of lower skills and aspirations, and eventually of lower adult earnings, so helping to perpetuate disadvantage from one generation to the next.

None of this is the fault of the child.

Second, the question being asked here – '*how far behind are children being allowed to fall?*' – requires a measure not of overall inequality but of inequality at the bottom end of the distribution. In other words, the metric used is not the distance between the top and the bottom but between the median and the bottom. The median level of child well-being – whether in material goods, educational outcomes, or level of health – represents what is considered normal in a given society and falling behind that median by more than a certain degree carries a risk of social exclusion.

Today, 'bottom-end inequality' is no longer a concern only of the political left. In the United Kingdom, for example, a Conservative Prime Minister has argued that "*We should focus on closing the gap between the bottom and the middle not because that is the easy thing to do, but because focusing on those who do not have the chance of a good life is the most important thing to do.*"

That 'gap between the bottom and the middle' is the focus of *Report Card 9*.

Measuring inequality

It should be said from the outset that the data deployed for measuring inequality, although the latest available, are derived from surveys conducted before the 2008 economic crisis (Box 2). Nor are the data comprehensive. There is, for example, very little statistical information available on the critical early years of childhood.

It is also important to recognize that well-being has many dimensions and its measurement should also be multidimensional to the extent that the data allow. "*Each dimension of*

quality-of-life requires appropriate measures of inequality with each of these measures being significant in itself and none claiming absolute priority over the others," says the Commission on the Measurement of Economic Performance and Social Progress established in 2008 by the President of France.*

Figure 1a therefore compares 24 OECD countries according to their performance in limiting bottom-end inequality in three dimensions of children's well-being. Its rankings confirm the Commission's view that no one indicator can stand as an adequate proxy for the others.

Measuring the gap

Depending on the available data, two different methods are proposed for estimating 'how far behind' children are being allowed to fall.

The first compares the position of the child at the 10th percentile (i.e. the child at a lower point than 90% of children in the society) with the child at the 50th percentile (the median position). The degree of inequality is measured by the gap between the two, expressed as a percentage of the median position.

The second method (employed when survey data are not suitable for analysis by percentiles) compares the level of well-being of the child at the median with the average level of all those who fall below the median.

Different geographical and historical circumstances may help to explain different degrees of inequality. And it is of course a truism that there will always be a bottom 10% in any country and that 50% of children will always fall below the national median. In this sense, a degree of falling behind is obviously inevitable. The critical question is – *how far behind?* Is there a point beyond which falling behind is not inevitable but policy susceptible, not unavoidable but unacceptable, not inequality but inequity?

There are no widely agreed theoretical answers to these questions. But international comparison can help to establish practical answers by measuring 'falling behind' according to the standard of what the best-performing OECD countries have already achieved. This benchmark may not represent the very best that can be aspired to, but it does establish a level below which bottom-end inequality is manifestly not inevitable.

If, for example, the gap in educational achievement between students at the 10th and 50th percentiles is significantly wider in France or Belgium than in Finland or Ireland (Figure 3d) then it seems clear that the children at the 10th percentile in French and Belgian schools are falling further behind the median than is necessary. The difference between the best performing countries and the rest of the OECD nations can therefore be read as a minimum measure of the extent to which 'falling behind' is policy-susceptible – the extent to which it is not unavoidable but unjust.

International comparison therefore sets each nation's performance not against an abstract concept of equality but against the practical benchmark of what other nations at similar levels of economic development have already achieved. It therefore provides a realistic measure of the scope for improvement.

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* The Commission is chaired by Joseph Stiglitz, Amartya Sen and Jean-Paul Fitoussi.

MATERIAL INEQUALITY

The first of the three dimensions of inequality in children's well-being considered here is inequality in children's material well-being.

Child poverty is about more than poverty of income. It is also about poverty of opportunity and expectation, of cultural and educational resources, of housing and neighbourhoods, of parental care and time, of local services and community resources. But from the child's point of view, these different dimensions of poverty are rarely separate. Family circumstance, employment and income, health and education systems, and the local environment all play interacting roles in determining well-being.

No internationally comparable data are currently available to capture this complexity. But rather than relying on income data alone, inequality in children's material well-being is measured here by three indicators for which suitable data are available – *household incomes, access to basic educational resources, and housing living space.*

Household income

Calculations of income inequality for children are based on the disposable incomes of households with children aged 0 to 17 (after adding benefits, deducting taxes, and making an adjustment for the economies of scale available to larger families). To measure inequality at the bottom-end of the distribution, the income of the child at the 50th percentile (the median) is compared with the income of the child at the 10th percentile (i.e. poorer than 90% of children). '*How far behind are the poorest children being allowed to fall?*' is then measured by the gap between the two.

As Figure 2a shows, household income inequality for children is lowest in Norway, with the Nordic countries and the Netherlands taking six of the top eight places in the table. At the other extreme, Italy, Canada Spain, Portugal and Greece are seen to have the highest levels of child income inequality. Data on household disposable income are not available for the United States.*

* Using gross (pre-tax) household income, the income available to the child at the 10th percentile in the United States is approximately 70% below the income available to a child at the median.

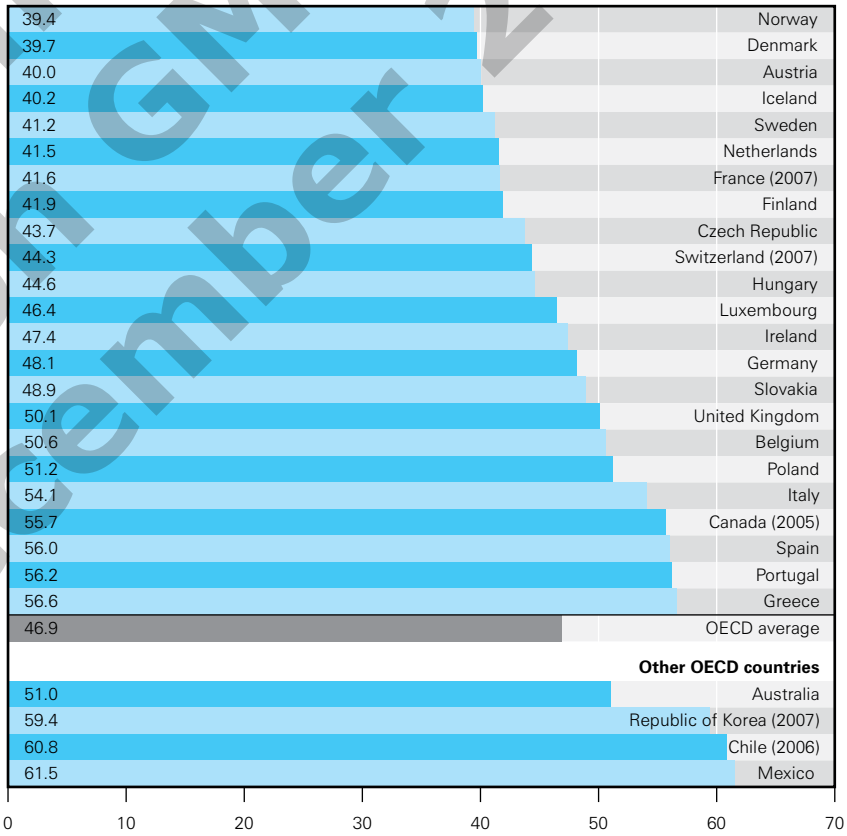
Basic educational resources

The second measure used to compare inequality in material well-being is 'access to basic educational resources'. Again, the same question is asked – '*how far behind are the least advantaged children being allowed to fall?*'

Fig. 2a Inequality in material well-being: income

The chart shows inequality at the bottom-end of the distribution in disposable income available to children in 27 OECD countries. Calculations are based on the incomes of households with children aged 0 to 17 (after adding benefits, deducting taxes, and making an adjustment for the economies of scale available to larger families). For each country, the measure of bottom-end inequality used is the gap between the income of the child at the 50th percentile (the median level) and the income of the child at the 10th percentile (i.e. the child who is poorer than 90% of children).

The bar chart shows how far the children at the 10th percentile are falling behind (expressed as a percentage of median income in households with children).



Gap between the child at the 10th percentile and the child at the 50th percentile (as % of 50th percentile)

Notes: 'Other OECD countries' are listed separately because data limitations prevent their inclusion in the overview tables for each dimension of child well-being. The OECD average is an unweighted average for the 23 countries included in the main league table.

Sources: *EU SILC 2008. Data for France are from EU SILC 2007. See page 30 (Data for* Report Card 9*: the surveys) for more detailed notes on country data including sources for Australia, Canada, Chile, Mexico, the Republic of Korea, and Switzerland.*

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Figure 2b attempts an answer by drawing on survey data from the Programme of International Student Assessment (PISA).

In the 2006 PISA survey (see page 30), a representative sample of 15-year-old students in OECD countries was asked which of the following were available in their own homes:

- a desk
- a quiet place to study
- a computer for school work
- educational software
- an internet connection
- a calculator
- a dictionary
- school textbooks.

The resulting scores – registered on a scale of 0 to 8 – do not lend themselves to analysis by percentile. Inequality is therefore measured by the gap between the score of the child at the median and the average score of all children who fall below the median. The results are presented in Figure 2b.

The availability of computers and internet access depends to some extent on the level of economic development in each country; even poor children in very wealthy countries, for example, may have access to most or all of the items on the 'home educational resources' list. The median score therefore differs from country to country. But the focus here is on *inequality* – on the gap between the median score (column 2) and the average score below the median (column 3). Column 4 shows the difference between the two and the chart represents the inequality gap as a percentage of the median.

Northern European countries again dominate the top of the table. The lowest placed Nordic country, Norway, posts an equality score close to the average for the OECD as a whole. At the foot of the table, the United Kingdom, Greece, and Slovakia show the highest levels of inequality in access to basic educational resources.

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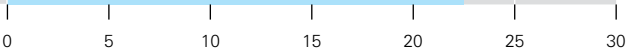
Fig. 2b Inequality in material well-being: educational resources

15-year-olds students in each country were asked which of the following were available at home: a desk, a quiet place to study, a computer for school work, educational software, an internet connection, a calculator, a dictionary, school textbooks.

Inequality was measured by comparing each country's median score (column 2) with the average score of those below the median (column 3). Column 4 shows the difference between the two as an absolute number of 'missing' educational items. The bar chart on the right shows the inequality gap (as a percentage of the median for each country).

Educational items (range 0-8)	Median	Average below the median	Average absolute gap	Gap between the average below the median and the median (as % of median)
Denmark	7	6.4	0.6	7.9
Switzerland	7	6.4	0.6	8.1
Netherlands	7	6.4	0.6	8.8
Luxembourg	7	6.3	0.7	9.5
Austria	7	6.2	0.8	10.9
Finland	7	6.2	0.8	11.3
Canada	7	6.2	0.8	11.3
Sweden	7	6.2	0.8	12.0
Italy	7	6.1	0.9	13.3
Czech Republic	7	6.0	1.0	13.9
Iceland	8	6.9	1.1	14.0
France	7	6.0	1.0	14.3
Spain	7	6.0	1.0	14.9
Portugal	7	5.9	1.1	16.1
Ireland	7	5.9	1.1	16.2
Norway	8	6.7	1.3	16.3
Poland	7	5.7	1.3	18.1
Germany	8	6.5	1.5	18.5
United States	7	5.7	1.3	19.2
Belgium	8	6.4	1.6	19.9
Hungary	7	5.6	1.4	20.7
United Kingdom	8	6.3	1.7	21.0
Greece	6	4.6	1.4	22.6
Slovakia	7	5.2	1.8	25.9
OECD average	7.2	6.1	1.1	15.2
Other OECD countries				
Republic of Korea	7	6.0	1.0	14.2
Australia	8	6.5	1.5	18.9
Japan	6	4.8	1.2	19.9
Chile	5	3.9	1.1	21.9
Turkey	5	3.9	1.1	22.0
New Zealand	8	6.2	1.8	22.1
Mexico	5	3.9	1.1	22.5



Notes: 'Other OECD countries' are listed separately because data limitations prevent their inclusion in the overview tables for each dimension of child well-being. The OECD average is an unweighted average for the 24 countries included in the main league table.

Source: *PISA 2006 (see page 30).*

Living space

The third measure of material well-being is 'living space' – defined as the number of rooms per person in households with children aged 0 to 17 (not counting corridors, kitchens, and bathrooms). Although only an approximate measure of housing conditions, space in the home is a constant and important factor in young people's lives. In the OECD countries as a whole, one child in three is estimated to be living in overcrowded conditions.[iii]

Figure 2c draws again on survey data to estimate inequality in living space. As with educational resources, the measure used is the gap between the living space score at the median and the average score of children below the median. By this measure, Iceland, Germany and Switzerland can be seen to have the lowest levels of inequality in children's living space (along with Australia, which is among the countries excluded from the main tables because data are not available for all three dimensions of child well-being). At the bottom of the table, inequality is highest in the United States, Italy and Hungary.

Material inequality: an overview

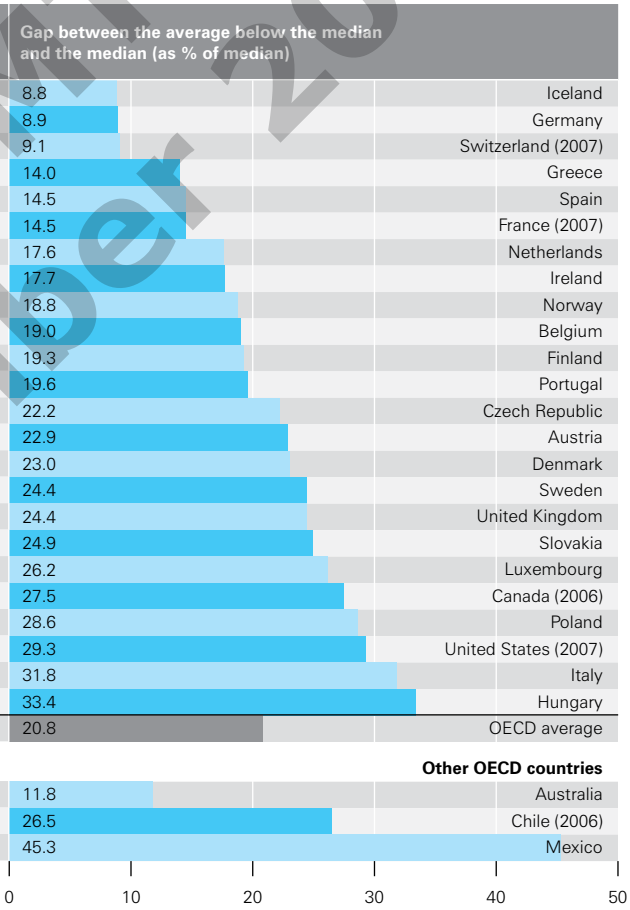
Figures 2d and 2e combine the three measures used – household income, access to educational resources, and living space. For each country, and for each indicator, the inequality scores have been set on a common scale in which 100 represents the OECD average and 10 represents one standard deviation (a commonly used measure of how spread out the items being measured are in relation to the average for the group as a whole). The individual indicator scores are then averaged to provide the overview of inequality in children's material well-being presented in Figure 2d.

Switzerland has the least inequality, closely followed by Iceland and the Netherlands.

Fig. 2c Inequality in material well-being: housing living space

Housing living space is defined as the number of rooms per person in households with children (not counting corridors, kitchens, and bathrooms). Inequality is measured by the gap between the score at the median (column 2) and the average score of all children below the median (column 3). Column 4 shows the difference between the two. The bar chart on the right shows the inequality gap (as a percentage of the median).

Living space – Rooms per person	Median	Average below the median	Average absolute gap	Gap between the average below the median and the median (as % of median)
Iceland	1.00	0.91	0.09	8.8
Germany	1.00	0.91	0.09	8.9
Switzerland (2007)	1.00	0.91	0.09	9.1
Greece	0.80	0.69	0.11	14.0
Spain	1.25	1.08	0.18	14.5
France (2007)	1.00	0.85	0.15	14.5
Netherlands	1.25	1.03	0.23	17.6
Ireland	1.25	1.03	0.23	17.7
Norway	1.20	0.97	0.23	18.8
Belgium	1.20	0.97	0.23	19.0
Finland	1.20	0.97	0.23	19.3
Portugal	1.00	0.80	0.20	19.6
Czech Republic	0.80	0.62	0.18	22.2
Austria	1.00	0.77	0.23	22.9
Denmark	1.20	0.92	0.28	23.0
Sweden	1.20	0.91	0.29	24.4
United Kingdom	1.20	0.91	0.29	24.4
Slovakia	0.75	0.56	0.19	24.9
Luxembourg	1.25	0.93	0.33	26.2
Canada (2006)	1.50	1.10	0.41	27.5
Poland	0.67	0.47	0.19	28.6
United States (2007)	1.25	0.89	0.36	29.3
Italy	1.00	0.68	0.32	31.8
Hungary	0.75	0.50	0.25	33.4
OECD average	**1.07**	**0.85**	**0.22**	20.8
Other OECD countries				
Australia	1.00	0.88	0.12	11.8
Chile (2006)	0.75	0.55	0.20	26.5
Mexico	0.50	0.28	0.23	45.3



Notes: 'Other OECD countries' are listed separately because data limitations prevent their inclusion in the overview tables for each dimension of child well-being. The OECD average is an unweighted average for the 24 countries included in the main league table.

Sources: *EU SILC 2008. Data for France are from EU-SILC 2007. See page 30 (Data for* Report Card 9*: the surveys) for more detailed notes on individual country data including sources for Australia, Canada, Chile, Mexico, the Republic of Korea, Switzerland and the United States.*

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A second summary table (Figure 2e) shows the individual contributions of the three indicators, allowing countries to see their strengths and weaknesses. Countries such as Germany, Belgium, the United Kingdom, Greece and Slovakia, for example, are let down by higher than average inequality in access to basic educational resources. Spain, Canada, Portugal and Greece lose ranking places by virtue of higher than average levels of household income inequality.

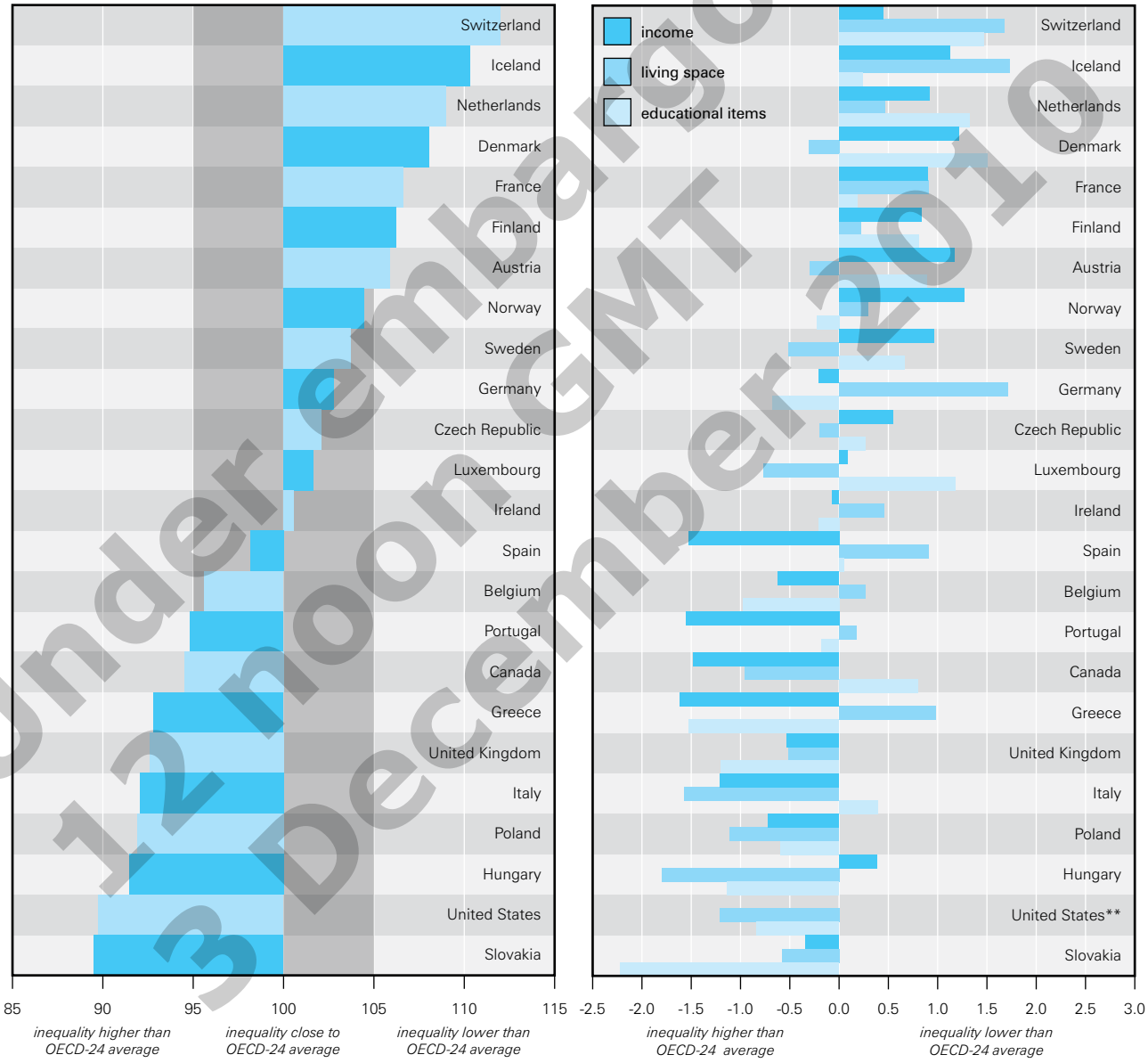
These three measures of bottom-end inequality in children's material well-being are neither ideal nor comprehensive. But they are the best available for the purposes of international comparison. Rather than recording material well-being solely by the percentage of children in households below a given income threshold, they attempt a more rounded measure of how far behind the least advantaged children are being allowed to fall.

Fig. 2d Inequality in material well-being: an overview

Figure 2d combines the three measures of inequality in children's material well-being (income, educational items, living space) into an overview for the 24 OECD countries with available data. For each country, the inequality scores of the three indicators of material inequality have been standardized, combined and placed on a common scale in which 100 represents the OECD unweighted average and 10 is equal to one standard deviation.*

Fig. 2e Inequality in material well-being: a breakdown

Figure 2e presents the same information as Fig 2d but shows the individual contributions of the three inequality indicators used. For each indicator, the length of the bar represents each country's distance above or below the OECD 24 average (again measured in standard deviations above or below that average). This allows countries to see individual strengths and weaknesses.



* A standard deviation is a measure of the spread of the distribution around its average.

Sources: *See individual Figs. 2a, 2b, 2c. See also Figure 2e for the standardized inequality measure used for the three individual indicators of inequality in children's material well-being.*

** No data are available on household disposable income for the United States.

Sources: *See individual Figs. 2a, 2b, and 2c.*

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EDUCATIONAL INEQUALITY

The second dimension of inequality considered here is inequality in young people's educational achievements.

The data are drawn from the Programme of International Student Assessment (PISA) which regularly tests a nationally representative sample of 15-year-old students* in more than 40 countries. The aim is to test and compare proficiency in reading, maths and science.

As with income, the inequality measure used is the gap between test scores at the 10th and 50th percentiles. Figures 3a, 3b and 3c present the results.

Figure 3d combines the three measures into an overview. Again, each country's score on each indicator has been set on a common scale in which 100 represents the unweighted OECD average and 10 represents one standard deviation above or below that average. This allows each country's performance to be measured in relation to both the average and the degree of variability for the OECD as a whole.

*The survey samples only 15-year-olds who are attending school. It may therefore not fully represent marginalized groups in some OECD countries.

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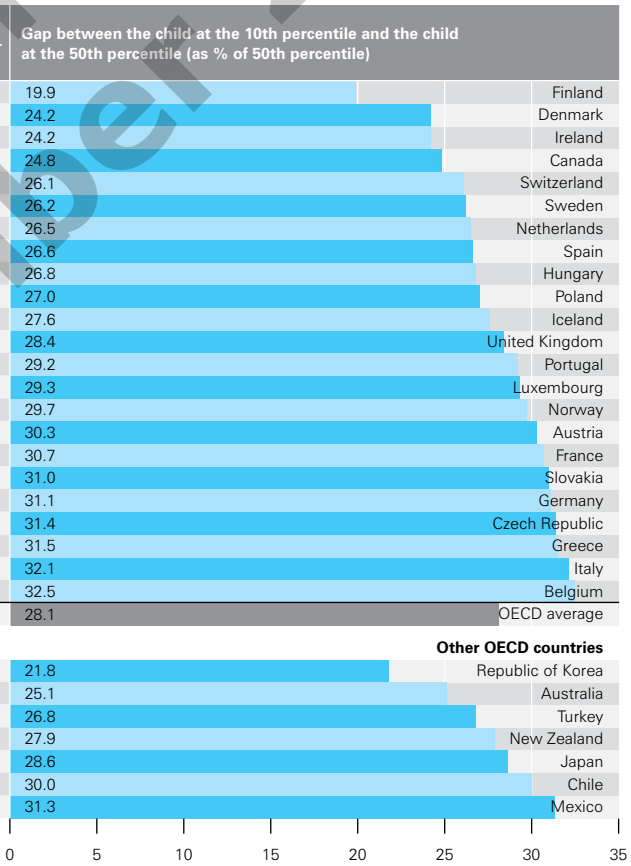
Fig. 3a Inequality in reading literacy

Using PISA scores for 'reading literacy' of 15-year-old students, Figure 3a measures educational inequality in each country by comparing the score of the student at the 50th percentile (the median) with the score of the student at the 10th percentile (i.e. lower than 90% of all scores). The bar chart shows the gap between the two (expressed as a percentage of the median).

Reading literacy	50th percentile (median) score	10th percentile score	Absolute gap (50th percentile – 10th percentile)	Gap between the child at the 10th percentile and the child at the 50th percentile (as % of 50th percentile)
Finland	550	441	109	19.9
Denmark	499	378	121	24.2
Ireland	522	395	127	24.2
Canada	534	402	132	24.8
Switzerland	506	373	133	26.1
Sweden	513	378	135	26.2
Netherlands	515	379	136	26.5
Spain	468	343	125	26.6
Hungary	490	359	131	26.8
Poland	513	374	139	27.0
Iceland	491	356	135	27.6
United Kingdom	501	359	142	28.4
Portugal	479	339	140	29.2
Luxembourg	487	344	143	29.3
Norway	492	346	146	29.7
Austria	499	348	151	30.3
France	499	346	153	30.7
Slovakia	473	326	147	31.0
Germany	508	350	158	31.1
Czech Republic	489	335	154	31.4
Greece	469	321	148	31.5
Italy	478	325	153	32.1
Belgium	515	347	168	32.5
OECD average	**500**	**359**	**141**	28.1
Other OECD countries				
Republic of Korea	563	440	123	21.8
Australia	519	388	131	25.1
Turkey	450	330	120	26.8
New Zealand	528	381	146	27.9
Japan	505	361	144	28.6
Chile	443	310	133	30.0
Mexico	415	285	130	31.3



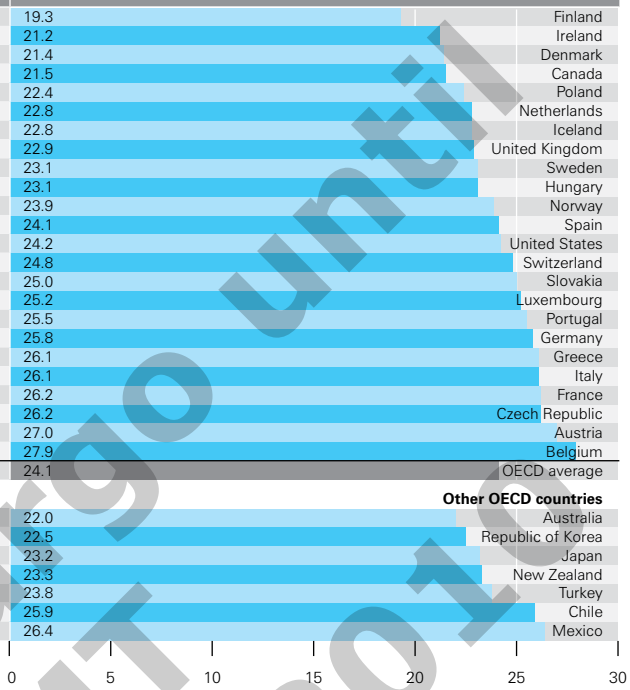
Notes: 'Other OECD countries' are listed separately because data limitations prevent their inclusion in the overview tables for each dimension of child well-being. The OECD average is an unweighted average for the 23 countries included in the main league table. Reading literacy data for the USA are missing.

Source: *PISA 2006 (see page 30).*

Fig. 3b Inequality in maths literacy

Using PISA scores for 'maths literacy' of 15-year-old students, Figure 3b measures educational inequality in each country by comparing the score of the student at the 50th percentile (the median) with the score of the student at the 10th percentile (i.e. lower than 90% of all scores). The bar chart shows the gap between the two (expressed as percentage of median).

Maths literacy	50th percentile (median) score	10th percentile score	Absolute gap (50th percentile – 10th percentile)	Gap between the child at the 10th percentile and the child at the 50th percentile (as % of 50th percentile)
Finland	550	444	106	19.3
Ireland	503	396	107	21.2
Denmark	514	404	110	21.4
Canada	529	416	113	21.5
Poland	495	384	111	22.4
Netherlands	534	412	121	22.8
Iceland	507	391	116	22.8
United Kingdom	494	381	113	22.9
Sweden	503	387	116	23.1
Hungary	490	377	113	23.1
Norway	490	373	117	23.9
Spain	482	366	116	24.1
United States	472	358	114	24.2
Switzerland	534	401	133	24.8
Slovakia	494	370	124	25.0
Luxembourg	492	368	124	25.2
Portugal	468	348	120	25.5
Germany	505	375	130	25.8
Greece	461	341	120	26.1
Italy	462	341	121	26.1
France	499	369	130	26.2
Czech Republic	510	376	134	26.2
Austria	511	373	138	27.0
Belgium	528	381	147	27.9
OECD average	501	381	120	24.1
Other OECD countries				
Australia	521	406	115	22.0
Republic of Korea	550	426	124	22.5
Japan	526	404	122	23.2
New Zealand	522	401	122	23.3
Turkey	415	316	99	23.8
Chile	408	302	106	25.9
Mexico	406	299	107	26.4



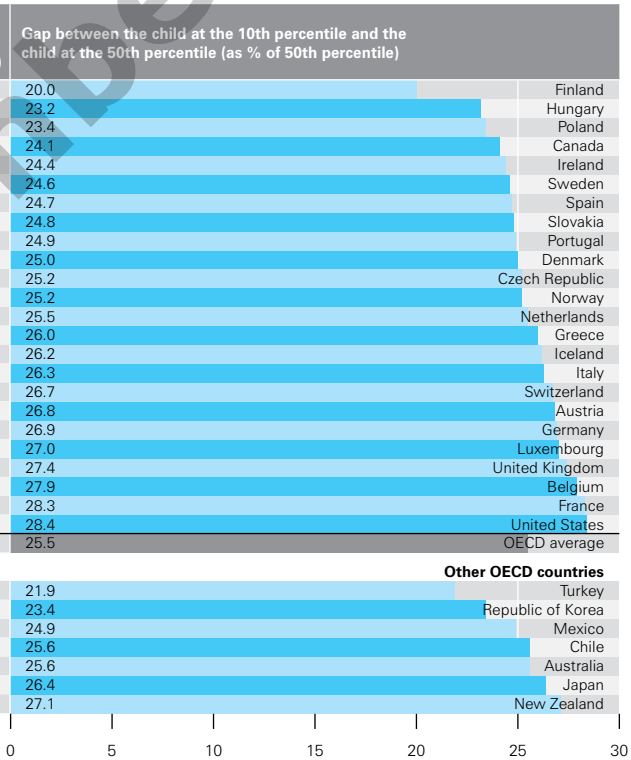
Notes: 'Other OECD countries' are listed separately because data limitations prevent their inclusion in the overview tables for each dimension of child well-being. The OECD average is an unweighted average for the 24 countries included in the main league table.

Source: PISA 2006 (see page 30).

Fig. 3c Inequality in science literacy

Using PISA scores for 'science literacy' of 15-year-old students, Figure 3c measures educational inequality in each country by comparing the score of the student at the 50th percentile (the median) with the score of the student at the 10th percentile (i.e. lower than 90% of all scores). The bar chart shows the gap between the two as a percentage of the median.

Science literacy	50th percentile (median) score	10th percentile score	Absolute gap (50th percentile – 10th percentile)	Gap between the child at the 10th percentile and the child at the 50th percentile (as % of 50th percentile)
Finland	566	453	113	20.0
Hungary	506	388	117	23.2
Poland	498	381	117	23.4
Canada	540	410	130	24.1
Ireland	510	385	124	24.4
Sweden	505	381	124	24.6
Spain	491	370	121	24.7
Slovakia	489	368	121	24.8
Portugal	476	357	119	24.9
Denmark	498	373	125	25.0
Czech Republic	514	385	130	25.2
Norway	488	365	123	25.2
Netherlands	530	395	139	25.5
Greece	477	353	124	26.0
Iceland	493	364	129	26.2
Italy	477	351	126	26.3
Switzerland	516	378	138	26.7
Austria	516	378	138	26.8
Germany	521	381	140	26.9
Luxembourg	490	358	132	27.0
United Kingdom	518	376	142	27.4
Belgium	518	374	145	27.9
France	501	359	142	28.3
United States	488	349	139	28.4
OECD average	505	376	129	25.5
Other OECD countries				
Turkey	416	325	91	21.9
Republic of Korea	526	403	123	23.4
Mexico	407	306	102	24.9
Chile	434	323	111	25.6
Australia	530	395	136	25.6
Japan	539	396	142	26.4
New Zealand	534	389	141	27.1



Notes: 'Other OECD countries' are listed separately because data limitations prevent their inclusion in the overview tables for each dimension of child well-being. The OECD average is an unweighted average for the 24 countries included in the main league table.

Source: PISA 2006 (see page 30).

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Figure 3e breaks down this overview in order to show how bottom-end inequality in the three different kinds of literacy contributes to each country's overall inequality score.

No trade off

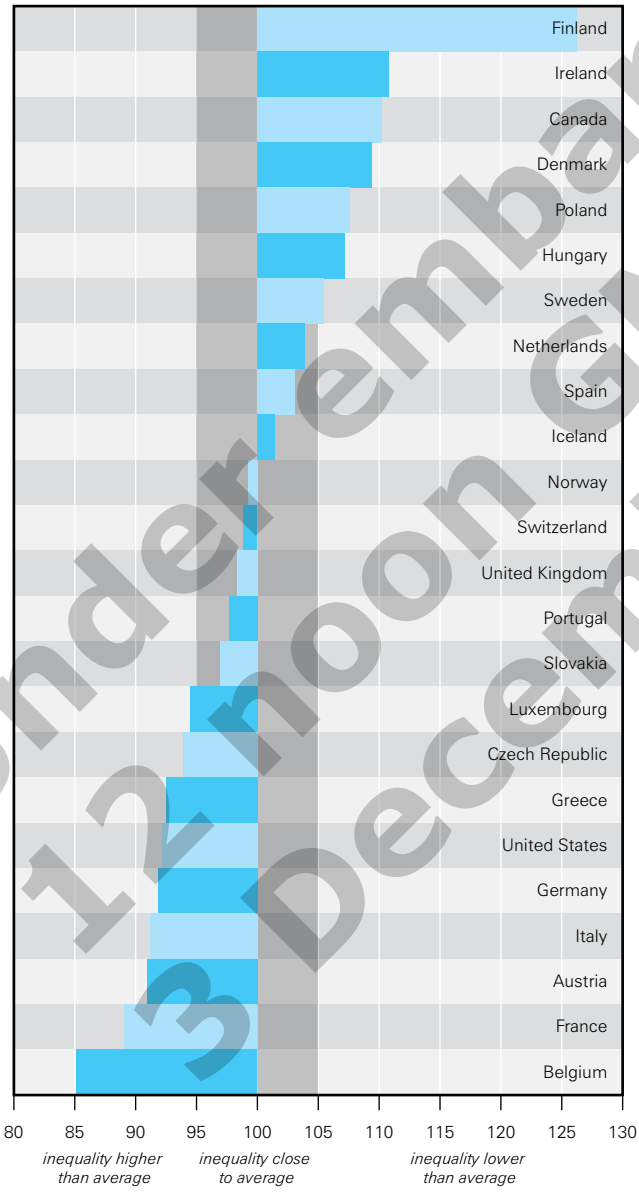
Such measurements serve to inform two commonly contested issues.

First, they undermine the argument that steady progress towards equality of opportunity in education means that differences in educational outcomes are now mostly a reflection of the distribution of natural abilities. As Figures. 3a, 3b and 3c show, different OECD countries have very different patterns of bottom-end inequality in educational outcomes; and it is reasonable to assume that this is the result not of differences in the distribution of natural abilities but of differences in policies which, over time, limit the extent to which less able students fall behind. Figure 3d, for example, shows that lower-achieving students in Finland, Ireland and Canada are far less likely to fall a long way behind their peers than are students in Austria, France or Belgium.

The pattern of bottom-end inequality in educational outcomes therefore reflects more than the lottery of birth and circumstance. It may reflect

Fig. 3d Educational inequality: an overview

Figure 3d combines the three measures of inequality in children's educational outcomes (in reading, maths and science literacy) into an overview for 24 OECD countries. For each country, the scores on the three indicators have been standardized, averaged, and placed on a common scale in which 100 represents the OECD unweighted average and 10 is equal to one standard deviation.*

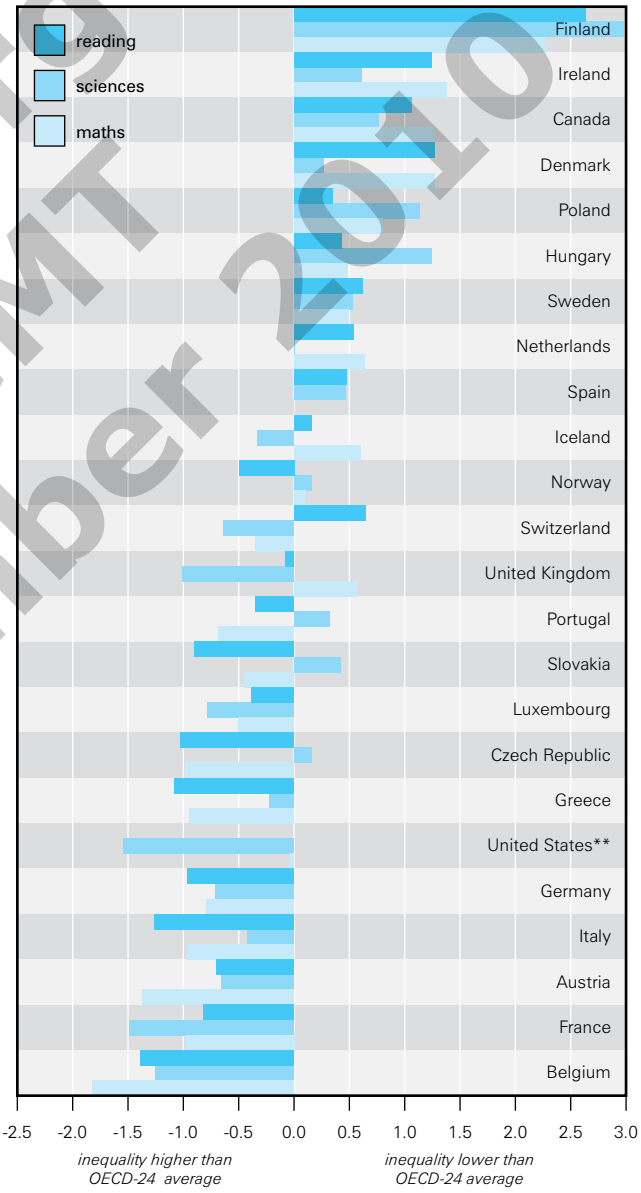


* A standard deviation is a measure of the spread of the distribution around its average.

Sources: *See Figs. 3a, 3b, and 3c. See also Fig 3e for the standardized inequality measure used for the three individual indicators of inequality in educational well-being.*

Fig. 3e Educational inequality: a breakdown

Figure 3e presents the same information as Figure 3d but shows the individual contributions of the three inequality indicators used. For each indicator, the length of the bar represents each country's distance above or below the OECD 24 average (again measured in standard deviations above or below that average). This allows countries to see individual strengths and weaknesses.



** Reading literacy data for the United States are missing.

Sources: *See individual Figs. 3a, 3b, and 3c.*

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differences in national efforts to reduce socio-economic disadvantage. Or it may reflect efforts to weaken the link between socio-economic disadvantage and school achievement (children whose mothers did not complete secondary school, for example, are at substantially greater risk of having low reading literacy scores, but that risk is two or three times greater in some countries than in others.)[iv] It is likely, also, that different degrees of inequality reflect different degrees of policy concern, over time, for those at risk of falling behind.

Second, international comparisons of inequality in educational outcomes also inform the issue of whether a trade-off must be made between investing in low-achieving students and maximizing the potential of those in the higher reaches of the ability range. Figure 3f(i) suggests an answer to this question by showing that there is no relationship between greater inequality and better performance at the median. In fact the most unequal countries tend towards slightly lower scores at the 50th percentile. The two countries with the lowest bottom-end inequality in reading literacy, Finland and South Korea, are also the two countries with the highest median levels of educational achievement. A child born in either of these countries therefore has both a lower chance of falling a long way behind his or her peers and a higher chance of scoring above the average reading literacy mark for the OECD as a whole.

Figure 3f(ii) shows that the point holds when we look at performance of the highest-achieving students. Again, the countries with better results at the 90th percentile of achievement tend to be the countries with the lowest levels of bottom-end inequality.

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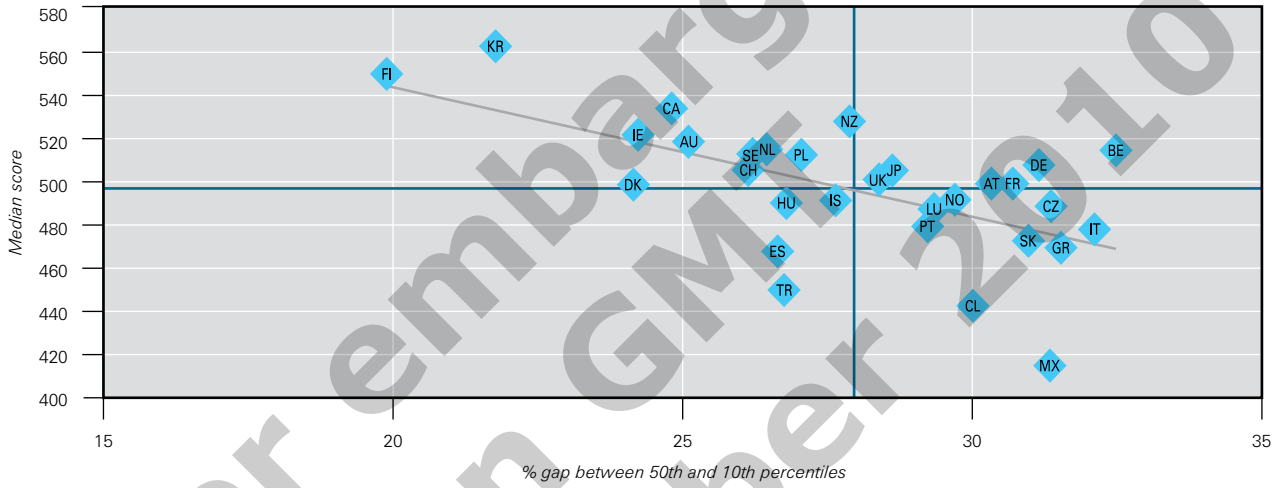
Fig. 3f(i) Bottom-end inequality and median achievement

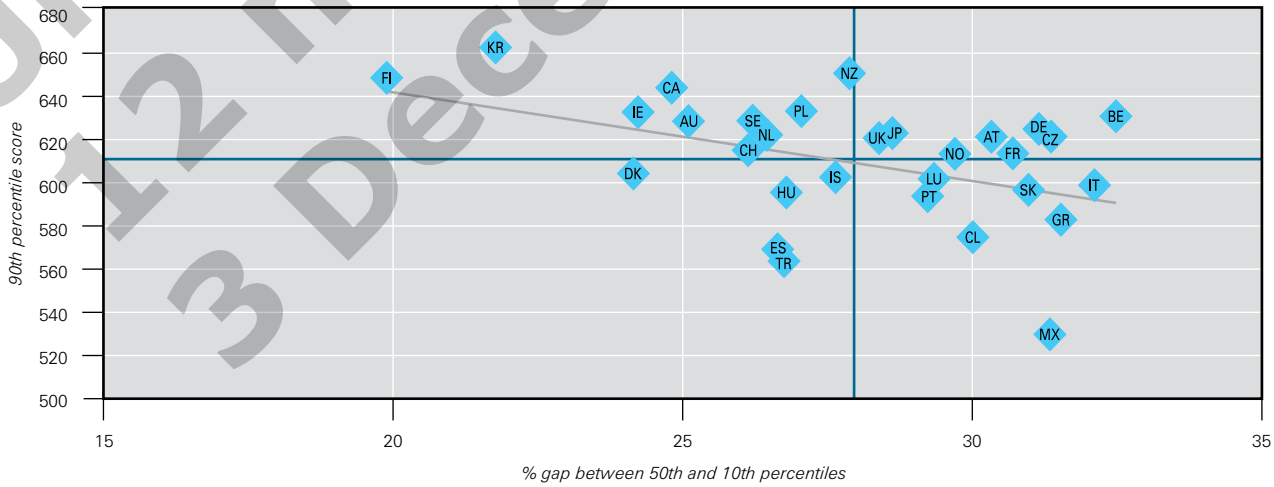
The chart compares inequality in reading literacy with median level scores for reading literacy in 30 OECD countries.



Notes: Blue vertical and horizontal lines indicate unweighted OECD average (30 countries). Trend line obtained by linear regression. Data for the United States are missing. For country abbreviations see page 33.
Source: *PISA 2006 (see page 30).*

Fig. 3f(ii) Bottom-end inequality and top-end achievement

The chart compares inequality in reading literacy with scores at the 90th percentile of achievement in 30 OECD countries.



Notes: Blue vertical and horizontal lines indicate unweighted OECD average (30 countries). Trend line obtained by linear regression. Data for the United States are missing. For country abbreviations see page 33.
Source: *PISA 2006 (see page 30).*

HEALTH INEQUALITY

The third and last dimension of child well-being in which the data permit cross national measurement of inequality is health.

Again, three indicators are used: children's self-reported health complaints; healthy eating; and frequency of vigorous physical activity. All three are well-established markers for children's current and future health. The data are derived from the 2005-2006 round of *Health Behaviour in School-aged Children*, a World Health Organization collaborative study which regularly surveys the health behaviours of schoolchildren at ages 11, 13 and 15 in 41 countries of Europe and North America.

Self-reported health

Among many other questions, participants in the HBSC survey were asked how often in the previous six months they had experienced the following problems:

- headache
- stomach ache
- feeling low
- feeling irritable
- feeling bad tempered
- feeling nervous
- having difficulty getting to sleep
- feeling dizzy.

The answers were transferred onto a scale ranging from 0 (frequent occurrences of all seven complaints) to 28 (no health complaints).

Figure 4a uses these scores to estimate the degree of inequality in children's self-reported health. As before, the measure used is the gap between each country's median score (column 2) and the average score of all children below

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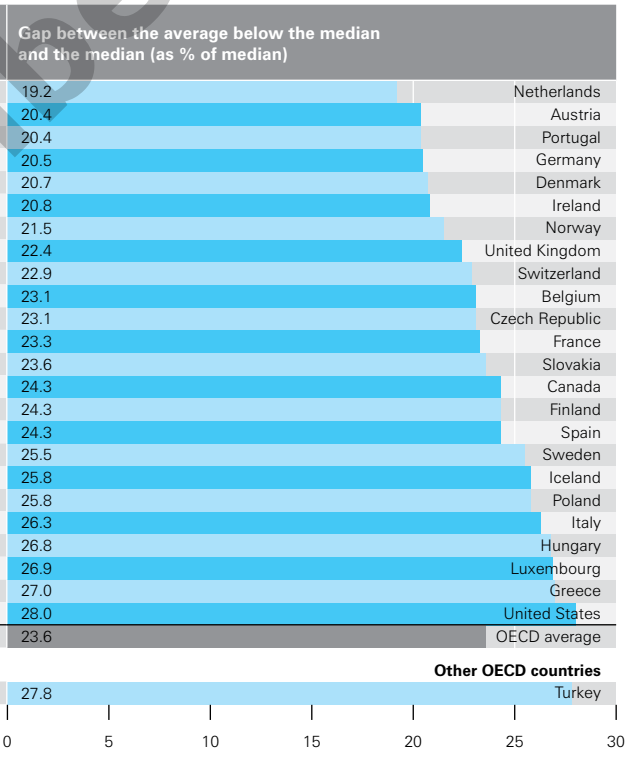
Fig. 4a Health inequality: self-reported health complaints

The 2005-2006 HBSC survey (see page 30) asked 11, 13 and 15-year-old students how often in the previous six months they had experienced the following problems: headache, stomach ache, feeling low, feeling irritable, feeling bad tempered, feeling nervous, having difficulty getting to sleep, feeling dizzy. The answers were transferred onto a scale ranging from 0 (frequent occurrences of all seven complaints) to 28 (no health complaints).

Inequality was then measured by comparing each country's median score (column 2) with the average score of those below the median (column 3). Column 4 shows the difference between the two. The bar chart on the right shows the inequality gap (as a percentage of the median).

Health complaints (range 0-28)	Median	Average below the median	Average absolute gap	Gap between the average below the median and the median (as % of median)
Netherlands	25.0	20.2	4.8	19.2
Austria	25.0	19.9	5.1	20.4
Portugal	25.0	19.9	5.1	20.4
Germany	23.0	18.3	4.7	20.5
Denmark	24.0	19.0	5.0	20.7
Ireland	23.0	18.2	4.8	20.8
Norway	23.0	18.1	4.9	21.5
United Kingdom	22.0	17.1	4.9	22.4
Switzerland	22.0	17.0	5.0	22.9
Belgium	23.0	17.7	5.3	23.1
Czech Republic	21.0	16.2	4.8	23.1
France	21.0	16.1	4.9	23.3
Slovakia	20.0	15.3	4.7	23.6
Canada	22.0	16.7	5.3	24.3
Finland	22.0	16.7	5.3	24.3
Spain	23.0	17.4	5.6	24.3
Sweden	22.0	16.4	5.6	25.5
Iceland	21.0	15.6	5.4	25.8
Poland	22.0	16.3	5.7	25.8
Italy	19.0	14.0	5.0	26.3
Hungary	21.0	15.4	5.6	26.8
Luxembourg	22.0	16.1	5.9	26.9
Greece	22.0	16.1	5.9	27.0
United States	22.0	15.8	6.2	28.0
OECD average	22.3	17.1	5.2	23.6
Other OECD countries				
Turkey	18.0	13.0	5.0	27.8



Notes: 'Other OECD countries' are listed separately because data limitations prevent their inclusion in the overview tables for each dimension of child well-being. The OECD average is an unweighted average for the 24 countries included in the main league table.

Source: HBSC 2005-2006 (see page 30).

the median (column 3). The inequality gap is presented both as an absolute difference between the two scores (column 4) and as a bar chart showing the bottom-end inequality gap as a percentage of each country's median.

Self-reporting has limitations as an indicator of health status. Cultural differences, for example, may play a part in explaining differences between each country's average score (although self-reporting by children has been shown to be a good predictor of adult health outcomes[v]). But the focus here is not on averages but on the inequalities revealed by comparing each country's median score with the average score below the median.

Again it is noticeable that the countries with the highest median levels of health – the Netherlands, Austria, and Portugal – are also the countries with the lowest levels of health inequality.

Healthy eating and vigorous physical activity

The second and third indicators available for the measurement of bottom-end inequalities in children's health are based on HBSC survey data under the headings of 'healthy eating' and 'vigorous physical activity'.

Healthy eating is basic to a child's normal growth and development and to long-term health. Unhealthy eating, by contrast, is associated with a wide range of immediate and long-term health problems including obesity, type 2 diabetes, and cardio-vascular disease.[vi] A key component of healthy eating is the inclusion of fruit and vegetables in a child's daily diet.

Regular exercise in adolescence also brings short and long-term health benefits and is positively associated with cognitive development, emotional well-being, and even academic achievement.[vii] For children and adolescents, the World Health Organization recommends 60 minutes of 'moderate to vigorous' physical exercise every day[viii] (a recommendation that is not widely followed; taking an unweighted average of the 41 countries included in the HBSC study, only 12% of 15-year-old girls and 20% of 15-year-old boys report taking an hour of moderate to vigorous physical activity every day[ix]).

In both cases, HBSC survey data have been translated into scores for 'healthy eating' (on a scale of 0 to 14) and 'frequency of vigorous physical

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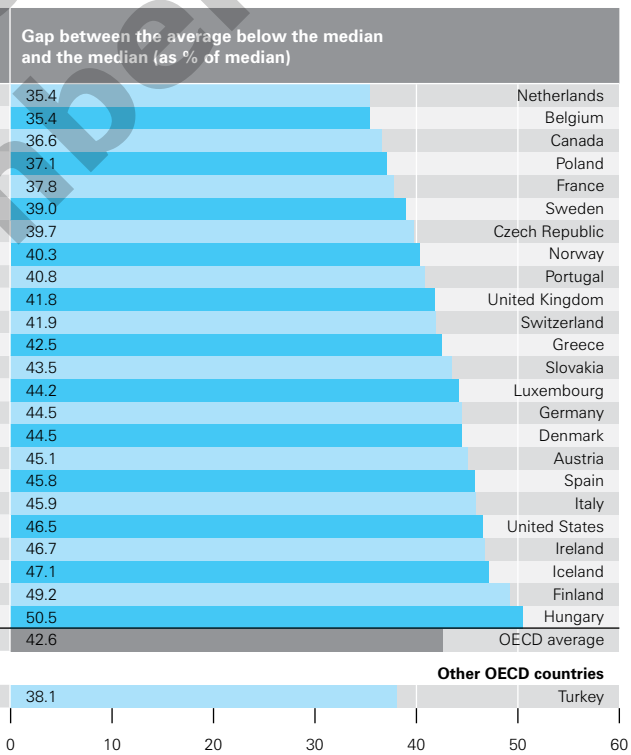
Fig. 4b Health inequality: healthy eating

The 2005-2006 HBSC survey asked 11, 13 and 15-year-old students how often they ate fruit and vegetables. The answers were converted into a 'healthy eating' score on a scale of 0 (no fruit or vegetable consumption) to 14 (daily consumption of both fruit and vegetables).

Inequality was then measured by comparing each country's median score (column 2) with the average score of those below the median (column 3). Column 4 shows the difference between the two. The bar chart on the right shows the inequality gap (as a percentage of the median).

Healthy eating (range 0-14)	Median	Average below the median	Average absolute gap	Gap between the average below the median and the median (as % of median)
Netherlands	10.0	6.5	3.5	35.4
Belgium	10.0	6.5	3.5	35.4
Canada	10.0	6.3	3.7	36.6
Poland	8.5	5.3	3.2	37.1
France	8.5	5.3	3.2	37.8
Sweden	8.5	5.2	3.3	39.0
Czech Republic	8.5	5.1	3.4	39.7
Norway	8.5	5.1	3.4	40.3
Portugal	8.5	5.0	3.5	40.8
United Kingdom	10.0	5.8	4.2	41.8
Switzerland	10.0	5.8	4.2	41.9
Greece	8.5	4.9	3.6	42.5
Slovakia	8.5	4.8	3.7	43.5
Luxembourg	8.5	4.7	3.8	44.2
Germany	8.5	4.7	3.8	44.5
Denmark	10.0	5.6	4.4	44.5
Austria	7.3	4.0	3.3	45.1
Spain	8.0	4.3	3.7	45.8
Italy	8.5	4.6	3.9	45.9
United States	8.5	4.5	4.0	46.5
Ireland	10.0	5.3	4.7	46.7
Iceland	8.5	4.5	4.0	47.1
Finland	8.0	4.1	3.9	49.2
Hungary	7.3	3.6	3.7	50.5
OECD average	8.8	5.1	3.7	42.6
Other OECD countries				
Turkey	8.5	5.3	3.2	38.1



Notes: 'Other OECD countries' are listed separately because data limitations prevent their inclusion in the overview tables for each dimension of child well-being. The OECD average is an unweighted average for the 24 countries included in the main league table.

Source: *HBSC 2005-2006 (see page 30).*

activity' (on a scale of 0 to 11). Following the pattern already established, Figs. 4b and 4c measure inequality by the gap between the median score of each country and the average score for all children below the median. The bar charts again show each country's inequality gap as a percentage of the national median.

For 'healthy eating,' the lowest level of inequality is to be found in the Netherlands, Belgium and Canada and the highest in Iceland, Finland and Hungary.

For 'vigorous physical activity', the Netherlands again has least inequality, closely followed by Switzerland and Norway. The highest levels of bottom-end inequality are to be found in France, Italy and Spain.

Health: an overview

Figure 4d combines the three measures of bottom-end inequality in children's health onto a standardized common scale. As the bar chart shows, the Netherlands heads the table by a distance (with the lowest inequality in all three indicators). The United States, Italy and Hungary show the highest levels of bottom-end inequality in children's health.

Figure 4e breaks down this overall performance by showing the contributions of the three individual indicators. It allows countries like France and Poland, for example, to see that their position in the bottom half of the table is brought about by high levels of inequality in 'vigorous physical activity'. Ireland and Finland, on the other hand, would both be closer to the top of the table if it were not for high levels of inequality in 'healthy eating'.

Statistics and children

This attempt at an international comparison of inequality in different dimensions of children's well-being is a work in progress. But its clear overall message is that children are falling significantly further behind in some countries than in others. In particular, Denmark, Finland, the Netherlands, and Switzerland are leading the way in limiting how far behind the least advantaged children are allowed to fall.

Before discussing some of the implications of these overall findings, two other concerns should be acknowledged.

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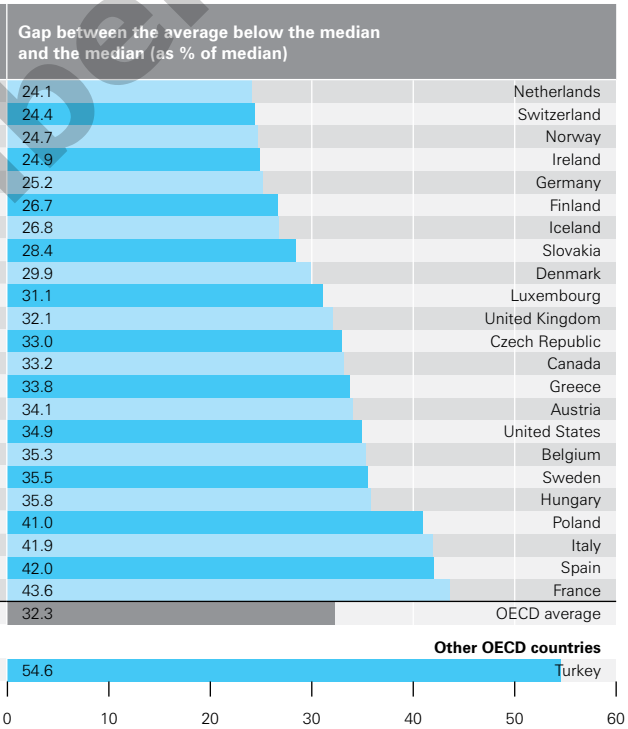
Fig. 4c Health inequality: vigorous physical activity

The 2005-2006 HBSC survey asked 11, 13 and 15-year-old students about their exercise habits outside school hours, converting the answers into a score for 'frequency of vigorous physical activity' on a scale of 0 (no vigorous physical activity) to 11 (frequent vigorous physical activity).

Inequality was then measured by comparing each country's median score (column 2) with the average score of those below the median (column 3). Column 4 shows the difference between the two. The bar chart on the right shows the inequality gap (as a percentage of the median).

Vigorous physical activity (range 0-11)	Median	Average below the median	Average absolute gap	Gap between the average below the median and the median (as % of median)
Netherlands	8.0	6.1	1.9	24.1
Switzerland	7.0	5.3	1.7	24.4
Norway	7.0	5.3	1.7	24.7
Ireland	7.0	5.3	1.7	24.9
Germany	7.0	5.2	1.8	25.2
Finland	8.0	5.9	2.1	26.7
Iceland	7.0	5.1	1.9	26.8
Slovakia	8.0	5.7	2.3	28.4
Denmark	8.0	5.6	2.4	29.9
Luxembourg	7.0	4.8	2.2	31.1
United Kingdom	7.0	4.8	2.2	32.1
Czech Republic	6.0	4.0	2.0	33.0
Canada	8.0	5.3	2.7	33.2
Greece	7.0	4.6	2.4	33.8
Austria	7.0	4.6	2.4	34.1
United States	7.0	4.6	2.4	34.9
Belgium	7.0	4.5	2.5	35.3
Sweden	7.0	4.5	2.5	35.5
Hungary	7.0	4.5	2.5	35.8
Poland	6.0	3.5	2.5	41.0
Italy	7.0	4.1	2.9	41.9
Spain	6.0	3.5	2.5	42.0
France	7.0	3.9	3.1	43.6
OECD average	7.1	4.8	2.3	32.3
Other OECD countries				
Turkey	6.0	2.7	3.3	54.6



Notes: Data for Portugal are missing. 'Other OECD countries' are listed separately because data limitations prevent their inclusion in the overview tables for each dimension of child well-being. The OECD average is an unweighted average for the 23 countries included in the main league table.

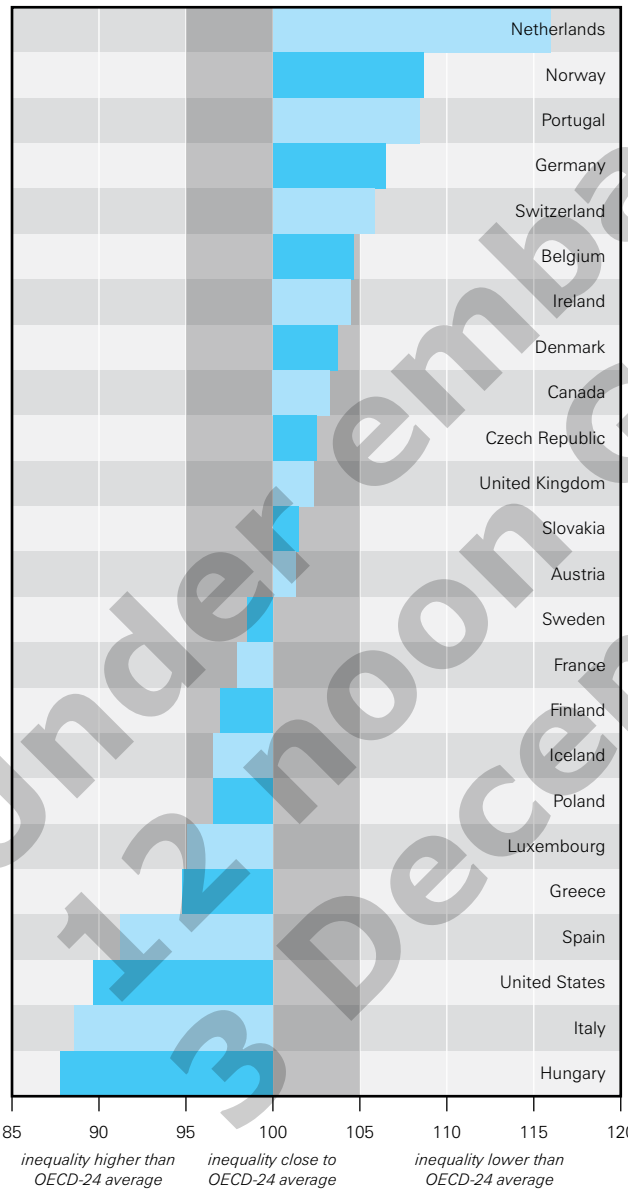
Source: *HBSC 2005-2006 (see page 30).*

First, in measuring different dimensions of children's well-being it is necessary to separate outcomes that are rarely separated in children's lives. Multiple disadvantage is the norm – with each dimension intimately linked and often mutually reinforcing at the level of the individual child's life.

Second, the perennial danger of all statistics is that in offering an overview they can seem very distant from the realities they seek to capture. And in presenting these data, UNICEF's plea is that the children themselves should as far as possible be seen not as statistics but as individual young people, each with a name and a face, each with needs and rights, each with a personality and a potential, each with a capacity to benefit from and contribute to the societies into which they are born, and each with a keen awareness of the norms of the societies in which they live.

Fig. 4d Health inequality: an overview

Figure 4d combines the three measures of inequality in children's health well-being (self-reported health complaints, healthy eating, and vigorous physical activity) into an overview for the 24 OECD countries with available data. For each country, the inequality scores for the three indicators of health well-being have been standardized, averaged and placed on a common scale in which 100 represents the OECD average and 10 is equal to one standard deviation.*

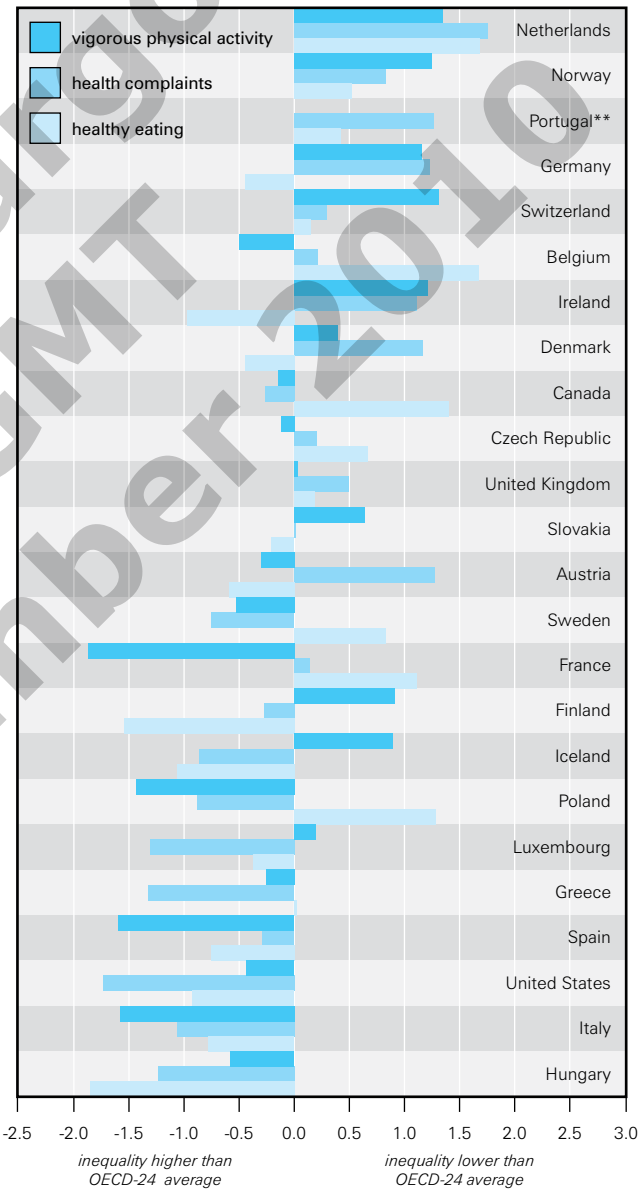


* A standard deviation is a measure of the spread of the distribution around its average.

Sources: *See individual Figs. 4a, 4b, and 4c. See also Fig 4e for the standardized inequality measure used for the three individual indicators of inequality in child well-being.*

Fig. 4e Health inequality: a breakdown

Figure 4e presents the same information as Figure 4d but shows the individual contributions of the three inequality indicators used. For each indicator, the length of the bar represents each country's distance above or below the OECD 24 average (again measured in standard deviations above or below that average). This allows countries to see individual strengths and weaknesses.



** Data on vigorous physical activity for Portugal are missing.

Sources: *See individual Figs. 4a, 4b, and 4c.*

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Part 2

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A case has been made that national averages are an insufficient guide to national performance in meeting children's needs. Equity measures, and in particular measures of bottom end inequality, are also needed. (The UNICEF global report on *Progress for Children 2010* makes a similar case for the inclusion of equity measures in monitoring the Millennium Development Goals).

Secondly, it has been argued that 'falling behind' has many mutually reinforcing dimensions and can not be adequately represented by any single indicator. Policies to prevent children from falling behind must therefore address the different dimensions of disadvantage individually as well as collectively.

Such policies are largely a matter for national research and debate. But an international perspective can perhaps offer some insights into this under-researched area.

Equity in education

For the purposes of reducing bottom-end inequality in children's educational achievement, for example, it is clear that school admissions policies can make a difference.

In all OECD countries where studies have been conducted,[x] the average socio-economic level of students in a particular school has been found to have an effect on educational achievement that is over and above the effects associated with the socio-economic status of the individual student. This finding strongly suggests that pupils from lower socio-economic backgrounds benefit from attending schools in which a wide range of home backgrounds are represented. Conversely, 'falling behind' is significantly more likely when students from homes of low socio-economic status attend schools in which the average socio-economic status is also low.[xi]

The reasons for this 'school composition effect' are many. Schools with low socio-economic profiles may find themselves struggling against lower expectations on behalf of both staff and students; the ethos and disciplinary climate may be less conducive to learning; pupil-teacher relations may be less positive; parental involvement and support may be weaker; and the task of attracting and retaining the most able teachers may be more difficult. All of these are formidable barriers to learning.

In many OECD countries there are significant numbers of schools in which the average socio-economic profile is below the 20th percentile of the socio-economic distribution for the OECD as a whole.[xii] In such cases, the school composition effect is enlisted against rather than in favour of those who are already most at risk of educational underachievement. The likely result is an increase in bottom-end inequality.

Two obvious approaches may counter this effect. First, the attempt can be made to boost the performance of low socio-economic status schools (for example by increasing the resources available to them and allowing them to offer extra incentives to more able teachers). Second, admission policies can be designed to avoid the concentration of pupils from disadvantaged backgrounds in low socio-economic status schools. This might be achieved, for example, by admitting children in ability bands without regard to socio-economic background. Policies designed to monitor and balance the socio-economic profile of pupil intake may also be important. As a 2006 report commissioned by UNESCO has pointed out:

Countries with high levels of segregation along socio-economic lines tend to have lower overall performance and greater disparities in performance between students from high and low socio-economic backgrounds …

In countries with high levels of socio-economic segregation, policies that aimed to reduce socio-economic segregation through compensatory reforms would likely bring considerable gains in raising and leveling the learning bar.[xiii]

In practice, a combination of both approaches will be necessary in countries with high bottom end inequality in educational outcomes (shown in Figure 3d where the bottom five countries are Belgium, France, Austria, Italy and Germany).

Resistance to such policies is common and is often based, at least in part, on fears that overall educational outcomes might be adversely affected. But the international comparisons set out in Figs. 3f(i) and 3f(ii) suggest that lower bottom-end inequality need not imply any lowering of standards for high-achieving students. As the report for UNESCO already cited concluded:

Successful schools tend to be those that bolster the performance of those from less advantaged backgrounds. Similarly, countries that have the highest levels of performance tend to be those that are successful in not only raising the learning bar but also leveling it.[xiv]

Equity in health

Higher than average inequality in children's health may also need to be addressed by specific health sector policies. Depending on context, such policies might include: the targeting of resources and outreach programmes on those most at risk; the setting of specific disparity reduction targets for key health indicators such as obesity, exercise, healthy eating and infant and child mortality rates; and increasing the reach and refinement of prevention policies designed to reduce the impact of the health behaviours that contribute most to bottom-end inequality in health outcomes (such as obesity, drug and alcohol abuse, and smoking).

But there are also clear dangers in a sectoral approach to reducing bottom-end inequalities in children's health.

It is tempting to target the bottom end of the distribution with policies aimed at specific changes in lifestyles such as promoting exercise and healthy eating or reducing smoking or obesity levels. But necessary as such programmes are,* they cannot address the fact that inequality in health outcomes, as in educational outcomes, is principally driven by socio-economic status.[xv] A 2010 review of health inequalities in the United Kingdom – and what can be done about them – has this to say:

Inequalities in heath arise because of inequalities in society – in the conditions in which people are born, grow, live, work, and age. So close is the link between particular social and economic features of society and the distribution of health among the population, that the magnitude of health inequalities is a good marker of progress towards creating a fairer society. Taking action to reduce inequalities in health does not require a separate health agenda, but action across the whole of society.[xvi]

The significance of the social gradient in health has been demonstrated by a steady flow of research findings in many OECD countries over recent years.[xvii] Taking the three indicators of inequality in children's health used in Part 1 of this report, for example, the detailed HBSC data clearly show that children of more affluent families take more regular exercise, have healthier eating habits, and report fewer health problems.[xviii] Socio-economic status, it is worth reminding ourselves, is neither the choice nor the responsibility of the child.

Among other studies, particularly striking is the finding in Canada that exposure to poverty in childhood doubles the risk of death by age 55.[xix] Similarly in the United States, socio-economic status in childhood has been shown to be a powerful predictor of cardio-vascular disease in later life.[xx] In Europe, the 2006 report *Health Inequalities: Europe in Profile* concludes that, across the board, the poor have shorter lives and more years of ill health. "*Socio-economic inequalities in health,*" says the report's author, Johan Mackenbach of Rotterdam University's Medical Centre, "*are unacceptable, and represent one of Europe's greatest challenges for public health.*"[xxi]

Yet it is clear from the data presented here and elsewhere that the relationship between socio-economic status and health is not fixed. Being of low socio-economic status clearly carries a greater degree of risk in some countries than in others. In most OECD countries, for example, children born to parents with low levels of education or into homes with low socio-economic status are more likely to die in the first twelve months of life. Yet the steepness of this 'social gradient' in infant mortality rates varies considerably from country to county.[xxii]

Some countries, therefore, are clearly doing a better job than others either in reducing socio-economic inequalities or in mitigating their impact on children's health and development. And again it is the case that the countries with the highest median levels of health – the Netherlands, Austria, and Portugal – also have the lowest levels of health inequality (Figure 4a). Conversely, the countries whose children have the lowest average levels of self-reported health all tend to have higher-than-average levels of health inequality.

The importance of income

Socio-economic status is therefore the indispensable framework for policy analysis of bottom-end inequality for children. For just as inequalities in heath reflect not only the effect of health services but also '*the conditions in which people are born, grow, live, work, and age*', so inequalities in educational outcomes at age 15, for example, reveal not only what happens in schools but also the educational resources, stimulation and encouragement that surrounds a child from the earliest weeks and months of life.

Policies designed to address specific inequalities in health or education are therefore likely to have limited impact if they confine themselves to the health and education sectors alone. The most potent fact about children who fall significantly behind their peers is that, by and large, they are the children of families at the bottom end of the socio-economic scale.

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* In England, for example, smoking accounts for approximately half the difference in average life expectancy between the lowest and highest income groups. (Michael Marmot (chair) 2010, *Fair Societies, Healthy Lives, Strategic Review of Health Inequalities in England post 2010*, p 10.)

Box 1 Child poverty: a relative measure

Most OECD countries have adopted national poverty lines based on a percentage of the nation's median income. The European Union, for example, draws the poverty line at 60% of the median. The OECD uses 50% of the median.[1]

In some countries, the idea of relative poverty is still a matter of dispute. Poverty, it is argued, should be measured by absolute rather than relative standards. In the United States, for example, the official poverty line is based on a multiple of the income required to ensure an adequate diet.

But it could be argued that all definitions of poverty – other than the minimum required for sheer physical survival – are in fact relative definitions. Absolute poverty in the not-too-distant past, for example, meant that life was 'nasty, brutish and short'. Absolute poverty in the United States today means not being able to afford a standard of living – including standards of nutrition, water supply, sanitation, health care and transport – far in advance of the standards enjoyed by most of the world's population for most of its history.

In this sense, even absolute definitions of poverty are really relative definitions that eventually have to be updated to take account of changing standards of what is acceptable to the society as a whole. The question then becomes whether the definition should be updated infrequently in an *ad hoc* way or whether it should be updated regularly and systematically – for example by tying it to the national median income.

In recent times, defining income poverty in relative terms has become widely established, especially in the European Union. In the United Kingdom, for example, The *Economist* magazine notes that "*A decade ago, the prospect of the Conservatives accepting the idea of relative poverty – rather than an absolute measure of want, such as a basket of goods that every household should be able to afford – would have been fanciful. Nowadays, it is a reality.*"[2]

This is not to say that the idea is new. More than 200 years ago the founding father of modern economics argued that poverty was a relative concept:

By necessaries I understand, not only the commodities which are indispensably necessary for the support of life, but whatever the custom of the country renders it indecent for creditable people, even of the lowest order, to be without. A linen shirt, for example, is, strictly speaking, not a necessary of life. … But in the present times, through the greater part of Europe, a creditable day-labourer would be ashamed to appear in public without a linen shirt ... Custom, in the same manner, has rendered leather shoes a necessary of life in England. The poorest creditable person of either sex would be ashamed to appear in public without them. … Under necessaries, therefore, I comprehend, not only those things which nature, but those things which the established rules of decency have rendered necessary to the lowest rank of people.

Adam Smith, "*An Enquiry into the Nature and Causes of the Wealth of Nations*", Book 5, Chapter 2, 1776.

1 In discussing child poverty rates, part 2 of this report follows the method recommended by the OECD, drawing the poverty line at 50% of national median household income. Household income is taken to mean 'disposable household income', i.e. after taxes and public transfers. This is then 'equivalized' to take into account the economies of scale available to different sizes of households (using the square root of household size). The poverty line is therefore defined as 'half of the median national disposable equivalized income'; the child poverty rate is then calculated on the same basis but taking into account only households with children aged 0-17.

2 'Still with us', *The Economist*, 1 July 2010.

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Action to prevent children from falling behind in different dimensions of well-being must therefore eventually come face to face with the question of the socio-economic gradient.

Income poverty

Socio-economic status is about more than income. A family's past savings and future prospects, housing and neighbourhoods, levels of parental education and expectation, and status in relation to the mainstream or established ethnic or linguistic community – all of these enter into the socio-economic equation. Yet of the available measures, the most important single guide to, and predictor of, a family's socio-economic status remains its level of household income. Reducing bottom-end inequality in incomes will not solve all other problems, but it will make their solution easier. Climbing the socio-economic ladder is more feasible if the rungs are closer together.

Reviewing many studies that show a strong and consistent association between relative income poverty and 'falling behind', Susan Mayer makes the point unflinchingly:

Parental income is positively correlated with virtually every dimension of child well-being that social scientists measure, and this is true in every country for which we have data. The children of rich parents are healthier, better behaved, happier and better educated during their childhood and wealthier when they have grown up than are children from poor families.[xxiii]

Relative income poverty therefore occupies a primus inter pares position among the indicators of 'falling behind'. But monitoring of income poverty that can exert such leverage over the trajectories of children's lives is not simply a matter of calculating what proportion of a nation's children is growing up in households whose income falls below a given threshold. The depth, duration and timing of that poverty in relation to the different stages of a child's development may also be critical. A 2007 Canadian review of research into this issue refines the point:

Studies that measure family income over extended periods of time and include changes in income and the depth of income inequality in their models and analysis

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Box 2 First call: children and recession

The time lag between the gathering of data through sample surveys in different countries and the publishing of that data in internationally comparable form is approximately 3 years. Most of the data in this report therefore apply to the years 2006 to 2008.

Normally, such a delay is no more than frustrating. Socio-economic data of a kind used here tend to reflect long-term trends rather than year on year changes.

But much has changed in the world since 2008. Economic recession has affected millions in the OECD countries. The response of governments, whether by cuts in spending or increases in taxation, is affecting many millions more. Across the European Union, for example, unemployment is predicted to surpass the 10% mark by the time this report is published. This means that approximately 5 million more people will be unemployed than before the crisis began. As joblessness is a principal driver of poverty, it is likely that the material well-being of children has deteriorated in some countries since 2008.

In the European Union, youth unemployment, in particular, has risen from a pre-crisis level of under 15% to more than 20% today.[1] Many households have seen their incomes fall and are facing difficulties with debt repayments. In the United States, as many as half of all workers have taken a cut in pay or hours or suffered at least temporary unemployment in the two half years since the crisis struck.[2] Migrant workers and those on short-term contracts are particularly vulnerable.

There may be worse to come. According to a report by the European Union Social Protection Committee *"The full impact of the crisis on labour markets and public finances has yet to be faced."*[3]

In other words, the snapshot of inequality in children's well-being presented in these pages is a snapshot taken in good times.

No overall statistics are yet available to chart the impact of recession on the children of the poorest families. But a partial glimpse may be offered by the changing demands on charities and government special assistance programmes. The International Federation of Red Cross and Red Crescent Societies, for example, is reporting increasing numbers of people seeking help *"with the basic necessities of life – including some who would never normally think of seeking help from a charitable body."*[4] In the United States, the number of people receiving SNAP benefits (under the Supplementary Nutritional Assistance Program) has risen by almost a quarter since the crisis began (from 29.5 million to 36.5 million people a month in the year to August 2009). Approximately half of all SNAP beneficiaries are children.[5] It is also worrying that the Eurochild report is beginning to show increases in demands on child protection services in a number of European countries.[6]

have found that income emerges as the variable most strongly associated with child development outcomes, particularly in cognitive development, behaviour and educational attainment …

… the younger the child the larger the effect on his or her development of changes in family income.[xxiv]

To give one further example, the decade of the 1990s saw sustained economic growth in the United States leading to a significant reduction in the number of American children living below the poverty line. The national child poverty rate captured this achievement. But it did not capture the fact that the children who remained below the poverty line fell even further behind.[xxv] It is therefore essential to ask not only 'how many?' but 'how far?'.

Mitigating markets

National action to prevent families from falling into poverty has a long history in the OECD countries. All governments, of whatever political complexion, use a range of tax and transfer policies – including child benefit packages, unemployment pay, earned income tax credits, and national and local services – to try to put a floor under poverty.

Figure 5a presents a comparative overview of the extent to which they are succeeding.

The chart compares the child poverty rates of 21 OECD countries before and after taxes have been deducted and social assistance payments made.

The lighter bars show the relative child poverty rates that would theoretically prevail if household incomes were determined by market forces alone. The darker bars show actual child poverty rates after government intervention. For each OECD country, the difference between the two bars stands as a broad measure of government commitment and effectiveness in reducing the proportion of children growing up below the national poverty line.

Two features stand out. First, the chart shows that without government intervention all of the 21 OECD countries would have child poverty rates of 10% or more (Iceland, with a rate of 9.6%, being the only exception). The majority would have child poverty rates of between 10%

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In its work with children in the developing world, UNICEF has long experience of what happens to the vulnerable when economies turn down. Through the second half of the 1980s and the early 1990s, for example, many of the world's poorest nations entered a period of economic adjustment which included cuts in government spending on basic services and subsidies on which the poor were most dependent.

Throughout that period, UNICEF urged special action to prevent the heaviest burden from falling on those least able to bear it.

That same argument now needs to be made to some of the world's richest economies.

In hard times, the poorest children should be the first to be protected, not the last to be considered. A child has only one chance to develop normally in mind and body. And it is a primary responsibility of governments to protect that chance – in good times and in bad.

In practice, this means that protecting children during the critical early years of their growth should be given a 'first call' on societies' resources.

The economic crisis of 2008 and its continuing aftermath will test government commitments to this principle of 'first call'. As Janet Gornick and Markus Jäntti have written, *"The current recession, which is affecting all industrialized countries – and diverse government responses to it – will shed light on how the interaction between labor market characteristics and public policies either protect or fail to protect children from shocks to the market system."*[7]

1 Council of the European Union (2009) 'Second assessment by the Social Protection Committee and the European Commission on the social impact of the economic crisis and on policy responses', Council of the European Union, Brussels, 24 November 2009.

2 *The Economist*, 4 July 2010.

3 Council of the European Union (2010) 'Draft joint report on Social Protection and Social Inclusion 2010' Council of the European Union, Brussels, 15 February 2010.

4 International Federation of Red Cross and Red Crescent Societies (2009) *The Economic Crisis and its Humanitarian Impact on Europe*, International Federation of Red Cross and Red Crescent Societies, Geneva.

5 Isaacs, J. B. (2009) *The Effects of the Recession on Child Poverty: Poverty statistics for 2008 and growth in need for 2009*, First Focus, Brookings Institution, Washington D. C.

6 Eurochild (2009) 'Impact of Economic and Financial Crisis on Children and Young People', *Eurochild Report*, update 9 October 2009.

7 Gornick, J. C., and M. Jäntti (2010) 'Child Poverty in Upper-Income Countries: Lessons from the Luxembourg Income Study' in S. Kamerman, S. Phipps and A. Ben-Arieh (eds.) *From Child Welfare to Child Well-Being: An international perspective on knowledge in the service of policy making*, Springer, New York.

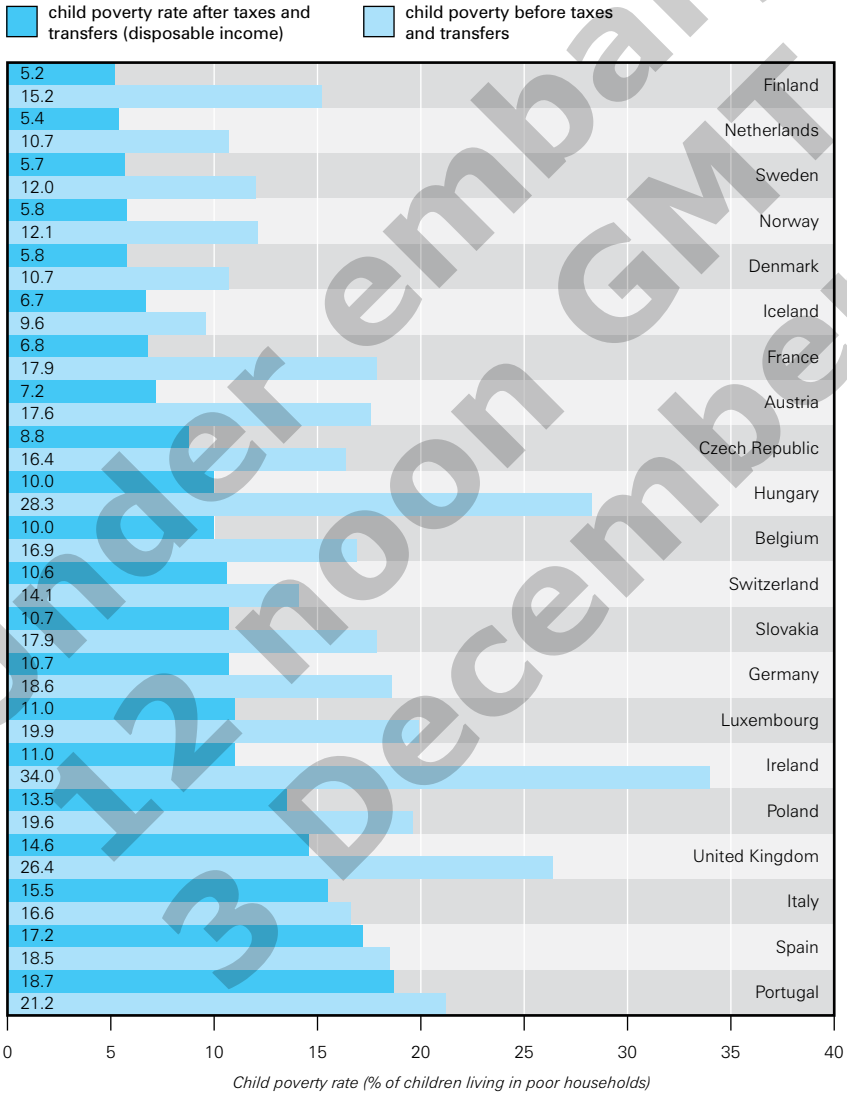
and 15%, and three countries – Hungary, Ireland and the United Kingdom – would have rates of more than 25%. No comparable data are available for the United States.

Second, the chart shows that, while efforts by all governments achieve substantial reductions in child poverty, some are achieving much more than others. Government action in the Nordic countries and the Netherlands, for example, reduces child poverty by about half or more. Several countries with very high levels of 'pre-intervention' child poverty, such as Ireland and Hungary, reduce child poverty rates by approximately two thirds.

Figure 5a is theoretical in that it does not allow for the changes in work and income patterns that would likely occur in the absence of government benefits. Neither does it reflect government interventions designed to affect incomes from employment – such as minimum wage and equal pay legislation or subsidized employment creation and training schemes.

Fig. 5a Markets, governments, and child poverty rates

Figure 5a compares the child poverty rates of 21 OECD countries before and after taxes and benefits. The lighter bars show the notional child poverty rates if household incomes were determined by market forces alone. The darker bars show actual child poverty rates after governments have intervened via taxes and benefits.



Note: For the methodology used for the calculation of the poverty rates see Box 1.
Sources: *Data on income are from EU-SILC 2008 and refer to 2007. Data for France are from the EU-SILC 2007 survey and refer to 2006. Data for Switzerland are from the 2007 Swiss Household Panel and refer to 2006.*

Nonetheless, the chart reveals an important truth about the causes of child poverty and its possible solutions: differences in child poverty rates between developed countries are a product not only of differences in government benefits and social protection policies but of very significant differences in the distribution of earned incomes.

This strongly indicates that policies aimed at limiting poverty in all its forms must also confront the changes in the wider world that are tending to bring about widening economic inequality in a large majority of OECD countries.[xxvi]

Forces of change

In brief, the increase in inequality over recent decades has been driven by three main forces. The first is long-term social and demographic change (for example the aging of populations or the rise in the number of single adult households). The second is the changing distribution of income and employment opportunities brought about by technological innovation, by the globalization of markets, by the migration of manufacturing to countries with rising skills and low labour costs, and the increasing premium on high-end abilities and qualifications (so pushing up incomes at the top of the distribution). The third force is the range of government policies and expenditures, including child benefit packages that are specifically designed to protect those at risk of disadvantage.

These are the shifting tectonic plates beneath that underlie the landscape of child well-being; and it is the complex interplay between them that ultimately determines how many children fall behind and by how far.

In this context, it becomes clear that the slow but steady rise of bottom-end inequality in most OECD countries over the last three decades has not been brought about by governments doing less or spending less. Most governments are today spending a larger proportion of GDP* on family benefits and social protection than they were two decades ago (up by about a third, on average, in

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the 21 OECD countries for which comparable data are available).[xxvii] This suggests that child poverty rates have risen, or failed to fall, because increasing government efforts have been rowing upstream against powerful currents in the wider economy.

In most cases, those efforts have not been sufficient in scope and scale to prevent child poverty rates from growing. Even in periods of sustained economic growth such as the 1990s, the benefits have tended to accrue to the already advantaged, leaving those at the bottom end of the socio-economic scale even further behind. The 2008 report *Growing Up in North America*, for example, tells a story that has been repeated in one degree or another in many of the world's developed economies.

Inequality of market and disposable income has been increasing in Canada, Mexico, and the United States since the 1980s. In particular, markets have disproportionately benefited families at the top of the income ladder – though families in every income group have been working longer and harder. The scale of government intervention via public income transfers was not enough to offset the growing gap in market incomes.[xxviii]

Not by benefits alone

Government policies to restrain bottom-end inequality are therefore unlikely to be successful if they are limited to social protection expenditures alone. "*The only sustainable way to reduce inequality,*" says the OECD report Growing Unequal (2008), "*is to stop the underlying widening of wages and income from capital. In particular, we have to make sure that people are capable of being in employment and earning wages that keep them and their families out of poverty.*"[xxix]

In particular, reducing bottom-end inequality in all its dimensions will depend on getting to grips with one of the most disturbing aspects of changed economic times – the fact that full-time employment no longer guarantees a life lived above the poverty line.

In many countries, this concern is directing attention to the question of the minimum wage. In Australia, for example, an independent report to the Fair Pay Commission proposes that "*an increase to the minimum wage is one method of increasing family income and reducing child poverty.*"[xxx] Similarly, a 2007 study in Japan also proposes that "*to improve the economic well-being of households with young children the first task is to ensure a minimum wage that maintains a reasonable living standard.*"[xxxi] In the United Kingdom, the 2010 report of the National Equity Panel argues that "*the minimum wage is a powerful tool in reducing labour market inequality.*"[xxxii] Most forcefully of all, a report by the U.S. National Research Council on *Integrating the Science of Early Childhood Development* makes the following recommendation:

Congress should assess the nation's tax, wage, and income support policies with regard to their adequacy in ensuring that no child supported by the equivalent of a full-time working adult lives in poverty …[xxxiii]

Social protection

The previous section has stressed an obvious truth that is easy to lose sight of: whether a child falls unnecessarily far behind or not depends, in the first instance, on whether that child is part of a well-functioning family with an adequate income from employment.

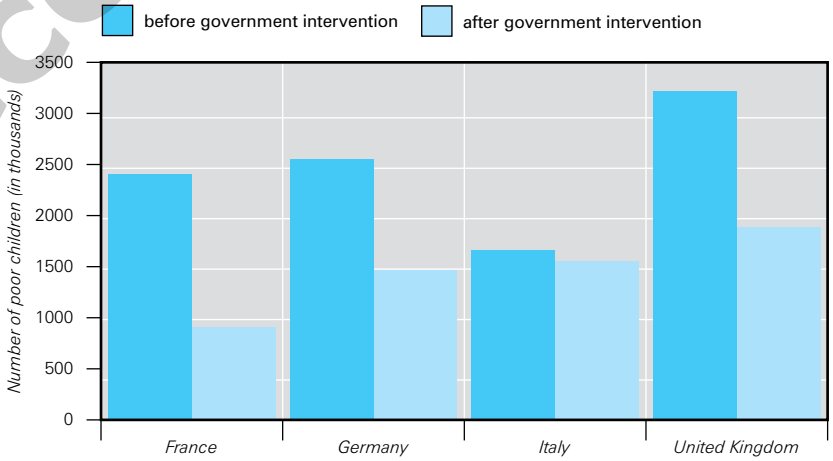
But putting government efforts in this wider context does not mean that those efforts are not a critical determinant of how many children fall behind and by how far. "*If governments stop trying to offset the inequalities by either spending less on social protection or by making taxes and benefits less targeted to the poor,*" says the 2008 OECD report cited above, "*then the growth in inequality would be much more rapid.*"[xxxiv]

An overview of the impact of government efforts has already been set out (Figure 5a). Across the OECD as a whole, the effect of those efforts is to reduce child poverty rates by more than 40% (unweighted average).**

Figure 5b shows that effect in absolute terms for four of the most populous countries of the European Union. More than a million children are being lifted above the national poverty line in France, Germany and the United Kingdom while Italy is making much less of an impact. In percentage terms, France cuts child poverty by more than 60%, Germany and the United Kingdom by more than 40%, and Italy by less than 7%.

Fig. 5b Child poverty and public spending on families

The chart shows the absolute number of children living below national poverty lines before and after government intervention via taxes and benefits.



Sources: *Elaboration of data on income poverty derived from EU-SILC 2008 (referring to 2007) for Germany, Italy and United Kingdom, and from EU-SILC 2007 (referring to 2006) and data on child population derived from the United Nations Population Division.*

* Even in OECD countries where social expenditure has stagnated, falling child populations mean that expenditure per child may have continued to increase.

** Unweighted average for the 21 OECD countries with available data.

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Box 3 The just society: a measure

The statistics presented in this *Report Card* can also be read as a first attempt to measure nations by the standards of a '*just society*' as defined by the American political philosopher John Rawls (1921 – 2002).

Rawls proposed that the just society would be one in which the rules were drawn up for the benefit of society as a whole. To achieve this, he argued, the starting point should be '*the original position*'. By this he meant a kind of celestial ante-room in which all those waiting to be born would draw up the rules without knowing what position in society they themselves would occupy. From behind this '*veil of ignorance*', the rule-makers would not know whether they would be born rich or poor, male or female, with above or below average talents, fit or disabled, part of an ethnic minority or part of a privileged elite.

Because we would not know about our own status, he argued, we would not be able to press for rules that would benefit only ourselves. Rules drawn up on this basis, therefore, would reflect an equal concern for all classes and groups.

The 'veil of ignorance' is therefore designed to tame the power of vested interests. And 'the original position' is the exact opposite of the interest group model that is so influential in today's politics. In essence, it is similar to the method of sharing a cake fairly between two people by inviting one person to make the cut and the other to take first choice.

Rawls has his critics among the hundreds who have written books in response to his ideas. Libertarians have objected that basic human rights such as property rights and the right to self-ownership leave no room for a Rawlsian concept of the 'just society'. Ronald Dworkin has argued that hypothetical agreements about rules drawn up from 'the original position' are not real agreements and therefore could not find the necessary acceptance and authority. Amartya Sen finds the same weakness, adding that unanimity would be unlikely to be achieved even from 'the original position' and that lack of unanimity would bring the Rawlsian thesis crashing down. Uniting some of these criticisms, Michael Sandel has objected that decisions about the rules governing communities that have their own traditions and histories cannot be made by reasoning from a rootless and historically abstract position.

But the idea that the rules of society should reflect the interests of all, and not just its dominant members, is widely accepted in theory, even if the methods by which it might be achieved remain controversial.

If we assume that the end, if not the means, commands a measure of agreement, then one way of measuring progress towards the aim of a just society would be to measure the degree of disadvantage suffered by its most disadvantaged members. That is what this *Report Card* attempts to do.

Clearly, more comprehensive data would be required to measure degrees of disadvantage 'in the round', especially if, as Amartya Sen suggests, disadvantage should be defined as "*those who are least able to realise their potential and develop and exercise their capabilities.*"

Nonetheless, the data presented in these pages represent a contribution to that process. In three different dimensions of well-being – material goods, educational level, and health – they show how far behind the median level the least advantaged are being allowed to fall. And the fact that different countries show very different patterns indicates that some countries are making more progress than others towards 'the just society'.

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As further evidence for the importance of government policies and expenditures, Figure 6a compares the level of public spending on family benefits (in cash and tax allowances) with the reduction in child poverty rates achieved (in percentage points) from the starting or 'market' rate of child poverty (see Figure 5a). As the trend line shows, there is a significant correlation between the two.

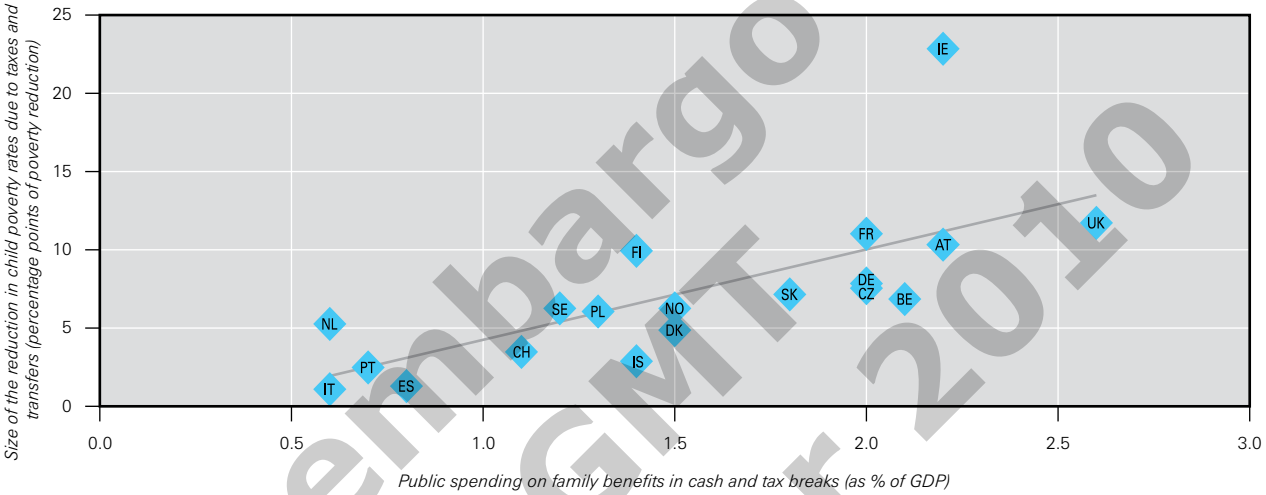
This comparison obviously favours countries with a high starting or 'market' rate of child poverty. Figure 6a should therefore be read in conjunction with Figure 6b which compares overall government spending on protecting families (including cash benefits, tax allowances, and spending on services for families) with overall child poverty rates.

Fig. 6a Reduction in child poverty rates by government family spending in cash benefits and tax allowances

The scatter plot compares the percentage point reduction in child poverty rates achieved by each country with the amount of public spending on family benefits in cash and tax breaks directed towards families (as a % of GDP).

The percentage point reduction in child poverty rates is calculated by subtracting the actual rate (after all taxes and transfers) from the starting or 'market' poverty rate that would theoretically prevail in the absence of government spending on families.

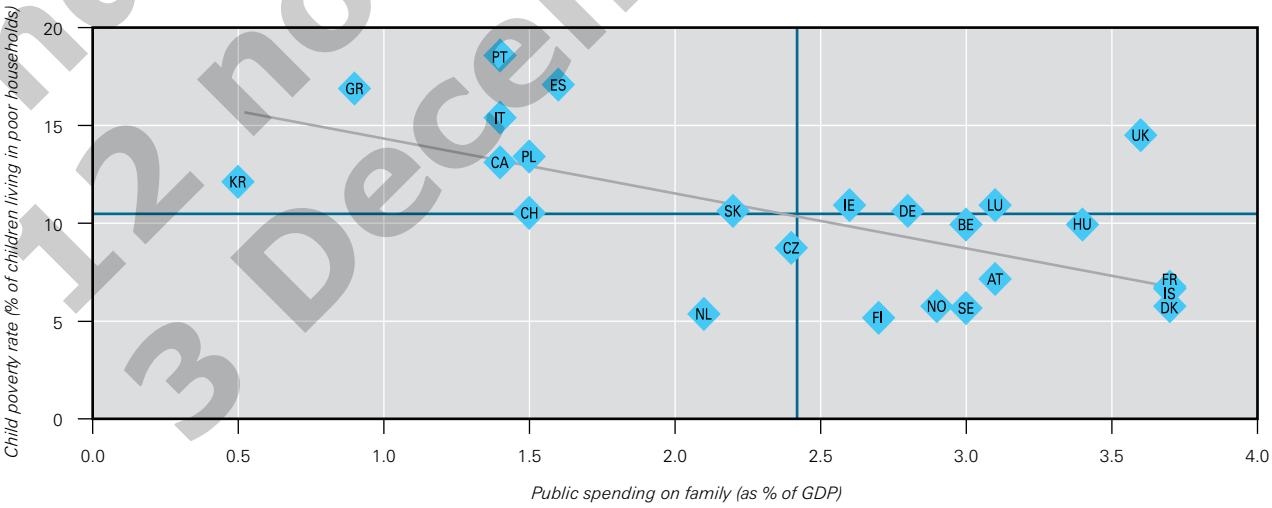
This measure of poverty reduction clearly favours countries with a high starting or market rate of child poverty. The chart should therefore be read in conjunction with Figure 6b, comparing government spending on families with the overall level of child poverty; this shows that achieving a low child poverty rate of close to 5% depends on both a low 'market rate' of child poverty in conjunction with a high level of government effort and expenditure to reduce that rate still further.



Notes: Public spending data include only spending on family benefits and tax breaks. Differently from those presented in Figure 6b, they do not include expenditure on family services. Trend line obtained by linear regression. For country abbreviations see page 33.
Sources: *Data for public spending are for 2007 (preliminary data from the OECD Family Database). For data on poverty see sources in Figure 2a.*

Fig. 6b Child poverty rates and public spending on families

The scatter plot compares each country's child poverty rate with the % of GDP spent by governments on family cash benefits, tax allowances, and family services (see note).



Notes: Public spending data include only public support that is exclusively for families (e.g. child payments and allowances, parental leave benefits and childcare support). Spending in other social policy areas such as health and housing also assists families, but not exclusively, and is therefore not included here. Blue vertical and horizontal lines indicate unweighted OECD average (24 countries). Trend line obtained by linear regression. For country abbreviations see page 33.
Sources: *Data for public spending are for 2007 (preliminary data from the OECD Family Database). For data on poverty see sources in Figure 2a.*

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In sum, the message is that the OECD countries that are achieving the lowest child poverty rates, at around 5% to 6%, are the countries that start from a position of low 'market' poverty and then cut this rate by approximately 50% through government intervention to protect those still at risk.

The national and international economic forces that tend to generate widening gaps are still with us (though there is some evidence that inequality rose more quickly in the decade from 1985 to 1995 than in the decade from 1995 to 2005[xxxv]). Reducing bottom-end inequality – to the extent that it involves reducing the steepness of the socio-economic gradient in health, education and other dimensions of child well-being – will therefore require renewed government efforts to 'row upstream' in the years immediately ahead.

Stepping up efforts to protect those most at risk from falling behind is even more necessary at a time when governments are seeking to cut public expenditure (Box 2). But it is also more difficult. And if efforts to prevent children from falling avoidably behind the norms of their societies are to be reinvigorated in changed economic times, then a strong case must be made.

Risks and consequences

That case is strong in principle. For a child to suffer avoidable setbacks in the vital, vulnerable years of growth in body and brain is a breach of the most basic tenet of the *Convention on the Rights of the Child* – that every child has a right to develop to his or her full potential. It is also a clear contradiction of the principle of equality of opportunity to which all OECD countries aspire.

But the case is also strong in practice. Allowing children to fall unnecessarily far behind brings in its wake a long list of practical costs and consequences. Causality is always difficult to establish, but many hundreds of studies in many different OECD countries have shown what the costs of falling too far behind may be. They include the greater likelihood of:

- low birthweight
- parental stress and lack of parental time (Box 5)
- chronic stress for the child, possibly linked to long-term health problems and reduced memory capacity[xxxvi]
- food insecurity and inadequate nutrition
- poorer health outcomes, including obesity, diabetes, chronic asthma, anaemia, and cardio-vascular disease
- more frequent visits to hospitals and emergency wards
- impaired cognitive development
- lower educational achievement
- lower rates of return on investments in education
- reduced linguistic ability
- lower skills and aspirations
- lower productivity and adult earnings
- unemployment and welfare dependence
- behavioural difficulties
- involvement with the police and courts
- teenage pregnancy
- alcohol and drug dependence.

Many individual families – faced with disadvantages of income, education, health and housing – overcome the odds and bring up children who do not fall into any of the above categories. But this cannot change the fact that children who fall behind early in their lives, or who spend a significant part of their early years in poverty, are likely to find themselves at a marked and measurable disadvantage. It bears repeating that none of this is the fault of the child. And a society that aspires to fairness cannot be unconcerned that accidents of birth should so heavily circumscribe the opportunities of life.

The costs

The practical case for a renewed effort to prevent children from unnecessarily falling behind is further strengthened by the economic penalties involved. The heaviest costs are paid by the individual child. But the long list of problems cited above also translates into significant costs for society as a whole. Unnecessary bottom-end inequality prepares a bill which is quickly presented to taxpayers in the form of increased strain on health and hospital services, on remedial schooling, on welfare and social protection programmes, and on the police and the courts. In addition, there is a significant cost to business and to economies as a whole in the lower skill levels and reduced productivity that are the inevitable result of a large number of children failing to develop to their potential. Finally, there is a cost that must be paid by all in the threat that bottom-end inequality poses to social cohesion and the quality of life in advanced industrial economies. "*Wide inequality,*" says the 2010 report of the United Kingdom's National Equity Panel "*is eroding the bonds of common citizenship and recognition of human dignity across economic divides.*"[xxxvii]

The scale of such costs, though almost impossible to calculate, is clearly significant. For the European Union as a whole, it has been estimated (2007) that health inequalities alone account for 15% of social security costs and 20% of health care costs.[xxxviii] In Canada, the overall cost of child poverty has been estimated (2008) at between $4.6 and $5.9 billion a year for the Province of Ontario alone.[xxxix] In the United Kingdom, estimates by Donald Hirsch, in a report (2006) for the Joseph Rowntree Foundation, put the direct costs of "*services to remedy the consequences of childhood deprivation such as poor health, low educational attainment, crime and anti-social behaviour*" at approximately $18 billion a year.[xl]

In sum, the costs of allowing children to fall too far behind – costs to the principle of fairness and costs to social, civic and economic life – are enormous. And it is against the full weight of these costs and consequences that the economic arguments for and against a renewed effort to protect those most at risk should be set.

Early intervention

Finally, if the effort to reduce bottom-end inequality in children's well-being is to make further progress, then it is not just the level of government efforts

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that must be increased but their effectiveness.

Cost-effectiveness in policy is again largely a matter for national analysis and debate. But there is one lesson to emerge from OECD-wide experience that no country can afford to ignore.

Children who fall behind begin to do so in the very earliest stages of their lives. And in that simple statement we come face to face with one of the most important and least-acted-on research findings of our times.

During pregnancy and the first few weeks and months of life, critical stages in the child's mental and physical development follow each other in rapid succession. Each stage serves as a foundation for the next. Any faltering in early childhood therefore puts at risk subsequent stages of growth and development. In other words, disadvantage in the early phases of life can begin to shape the neurobiology of the developing child and initiate a process that, once begun, has a tendency to become self-reinforcing.

In particular, it is in cognitive development that the disadvantaged child is likely to pay the heaviest price. By the age of two, cognitive 'falling behind' can be measured. By the age of four, much of the potential damage may have been done.[xli, xlii, xliii]

The central practical message for efforts to reduce bottom-end inequality in child well-being could therefore not be clearer: the earlier the intervention, the greater the leverage.

Overall, the case both in principle and practice for intensifying the effort to prevent children from falling behind – and for acting as early as possible in the child's life – has been well summarized by the Nobel laureate and University of Chicago economist James Heckman:

Investing in disadvantaged young children is a rare public policy initiative that promotes fairness and social justice and at the same time promotes productivity in the economy and in society at large. Early interventions targeted toward disadvantaged children have much higher returns than later interventions such as reduced pupil-teacher ratios, public job training, convict rehabilitation programs, tuition subsidies, or expenditure on police …[xliv]

Box 4 Monitoring: the need to know

The statistics presented in this report are not built on a comprehensive consideration of what constitutes child well-being but on the more mundane foundations of data availability. In particular, an acknowledged weakness is that almost all of the available data concern older children and adolescents who are attending school; there is a glaring lack of comparable information on the critical years of early childhood.

Responding to this inadequacy of data may not seem to have much of a claim to priority in difficult economic circumstances. But a renewed commitment to reducing bottom-end inequalities in child well-being will nonetheless require a renewed commitment to selective monitoring.

If limited resources are to be used effectively, then governments need to know not only how many children are falling behind. They need to know by how much, in what ways, and for what reasons. They need to know who and where they are. And they need to know how policy is affecting and interacting with wider trends in the social and economic life of the nation.

Finally, they need to have the relevant data at their disposal not once every five or ten years but on a timescale that permits timely response to protect those at risk. Monitoring requires resources. But it is the indispensable hand rail of cost-effective policy.

Child care

Within the developed world, trends in the way in which young children are being brought up may now offer a unique opportunity to put this message into practice. Today's generation of children is becoming the first in which a majority are spending a significant part of early childhood in some form of out-of-home care (the subject of *Report Card 8*[xlv]). In theory, this offers a large scale opportunity to take early action against the different dimensions of disadvantage that threaten to become established in the lives of very young children. Public demand for high-quality child care already exists, and OECD governments are already responding by investing in free or subsidized early childhood services on an increasing scale.

At the heart of this opportunity is the idea that high quality early childhood education and care can help to reduce bottom-end inequality because it is the disadvantaged child who stands to gain the most. "*Although early childhood education and care benefits all children*", concludes an OECD-wide child care review by Canadian researchers Cleveland and Krashinsky, "*much of the evidence suggests that the largest benefits flow to children from the most disadvantaged families …*"[xlvi]

In practice, there is a danger that the child care transition will contribute to a widening rather than a narrowing of bottom-end inequality. It is more educated parents and higher-income homes that tend to be most aware of,

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and more capable of affording, child care of the right quality. And it is the poorer and less educated homes where the pressures for the earliest possible return to work are felt most acutely and where resources for high quality child care are least likely to be available. Without specific policies to address this issue – and to ensure the availability and affordability of high-quality early childhood services for all children – this opportunity will therefore be lost; 'double disadvantage' will become the norm, and the child care transition will likely become a new and powerful driver of still greater inequality in children's well-being.

The costs of taking advantage of this chance to reduce inequalities in children's well-being on a significant scale are obviously substantial. The costs of not taking the opportunity will undoubtedly be even higher. No one who has worked with disadvantaged or at-risk children can be in any doubt that, as James Heckman and many others have argued, attempting to compensate for disadvantage after the event is more difficult, more costly, and less likely to be successful. Children need to be supported and protected from avoidable 'falling behind' at all stages of their development, but the point of greatest leverage is the point at which the process begins.

Conclusion

This report began with the argument that children deserve the best possible start, that early experience can cast a long shadow, and that children are not to be held responsible for the circumstances into which they are born. In this sense the metric used – the degree of bottom-end inequality in child well-being – is a measure of the progress being made towards a fairer society.

Bringing in data from the majority of OECD countries, the report has attempted to show which of them are allowing children to fall behind by more than is necessary in three dimensions of children's well-being (using the best performing countries as a minimum standard for what can be achieved). In drawing attention to the depth of disparities revealed, and in summarizing what is known about the consequences, it has argued that 'falling behind' is a critical issue not only for millions of individual children today but for the economic and social future of their nations tomorrow.

In making this case, therefore, principle and practice argue as one. For if the effort to prevent the unnecessary falling behind of children in the different dimensions of their lives is not made, then a fundamental unfairness will continue to shame our pretensions to equality of opportunity – and our societies will continue to pay the price.

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Box 5 Poor: in parental time

Inequality in household incomes or educational achievement is relatively easy to measure compared to inequality in other important dimensions of child well-being – such as poverty of opportunity and expectation, or of adult support and encouragement.

One of the most critical of these unmeasured dimensions is parental time.

Clearly, the quantity and quality of the time that parents spend interacting with their children will be affected by many factors in addition to parents' individual characteristics. One of those factors is household income.

It might be assumed that higher-income parents work longer hours and have less time for child care. And it is true that some low income jobs, and most obviously part time jobs, leave parents with more non-income-earning time. But the majority of low-income parents are in full-time employment, and there is no evidence to suggest that they work fewer hours.

Nor should it be overlooked that higher income families can more easily afford to pay others to do regular, time-consuming non-earning jobs – for example cleaning, cooking (including eating out), washing, ironing, shopping, car cleaning, gardening, and household maintenance.

'Poverty of parental time' may be particularly acute in the United States. According to a 2010 study,[1] low-income American parents work longer hours than their equivalents in six other OECD countries studied – Austria, Belgium, Canada, Germany, Spain, and the United Kingdom. The study also shows that an American mother or father at the bottom of the income distribution scale will, on average, not only work longer hours but also have a lower relative standard of living than parents in the equivalent income position in the other six countries. This is especially true for households headed by single mothers.

The amount of parental time available for child care therefore appears to be more limited in low-income American families. And the further one goes down the income scale, the more acute the problem becomes. *"The gap in parental time availability between United States on the one hand, and Canada and our European country studies, on the other," says the study, "is particularly large in the case of children in the lower parts of the income distribution."*[2]

In this way, lack of parental time adds to and interacts with the long list of disadvantages facing children in poor households and contributes to the complex process by which inequality begets inequality.

If all families are included, rather than just low-income families, then American parents spend more time with their children than parents in most other countries for which data are available. The OECD report *Doing Better for Children* draws on data from 15 developed countries to show that – across the board – parents in the United States and Norway spend the most time with their children (and parents in France the least).

Some data are also available to show how investment of time in parenting is divided between men and women. Canada, Norway, the Netherlands, and the United States have the most equal division of parenting time, Austria and France the least.[3]

Single-mother households are particularly vulnerable to the income-time crunch. But here too there are inequalities between countries. Single mothers in the United States and Canada, for example, are more short of time than single-mothers in Sweden or the United Kingdom.[4]

Investments made by the state clearly change the context of this question. A country that invests in high-quality pre-school care, for example, may reduce parent-child time without necessarily undermining the process of interaction and stimulation necessary for a child's development. And concerns that government services may crowd out parental time do not appear to be supported by the available evidence. Parents in Norway, which invests heavily in pre-school education and out-of-school care, spend a similar amount of time with their children as parents in the United States, where government investment is considerably less.[5]

1 Burtless, G., J. Gornick, P. Fraser and T. M. Smeeding (2010), 'Income Distribution, Weekly Hours of Work, and Time for Child Rearing: The US experience in a cross-national context', *Luxembourg Income Study Working Paper* 489 (revised version), Luxembourg Income Study, Luxembourg.

2 Burtless, G., J. Gornick, P. Fraser and T. M. Smeeding (2010) op. cit.

3 OECD (2009), *Doing Better for Children*, OECD, Paris

4 Burton, P., and S. Phipps (2009), 'Families, Time and Money in Canada, Germany, Sweden, the United Kingdom and the United States', *Luxembourg Income Study, Working Paper* 523, Luxembourg Income Study, Luxembourg.

5 Guryan, J., E. Hurst and M. Schettini Kearney (2008), 'Parental Education and Parental Time with Children', NBER Working Paper No. 13993, National Bureau of Economic Research, Cambridge, MA.

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Data for *Report Card 9*: the surveys

Three main survey sources have been drawn upon for *Report Card 9*.

OECD Programme for International Student Assessment (PISA)

The 2006 PISA administered reading, maths and science tests to representative samples of between 4,500 and 10,000 15-year-old students in each of 57 countries including all of the countries featured in *Report Card 9*. The tests attempt to assess how well *"education systems are preparing their students to become life-long learners and to play constructive roles as citizens in society."* The tests are compiled by an international expert group (including employers). Basic information is also collected on study practices, family resources and structures, and school environments.

In *Report Card 9*, data from PISA are used for the analysis of inequality in reading, mathematics and science literacy scores and in home access to educational resources.

PISA results may not apply to the total population of the relevant age group in Chile, Luxembourg, Portugal and Turkey where school enrollment rates for 15 and 16 year-olds are below 90%. The survey does not include children who, for whatever reason, are not in school.

Because of errors in implementing the 2006 PISA survey, no data on 'reading literacy' are available for the United States.

More detailed information on the OECD 2006 PISA survey can be found at: www.oecd.org/pisa and in OECD (2007) *PISA 2006: Science Competencies for Tomorrow's World*, OECD, Paris.

Health Behaviour in School-Aged Children (HBSC)

Data from HBSC are used for the analysis of inequality in children's health.

HBSC is a collaborative undertaking by researchers and academic institutions linked to the World Health Organization. Its participants form a network of multidisciplinary researchers collaborating to develop the conceptual underpinnings of the study, identify research questions and compile the four-yearly survey, and work on analysis and dissemination.

The 2005/2006 HBSC survey questioned a representative sample of approximately 1,500 students at each of three ages (11, 13 and 15) in a total of 41 countries. The study aims to increase understanding of young people's health behaviours and well-being during the key developmental stage of adolescence.

HBSC data is available for all 24 countries in the ranking tables used in *Report Card 9*. This includes all European OECD members plus the United States, Canada and Turkey.

Data on 'vigorous physical activity' were not available for Portugal.

Detailed information on HBSC can be found at: www.hbsc.org and in Currie C. et al (2008) 'Inequalities in Young People's Health: HBSC International Report from the 2005/2006 Survey', *Health Policy for Children and Adolescents*, No. 5, WHO Europe and Child and Adolescent Health Research Unit, Edinburgh.

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European Union – Statistics on Income and Living Conditions (EU-SILC).

Data from EU-SILC are used for the analysis of household income and children's living space. Analysis focuses on households with children under the age of 18.

EU-SILC surveys are conducted annually and cover a representative sample of the entire population in 22 of the countries included in *Report Card 9*. The primary purpose of the surveys is to monitor the indicators (the so-called Laeken Indicators) by which the EU has agreed to measure its progress towards reducing social exclusion. They include data on income and a limited set of non-monetary indicators of well-being. In most cases, data on income refer to the calendar year preceding the survey.

For all the European Union OECD members, plus Iceland and Norway, *Report Card 9* uses EU-SILC data for 2008 (income data refer to 2007), except data for France which are from the 2007 survey (income data refer to 2006).

Supplementary Sources

Income and living space data for other OECD countries have been drawn from:

Australia

Household Income and Living Dynamics in Australia (HILDA), 2008.

Canada

For income: *Survey of Labour and Income Dynamics* (SLID), 2005. This survey is nationally representative with the exception of residents in the Yukon, the Northwest Territories and Nunavut, as well as residents of institutions and persons living on Indian reserves. (These exclusions amount to less than 3 per cent of Canada's population).

For housing living space: *Survey of Household Spending* (SHS), 2006. (The 2006 survey did not include data from the Northwest Territories).

Chile

National Socio-economic Characterization Survey (CASEN), 2006.

Republic of Korea

For income: *Korean Labour and Income Panel Study* (KLIPS), 2007. The sample is representative only of Korean households in urban areas (excluding Jeju Island).

Mexico

National Survey of Household Incomes and Expenditures (ENIGH), 2008.

Switzerland

Swiss Household Panel (SHP), 2007.

United States

For housing living space: *Panel Study on Income Dynamics* (PSID), 2007.

A methodological note

Innocenti Report Card 9 focuses on inequality at the bottom-end of the distribution in different child well-being indicators.

Country inclusion in the report

The criterion for the inclusion of countries is OECD membership in March 2010. Of the 31 OECD member countries at that date, only 24 had sufficient data to be included in the final comparison (Figs. 1a and 1b). The criterion for inclusion was the availability of suitable and comparable data for at least 2 out of the 3 indicators used to measure inequality in each dimension of child well-being.

Indicators and dimensions

The report assesses how far the most disadvantaged children are allowed to fall below national norms in each individual country (represented by the median value).

Only indicators which return a range of values are suitable for this kind of analysis. Nine such indicators have been identified as also having available and comparable data for a large majority of the OECD countries.

The selected indicators are:

Material well-being

- disposable household income
- possession of educational items
- housing living space

Educational well-being

- reading literacy
- maths literacy
- science literacy

Health well-being

- self-reported health complaints
- healthy eating
- vigorous physical activity.

Data for disposable income, and for housing living space, refer to children aged 0-17.

Data for educational possessions, and for all three indicators of educational well-being, refer to 15 year-old students.

Data for the three indicators included under 'health well-being' refer to students aged 11, 13 and 15.

The inequality measures

Inequality at the bottom-end of the distribution is assessed using two different measures according to the nature of the indicator. In all cases, the inequality is measured in relation to the median (representing the minimum value recorded by the better performing half of the child population).

For disposable income and for education achievements, inequality is measured by the gap between the child at the median position and the child at the 10th percentile (representing an income or performance lower than 90% of children).

The limited variability of the survey values for the other five indicators means that the bottom-end of the distribution cannot be adequately represented by the score of the 10th percentile. In this case, inequality has been measured by the gap between the median position and the average for all children below the median.

In both cases, the gap measures relative inequality and is expressed as a percentage of the median.

Between-country comparisons

In Figs. 2a-2c, 3a-3c and 4a-4c, countries are ranked in order of progress towards greater bottom-end equality (i.e. the countries at the top of the table have the smallest inequality gaps).

Given the nature of the data, especially when derived from sample surveys, small differences between countries in inequality results may be not statistically significant. Country rankings (both for single indicators and for aggregated overviews) should be read with this limitation in mind.

More detailed statistics, including the confidence interval of the results, are available in the background paper to *Report Card 9* by Currie, C., D. Currie, L. Menchini, D. Richardson and C. Roberts (2010).

The OECD average reported in the Figures refer to only the countries with enough data to be included in the overall comparison (Figs. 1a and 1b). In all cases, the average is unweighted (i.e. it does not take into account the size of the relevant child population in each country).

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Comparison by dimension

To aggregate the indicators used into an overview of bottom-end inequality in each dimension of child well-being, the inequality gaps for each indicator have been standardized with reference to the OECD unweighted average and variability between countries. In each case, the degree of inequality is then expressed as the number of standard deviations from the OECD unweighted average. The standard deviation is a commonly-used measure of how spread out the items being measured are in relation to the average for the group as a whole. These standardized inequality results for the different indicators are reported in Figures 2f, 3f and 4f. In these charts the length of the bar to the right of the vertical (representing the unweighted OECD average) implies a positive value (i.e. lower bottom-end inequality compared to the OECD average). To the left of the vertical, the length of the bar is associated with a negative value (i.e. higher bottom-end inequality compared to the OECD average).

To obtain the overview of inequality, for all three dimensions of well-being, the standardized inequality results for each indicator have been averaged. It is this average that is shown in Figures 2d, 3d and 4d, with countries ranked in order of decreasing equality. To facilitate the reading of these summary charts, the standardized inequality data have been rescaled to set the OECD average at 100 and one standard deviation at 10.

The overall league tables of inequality in child well-being (Figs. 1a and 1b) are derived from these dimension level results. A dimension score of between 95 and 105 (i.e. between –0.5 standard deviation and +0.5 standard deviation around the OECD average) qualifies as 'close to the OECD average'. Countries with dimension scores lower than 95 are regarded as having significantly greater inequality than the OECD average. Those with a dimension score higher than 105 are classified as having significantly less inequality than the OECD average.

In all bar charts and rankings the countries at the top are those with less bottom-end inequality.

Country abbreviations

Australia	AU
Austria	AT
Belgium	BE
Canada	CA
Chile	CL
Czech Republic	CZ
Denmark	DK
Finland	FI
France	FR
Germany	DE
Greece	GR
Hungary	HU
Iceland	IS
Ireland	IE
Italy	IT
Japan	JP
Korea	KR
Luxembourg	LU
Mexico	MX
Netherlands	NL
New Zealand	NZ
Norway	NO
Poland	PL
Portugal	PT
Slovakia	SK
Spain	ES
Sweden	SE
Switzerland	CH
Turkey	TR
United Kingdom	UK
United States	US

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