Income Poverty and Social Exclusion in the EU
Situation in 2008 and Trends (based on EU-SILC 2005-2009)

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Policy Briefs are a publication series providing a synthesis of topics of research and policy advice on which European Centre researchers have been working recently.

The aim of this Brief is to estimate the degree of social exclusion at the EU level, and to identify the country clusters related to this, and also to present the level and the trend of poverty at country level.[1]

According to Europe 2020 targets risk of exclusion should be measured by three indicators: at-risk-of-poverty, severe material deprivation and living in households with very low work intensity. The EU-SILC for 2009 suggests that overall 113 million people in the EU are at risk of exclusion according to at least one of these indicators. The largest group among these are those with income below 60% of the national median – some 80 million people as against 35 million who are materially deprived and 37 million who live in households with low work intensity.

Some 6.5 million people, or 6% of the total defined to be at risk of exclusion, are deprived according to all three indicators. Only a minority, therefore, can be defined as suffering from severe cumulative disadvantage.

We explored the natural grouping of the three indicators of social exclusion at a country level across the EU. At a larger level, we find a cluster of six East-European countries (Hungary, Poland, Lithuania, Latvia, Bulgaria and Romania) and the rest of the EU. On a more detailed level, we can identify four country groups.

The rate of poverty varies between 9% and 26% across EU Member States. Rates are lowest in the Czech Republic, Slovakia, the Netherlands, and Slovenia, and above average in Bulgaria, Romania, the Baltic States, and the Southern countries: Greece, Italy, Portugal and Spain. As the generally

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accepted EU definition of poverty is based on national standards, people can be poor with rather different incomes in various countries. We find that the poverty gap is larger in countries with higher rates of poverty, in other words, the poor tend to have lower incomes compared to the poverty threshold value.

Between 2004 and 2008, the proportion of population at risk of poverty declined in the Czech Republic, Ireland, Poland, and Slovakia, and is likely to have declined in Luxembourg and Portugal. In contrast, the proportion at risk of poverty increased in Germany, Finland, Latvia, Malta, and Sweden. In the majority of countries there was no statistically significant change in the at-risk-of-poverty rate over the 5 years.

We explored the robustness of our results by the estimation of confidence intervals for the poverty rates, and the use of alternative threshold values.
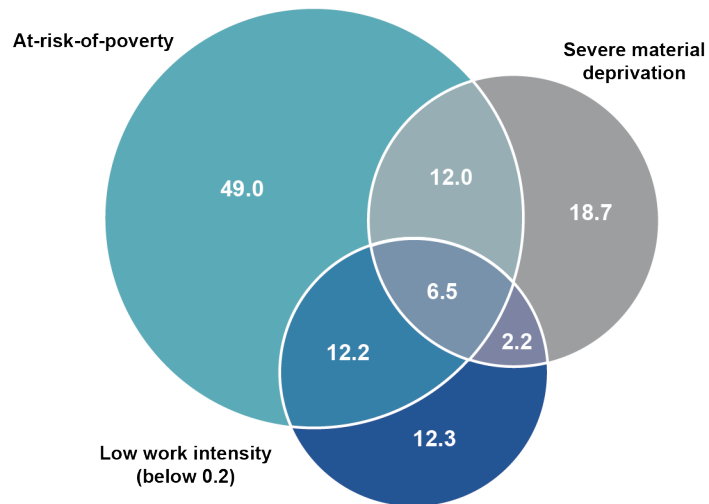
Social exclusion in the EU: exploring cumulative disadvantage

One of the headline targets of the Europe 2020 Strategy is to lift at least 20 million people out of the risk of poverty or exclusion. The indicator used is a combination of three indicators: people living in households with very low work intensity, those at risk of poverty and those experiencing severe material deprivation. The 20 million target refers to people who are identified by any of these as socially excluded: thus, those with either low incomes, or low work intensity or those who are deprived.

113 million people in the EU are at risk of exclusion. The EU-SILC for 2009[2] suggests that overall 113 million people in the EU are at risk of exclusion according to at least one of these indicators (being at risk of poverty, severely deprived or living in households with very low work intensity). The largest group among these are those with income below 60% of the national median – some 80 million people as against 35 million who are materially deprived and 37 million who live in households with low work intensity.

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2   The EU-SILC (Statistics on Income and Living Conditions) survey covers 27 EU Member States, with nationally representative samples of the population in each of them. The total sample size for each year is around 500 thousand observations, with a minimum of 10 thousand observations per country.

Figure 1:

Overlap between those at risk of poverty, severe material deprivation and low work intensity in the EU, number of people (millions), 2009

Source: Own calculations based on EU-SILC 2009 – version of August 2011

Note: *At-risk-of-poverty* = Persons with an equivalised disposable income below the risk-of-poverty threshold, which is set at 60 % of the national median equivalised[3] disposable income (after social transfers).
Low work intensity = People living in households with very low work intensity are people aged 0-59 living in households where the adults worked less than 20% of their total work potential during the past year.
Severe material deprivation = Severely materially deprived persons have living conditions severely constrained by a lack of resources, they experience at least 4 out of 9 of the following deprivation items: cannot afford to i) pay rent or utility bills, ii) keep home adequately warm, iii) face unexpected expenses, iv) eat meat, fish or a protein equivalent every second day, v) a week holiday away from home, vi) a car, vii) a washing machine, viii) a colour TV, or ix) a telephone.

6.5 million people suffer from severe cumulative disadvantage

Some 6.5 million people, or 6% of the total defined to be at risk of exclusion, are deprived according to all three indicators. Only a minority, therefore, can be defined as suffering from severe cumulative disadvantage.

There is limited overlap between the measures of the risk of poverty and severe material deprivation (80% of the former are not severely materially deprived). The main reason is that the former indicator is based on country-specific thresholds, while the latter uses the same criterion across EU countries. As a consequence, material deprivation captures absolute rather than relative income differences across countries, and is highest in the lowest income countries.

The majority of working-age people who live in households with low work intensity tend to be at risk of poverty. On the other hand, only one quarter of those at risk of poverty are affected by low work intensity (note that those of 60 and over are excluded from the calculation of the latter indicator).

3   It is an adjustment for household size. Calculation of equivalised household size: the first member of the household is weighted by 1, following adults receive a weight of 0.5 each, and children (defined as those aged 13 or less) receive the weight of 0.3 each.

There is a stronger relationship between low work intensity and the risk of poverty than between low work intensity and severe material deprivation. Low work intensity affects earnings and therefore incomes but may be only a temporary phenomenon. Material deprivation is more likely to reflect purchasing power over the longer term (since it also includes possession of consumer durables which may have been purchased in the past when the household had a higher income level).

Country clusters of social exclusion indicators

Four country clusters We explored the natural grouping of the three indicators of social exclusion at a country level across the EU. We used cluster analysis, in order to analyse country-level indicators and to identify country groups consisting of countries that are similar to each other. At a larger level, we find a cluster of six East-European countries (Hungary, Poland, Lithuania, Latvia, Bulgaria and Romania) and the rest of the EU. On a more detailed level, we can identify four country groups (see Figure 2).

- In the first group, with Hungary, Poland, Latvia and Lithuania, countries tend to be characterized by high rates of (severe) material deprivation and poverty risk (12-21% and 12-26%, respectively). Hungary is somewhat distinct from the other three countries (which are actually geographical neighbours), with a relatively worse work intensity and material deprivation indicators and somewhat better poverty risk measure than the others.
- The second "resource-poor" cluster, with Bulgaria and Romania, suffers from an extremely high extent of (severe) material deprivation (27-37%).
- The third cluster of "better than average" countries includes a large number of heterogeneous countries, which perform above the EU average in most indicators.
- The fourth group, with Germany, the UK, Ireland and Belgium, is characterized by an above-average share of low work intensity rates (12-24%), below average share of people suffering from severe material deprivation (3-6%), and at-risk-of-poverty rates around the EU average (see Table 1). The weakness of these countries is low work intensity: in order words, a high share of people lives in jobless households or in households with little labour market engagement. In contrast to this "work-poor" group, there are two "resource-poor" country groups.
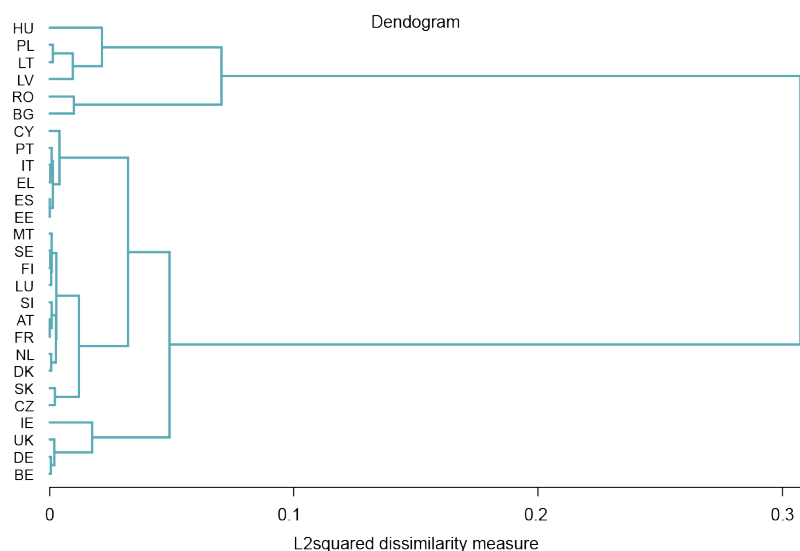
Figure 2:

Tree diagram of three lead social exclusion indicators across the EU

Source:
Own calculations based on EU-SILC 2009 data – version of 1 March 2011

Notes:
hierarchical cluster analysis with 27 cases (each EU Member State); the Ward's method is used, which minimizes the sum of squares of any pair of clusters to be formed at a given step; the country clustering of the three key social exclusion indicators is analysed (severe material deprivation, low work intensity, at-risk-of-poverty rate).

For a definition of these indicators, see Figure 1.

Dendogram

L2squared dissimilarity measure

Table 1:

Three indicators of social exclusion, by country groups, 2008 (% of total population)

	Severe material deprivation	At risk of poverty	Very low work intensity
Group 1 –"resource-poor" countries, with high material deprivation with above-average poverty risk			
HU	21	12	12
PL	12	17	8
LT	13	21	7
LV	17	26	7
Group 2 – "resource poor" countries, with extremely high material deprivation with above-average poverty risk			
RO	27	22	8
BG	37	22	7
Group 3 – „good performers" – countries with above average values in most indicators			
CY	4	16	3
PT	7	18	7
IT	4	18	9
EL	5	20	8
ES	3	19	7
EE	4	20	6
MT	3	15	9
SE	2	13	7
FI	1	14	9
LU	0	15	7
SI	3	11	6
AT	3	12	8
FR	3	13	8
NL	1	11	10
DK	2	13	11
SK	9	11	6
CZ	5	9	6
Group 4 – "work-poor" countries, affected most by low work intensity			
IE	6	15	24
UK	5	17	15
DE	5	16	12
BE	3	15	13
EU27	7	16	9

Source:
Own calculations based on EU-SILC 2009 data – version of 1 March 2011

Note:
For a definition of these indicators, see Figure 1.

Note that this natural clustering highlights that Cyprus and Malta differ from the other NMS12 countries (which is of little surprise), but also that Estonia, Slovenia, the Czech Republic and Slovakia perform better, with less social exclusion. We can also observe that there is a Mediterranean cluster of countries (with Cyprus, Portugal, Italy, Greece, Spain and interestingly also Estonia), which share common features.
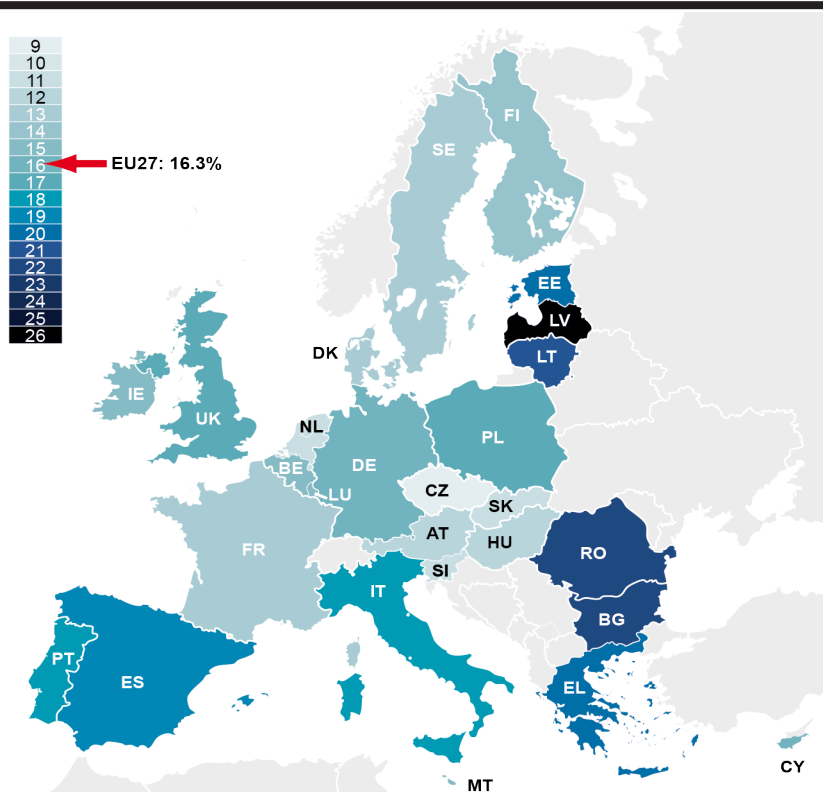
Risk of poverty in EU Member States

In 2009, 80 million people were at-risk-of-poverty in the EU.

16% of the population were at risk of poverty across the European Union according to the EU-SILC survey carried out in 2009. In the sense of having income below 60% of the median of the country in which they live, this amounts to a total number of 80 million people. The proportion concerned varied between 9% and 26% across EU Member States. It was: lowest in the Czech Republic, Slovakia, the Netherlands, and Slovenia, and above average in the Baltic States, Bulgaria, Romania and the Southern countries, Greece, Italy, Portugal and Spain.

Since the risk of poverty is a relative measure which is country-specific, the poverty thresholds differ greatly across countries in terms of the purchasing power they represent. The average poverty threshold in the 12 countries which have entered the EU since 2004 was only around half the average in the other 15 Member States in purchasing power terms and much less in terms of Euros.

Figure 3:
At-risk-of-poverty rates across the EU, 2008 income year

Source:
Own calculations based on EU-SILC 2009 – version of August 2011

EU27: 16.3%

Margins of error of the risk of poverty figures

The figures for the risk of poverty are normally presented as single values. But since they are based on the information collected from only a sample of households, they are inevitably subject to a margin of error, even if the sample concerned is intended to be representative of the population of the country. The size of these margins of error depends to a large extent on the size of the sample, i.e. the number of people surveyed relative to the population of the country. It is important to take explicit account of these margins of error when assessing differences between countries or changes over time, otherwise there is a danger of reaching misleading conclusions. In particular, differences arising from these margins of error can be confused with real differences in the figures. To avoid this, 'confidence intervals', representing the margin of error, can be calculated around the risk of poverty figure, which indicate the range within which the true figure is likely to lie.
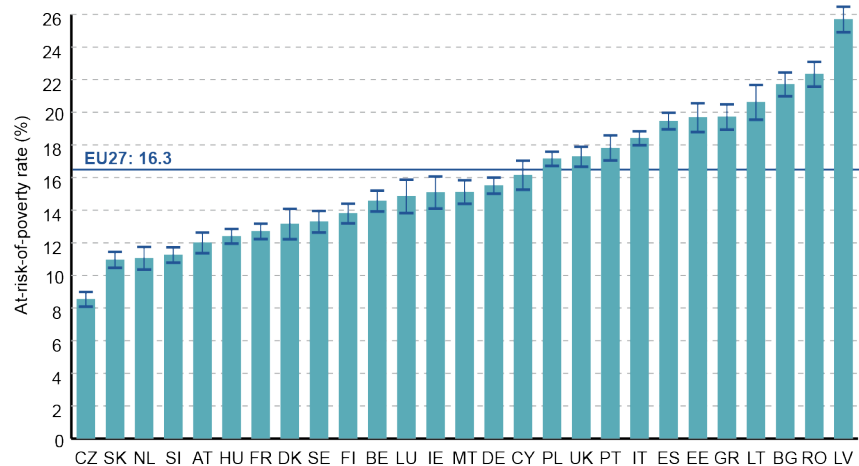
Calculating a conventional 95% confidence interval for each country (meaning that there is a 95% probability of the true figure being within the calculated range) indicates an average range of about 1 percentage point around the at-risk-of-poverty figure within which the true figure is likely to lie (Figure 4). There is, however, some variation across countries. For example, for the Czech Republic the range is 8.1-9.0%, while for Latvia, it is 24.9%- 26.5%.

Point estimates of poverty may differ, but often the difference is not statistically significant.

Albeit the estimated means may differ, the extent of poverty is not necessarily statistically different between countries. For example, the population at risk of poverty in Austria is 12.0% if simply calculated from the EU-SILC data, while in Denmark it is 13.2%. But once the confidence intervals are taken into account, the two figures are not statistically different and it is not possible to say that one is higher or lower than the other.

On the other hand, the proportion of the population at risk of poverty in the Czech Republic, which is the lowest in the EU, is lower than that in the Netherlands, the second lowest, even taking account of confidence intervals, and the same is true for Romania, which has the second highest proportion, as compared with Latvia, which has the highest.

Figure 4:

Proportion of population at risk of poverty across the EU, 2008 income year

The average poverty threshold for the EU12 Member States is only about half of the average for the EU15 (in PPS).

Note, however, that the at-risk-of-poverty threshold is by definition relative and country-specific. The actual level of income represented by the threshold differs substantially across Member States. The average poverty threshold for the EU12 Member States (countries which entered the EU in 2004 and 2007) is only about half of the average for the EU15, if measured in purchasing power terms. The disparity is even wider in terms of Euros.[4]

The threshold set to measure the risk of poverty is largely arbitrary. In addition to the 60% threshold value used here, alternative thresholds set at 40% and 50% of the national median income are also commonly used. The choice of the particular threshold value determines the proportion of population calculated to be at risk of poverty. Poverty rates range between 2% and 11% with a 40% threshold, between 5% and 19% with a 50% one, and between 16% and 32% with a threshold of 70%.[5]

Poverty trends across the EU

Change in risk of poverty, 2004-2008, allowing for confidence intervals

The estimation of long-term trends in at-risk-of-poverty rates is problematic in the EU because of the absence of a consistent data source.[6] The use of a single, consistent data source, the EU-SILC, enables a time period of 5 years for the EU25 countries, and of seven years for a few

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4   For the specific figures and more details, see www.socialsituation.eu.
5   For the specific figures and more details, see www.socialsituation.eu.
6   Poverty trends for the period since 1995 were set out and discussed in Ward et al. (2009).

countries[7]. For Bulgaria and Romania, there are only three years of EU-SILC data available.

Even for a consistent data set, it is necessary to calculate confidence intervals in order to obtain a meaningful indication of changes in the population at risk of poverty over this period.

No statistically significant change in most countries. Decline in CZ, IE, PL, SI and the UK, and increase in DE, FI, LV, MT and SE.

Between 2004 and 2008, the proportion of population at risk of poverty declined in the Czech Republic, Ireland, Poland, and Slovakia, and is likely to have declined in Luxembourg and Portugal. In Poland and Slovakia, there was no significant change during the last three years. In UK, the data suggests a substantial drop in 2008. In contrast, the proportion increased in Germany, Finland, Latvia, Malta, and Sweden (Figure 5). The small increase in Italy from 2004 to 2006 has reversed in 2007. In the majority of countries there was no statistically significant change in the at-risk-of-poverty rate over the 4 years.

The rates fluctuated upwards and downwards in some countries, most strikingly in Sweden, Latvia and Hungary. In Latvia, the large increase between 2006 and 2007 is partly due to the rise in the threshold[8], which increased by 44% in terms of Euros and by 32% in PPS terms. This was much more than in the other Baltic States (17-22% in PPS terms – see the section on the change in at-risk-of-poverty rate anchored in 2004). The at-risk-of-poverty rates in Hungary and Germany in 2005 are subject to measurement errors (the former being overestimated, the latter underestimated).[9]
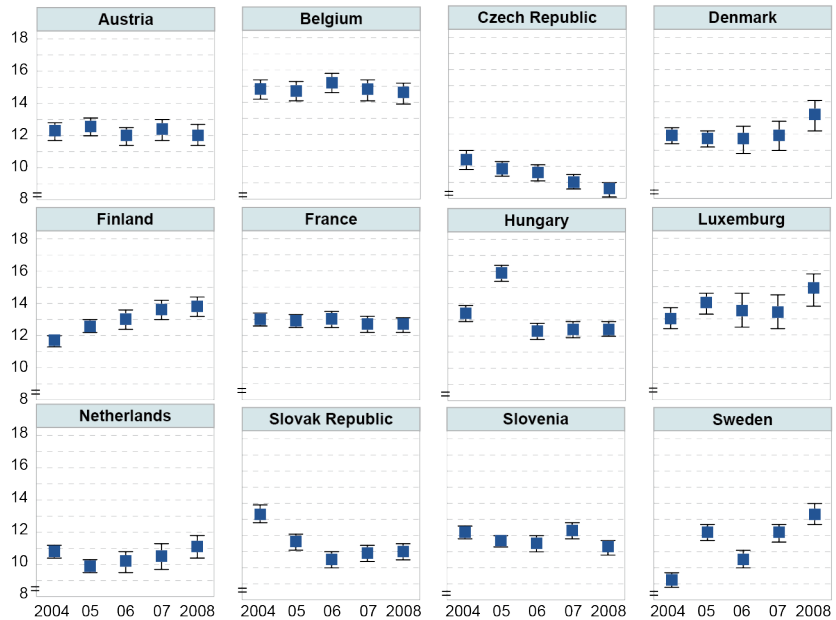
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7   These countries include: BE, DK, IE, EL, LU, and AT.
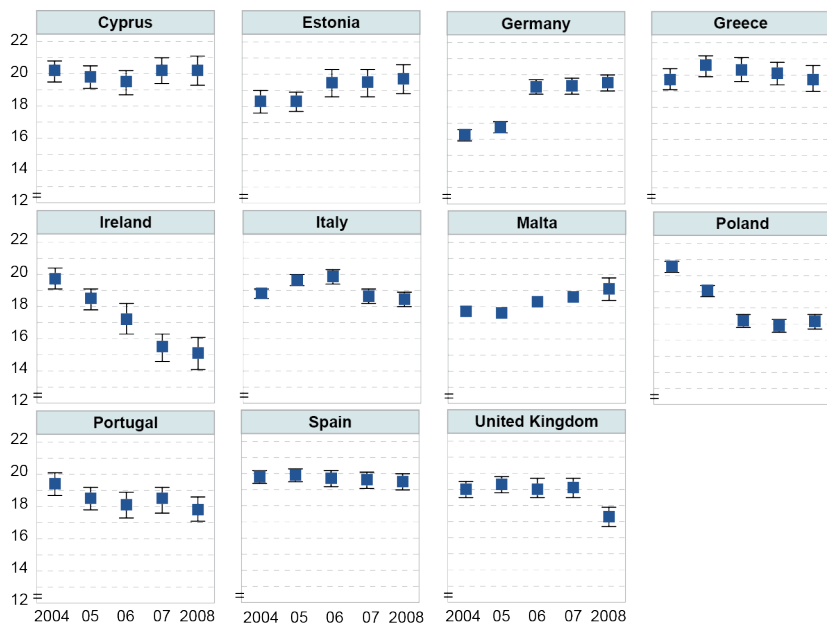8   Threshold value for households with two adults with two children younger than 14 years.
9   See Ward et al. (2009, p. 44). For Germany, see Frick and Krell (2009) who point out differences between the EU-SILC and the German panel study (SOEP), both in terms of the level and trend in risk-of-poverty rates. They argue that the EU-SILC is affected by sample bias and methodological problems (e.g. rather than face-to-face interviews, it was conducted as a postal survey), and that it under-represents the migrant population due to the exclusive use of German as a language in the questionnaire. One of the main issues of comparability related to the sampling method has been resolved already. Starting with EU-SIIC 2008, the survey is now based on a random sample (during a transition period until 2007, part of the German sample was obtained through a representative quota sample) (Pressemitteilung des Statistischen Bundesamtes Nr. 457, 27.11.2009).

Figure 5:

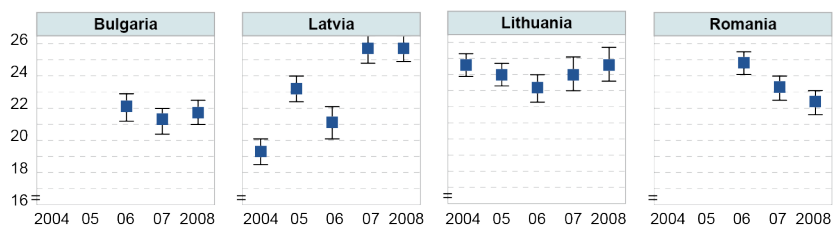Change in at-risk-of-poverty rate, 2004-2008 income year, including confidence intervals of estimates

Countries with relatively low risk of poverty (below 15%)

Countries with relatively high risk of poverty (15-20%)

High level of poverty (above 20%)

Change in risk-of-poverty rate anchored in 2004

Indicator showing changes in the absolute situation of people

The "change in risk-of-poverty rate anchored in 2004" is defined as the proportion of the population whose equivalised disposable income is below the 'at-risk-of-poverty threshold' in a particular year – the EU indicator currently uses 2004[10] – adjusted for inflation. Comparison of changes in this measure with those in the "standard" at-risk-of-poverty rate gives an indication of changes in the absolute situation of those on low incomes in relation to changes in the relative situation. In other words, the former takes explicit account of the overall change in price levels, so if there is an increase in real incomes, as typically is, this implies that everyone, including those at risk of poverty, becomes better off over time. In contrast, the standard measure accounts for changes in average income levels (including the price effect and changes in the real income).

Because the anchored measure is adjusted for inflation, it can also be considered as indicating the changing proportion of the population who can afford to purchase a fixed basket of goods and services. However, since the basket of goods and services which is considered to be the minimum acceptable to avoid the risk of social exclusion itself tends to expand over time as real incomes grow, it can equally be argued that the standard indicator of the at-risk-of-poverty rate, which takes account of such an expansion, is the most relevant one for measuring changes in those at risk of poverty.

Declining number of poor according to 2004 standards (adjusted for inflation). The proportion of people at risk of poverty, with the threshold anchored in 2004, declined across most of the EU.
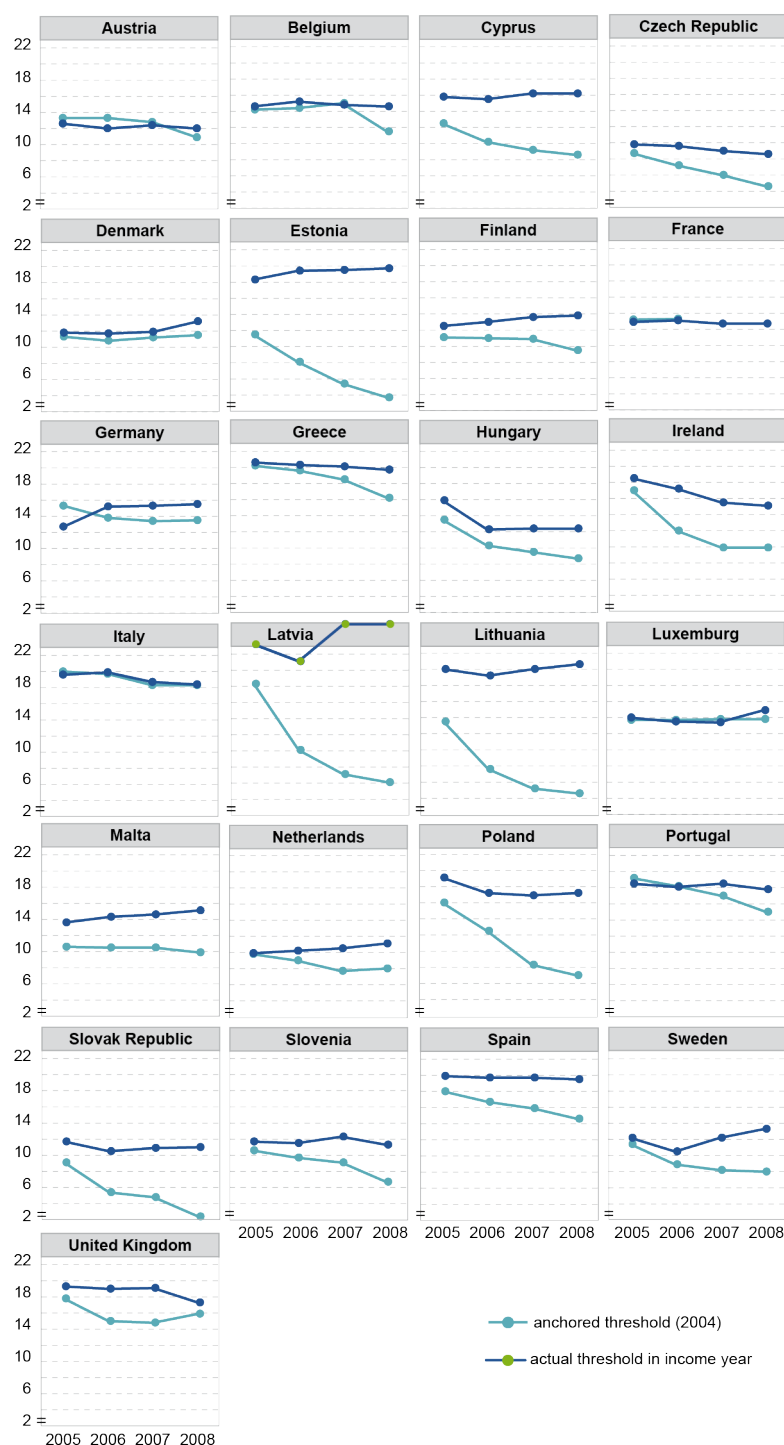
The proportion of people at risk of poverty, with the threshold anchored in 2004, declined between 2005 and 2008 across most of the EU25. The exceptions are Belgium, Denmark, Luxembourg and Malta where there was no significant change. Accordingly, this suggests that an increasing number of people in most parts of the EU could afford to buy a fixed basket of goods and services over the period.

Divergence between the trends of the at-risk-of-poverty rates using "anchored" values and those using values based on current incomes: the low income groups may be better off in absolute terms, but can still lag behind relative to contemporary standards.

This trend, however, is coupled in many countries with an increasing proportion of people with income below the poverty threshold as measured in the standard way in relation to the median income of the current year. The difference between the changes in the two indicators is particularly striking in the three Baltic States, Cyprus, Ireland, Poland and the Slovak Republic, but it is also evident in many other countries. Why do the two trends differ? The main reason is a shift in the shape of the income distribution curve, with incomes of those towards the upper end of the scale increasing more than for those towards the lower end. This, accordingly, pushes up the median and the number of people with income below the poverty threshold calculated as 60% of this median.

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10 Note that the Eurostat defines the base year as "2005". As, however, the 2005 survey year refers to incomes in 2004, we refer to 2004 here as the base year.

Figure 6:

Change in at-risk-of-poverty
rate anchored in income year
2004, %points

Notes:
The indicator is defined as the percent-
age of the population whose equivalised
disposable income is below the 'at-risk-of-
poverty threshold' calculated in relation
to a base year of 2004 (i.e. the income
year), and then adjusted for inflation. Data
for anchored at-risk-of-poverty rates for
France 2007 and 2008 is not available.

On the other hand, the two indicators moved in the same direction in a number of other countries: Austria, Denmark, France, Italy, and Luxembourg. In these cases, therefore, the incomes of those at the lower end of the scale tended to change broadly in line with the median, which is not necessarily a result of labour markets behaving differently in these countries compared to the others and earnings differentials remaining broadly similar but perhaps a consequence of governments preserving the relative incomes of those at the bottom end of the scale via tax and benefit policy.

Further evidence

- Information on the Social Situation Observatory – network on "Income distribution and living conditions" (including Annual Monitoring Reports, Resarch Notes and Seminars) can be found under: http://www.socialsituation.eu and on the website of the European Commission (http://ec.europa.eu/social/main.jsp?catId=676&langId=en).
- *European Inequalities: Social Inclusion and Income Distribution in the European Union* (2009. Edited by Terry Ward, Orsolya Lelkes, Holly Sutherland, István György Tóth; ISBN 978-963-7869-40-2; Budapest: TÁRKI Social Research Institute Inc.)
  This book summarizes four years of research. It gives an overview of the comparative information that is available for the EU Member States on income distribution, poverty and its causes, access to benefits and social services, and material deprivation.
- Additional evidence on poverty threshold values and the relationship between poverty gap and risk of poverty: Orsolya Lelkes, Katrin Gasior (2011) "Income Poverty in the EU. Situation in 2007 and Trends (based on EU-SILC 2005-2008)". Policy Brief January 2011 (1). Vienna: European Centre for Social Welfare Policy and Research.

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