Has Income Inequality Spiked in Germany?

by Markus M. Grabka, Jan Goebel and Jürgen Schupp

New analyses of personal income distribution in Germany, based on data from the German Socio-Economic Panel (SOEP), show that real market income in private households rose significantly from 2005 to 2010. An increase in real disposable income was also observed. At the same time, income inequality decreased in both western and eastern Germany. However, the latter showed a further spread at the lower end of disposable income distribution. In the course of this development, the poverty risk in western Germany fell slightly from 2009 to 2010, while it remained unchanged in the eastern part of the country.

This report updates and expands on previous studies by DIW Berlin on income inequality and poverty risk (relative income poverty) up to 2010.[1] Compared to previous publications by DIW Berlin, in which the results were assigned to the survey year, this report shows the year when the income was received (income year). This means that annual income is shown for the year before the relevant survey year. However, the demographic structure of private households relates to the survey year, as in all previous publications by DIW Berlin. Consequently, the current data on annual income from the 2011 survey relates to income for the 2010 calendar year with the demographic structure of the first half of 2011.[2]

The empirical basis of the data collected by DIW Berlin, in cooperation with the fieldwork organization TNS Infratest Sozialforschung, was from the German Socio-Economic Panel study (SOEP),[3] which enables the development of personal income distribution in Germany to be analyzed over consistent time frames due to repeated annual data capture.

1 See M.M. Grabka and J.R. Frick (2010), „Weiterhin hohes Armutsrisiko in Deutschland: Kinder und junge Erwachsene sind besonders betroffen," Wochenbericht des DIW Berlin, no. 7 and J. Goebel and M.M. Grabka (2011), „Zur Entwicklung der Altersarmut in Deutschland," Wochenbericht des DIW Berlin, no. 25.

2 By changing the income year, DIW Berlin is following the procedure laid out in the draft of the 4th Poverty and Wealth Report by the Federal government, the Federal Ministry of Labor and Social Affairs 2012: Living circumstances in Germany, and in the report by the German Council of Economic Experts, last Annual Report 2011/2012: Taking responsibility for Europe.

3 The SOEP is an annual, representative follow-up survey of private households which has been conducted in West Germany since 1984 and in eastern Germany since 1990, see G.G. Wagner, J. Goebel, P. Krause, R. Pischner, and I. Sieber (2008), „Das Sozio-oekonomische Panel (SOEP): Multidisziplinäres Haushaltspanel und Kohortenstudie für Deutschland – Eine Einführung (für neue Datennutzer) mit einem Ausblick (für erfahrene Anwender)," AStA Economic and Social Statistical Archive 2, no. 4: 301–328.

2005-2010: Increasing Incomes...

The average equivalized and inflation-adjusted market incomes of persons in private households remained virtually unchanged from 1991 to 1998. At the end of the '90s, they increased significantly in line with the economic boom, but then decreased again up to 2005 (see Figure 1, see Box 1 for the definition and measurement of income). In western Germany, average market incomes declined by approximately 1,000 euros (-4 percent) from 1999 to 2005, while in eastern Germany it was about 2,000 euros (-13 percent). This decrease was primarily due to a deterioration in the labor market; the number of unemployed in eastern Germany increased significantly more than in western Germany during this period.

The significant reduction in unemployment observed since then has been accompanied by a change to the income development trend. From 2005 to 2010, market income, the main component of which was earned income, increased by almost 1,000 euros or four percent in western Germany. Consequently, average market income was once again as high as it was at the turn of the century. In eastern Germany, where unemployment declined more than in the west, income growth was much stronger at just under 2,900 euros or 20 percent. On average, income in eastern Germany was just under 71 percent of that in western Germany.

Box 1

Definitions, Methods and Assumptions in Measuring Income

The analyses presented in this report are based on the German Socio-Economic Panel Study (SOEP), a longitudinal survey of primarily annual household income. Here, all the income components affecting the surveyed household as a whole, as well as all the individual gross incomes of the respondents currently in the household (market income is the sum of capital and earned income, including private transfers and private pensions) are added together in the survey year *(t)*—with its demographic structures (in the first half of each observation year) for the relevant calendar year *(t-1)* (income year). In addition, income from state pensions and social transfers (income support, housing benefit, child benefit, support from the German Employment Agency, and others) are taken into account, and then net annual income is calculated using a simulation of tax and social security contributions—one-time payments are also taken into account (13th and 14th month salaries, Christmas bonuses, holiday pay, etc.).

The annual burden of personal income tax and social security contributions is based on a micro-simulation model,[1] which implements a tax assessment taking into account all types of income covered by the German Income Tax Act, as well as allowances, advertising costs, and special expenses. Due to the complexity of German tax law, not all special tax regulations can be simulated with the aid of this model. On the basis of net income calculated by the SOEP, it should be assumed that actual income inequality is underestimated.

Since the reference to the income year has now become established in reports on poverty and wealth published by the German government, contrary to earlier publications by DIW Berlin, results in this report refer to the income year (and no longer to the survey year). Here, it should be pointed out that the demographic structure of households refers to the survey year, which, for this reason, was chosen as a temporal reference point in previous publications.

According to international literature,[2] notional (net) income components from owner-occupied housing ("imputed rent") are also added to income. In addition, non-monetary income components from cheaper rental housing (social housing, private or employer-subsidized housing, households paying no rent) are also taken into account in the following, as required by the European Commission for EU-wide income distribution accounting based on EU-SILC.

1 J. Schwarze (1995), „Simulating German income and social security tax payments using the GSOEP. Cross-national studies in aging," Program project paper, no. 19, (Syracruse University, US).

2 See: J.R. Frick, J. Goebel, and M.M. Grabka (2007), „Assessing the distributional impact of „imputed rent" and „non-cash employee income" in microdata," European Communities (ed.): Comparative EU statistics on Income and Living Conditions: Issues and Challenges. Proceedings of the EU-SILC conference (Helsinki, 6-8 November 2006), (EUROSTAT: 2007): 116-142.

The development of disposable household income was broadly similar to that of market income.[4] It can be divided into three phases. Up to 1999, real equivalized household income rose only slightly in western Germany. In eastern Germany, however, it increased dramatically during the transformation process, bringing the two parts of the country closer in line with each other (see Figure 2). In the subsequent years up to 2005, disposable income stagnated in the west, or in terms of average income, the median,[5] it even declined. At more than six percent in eastern Germany, this decline was more pronounced than in western Germany. From 2005 to 2010, real incomes rose again in Germany. However, the severe economic crisis of 2008/2009 has—unlike, for example, in the United States[6]—not had any long-term impact on the labor market and consequently on

4 Disposable household income consists of market income, statutory pensions, and state benefits such as child benefit, housing benefit, and unemployment benefit, less direct taxes and social security contributions.

5 If the population is sorted according to level of income and then two groups of equal size are formed, the median shows the income received by the income earners at the center of the distribution.

6 As a result, the median of total income (before payments for personal income taxes, social security, union dues, medicare deductions, etc.) in the US from 2007 to 2010 in real terms has decreased by 6.7 percent, U.S. Census Bureau, „Current Population Survey," Annual Social and Economic Supplement. www.census.gov/hhes/www/income/data/historical/household/2011/H10AR_2011.xls.

The income situations of households of various sizes and compositions—according to international standards—are compared by translating them into equivalized incomes (per capita incomes weighted to needs). This involves using a generalized demand scale proposed by the OECD and universally accepted in European statistics, and each household member is assigned a calculated equivalized income, with the assumption that all household members benefit equally from the joint income. The head of the household is given a needs weighting of 1; each additional adult is given a weighting of 0.5 and children up to 14 years are given a weighting of 0.3. Thus an economy of scale is assumed for larger households. This means that, for example, the household income for a four-person household (parents and a 16 and 13-year-old child) is not divided by 4 as in a per capita calculation (= 1 +1 +1 +1) but by 2.3 (= 1+0.5+0.5+0.3).

One particular challenge in all population surveys is the proper inclusion of missing information for individual interviewees, particularly for questions considered sensitive, such as those about income. Households often refuse to give information, especially if the household's income is either above or below average.

In the SOEP data analyzed here, missing data are replaced using complex, cross-sectional and longitudinal-based imputation procedures.[3] This also applies to missing information where individual members of otherwise willing households have refused to provide details. In these cases, a multi-level statistical method is applied to six individual components of gross income components (earned income, pensions and transfer payments in the event of unemployment, training/study, maternity pay/child benefit/parental benefits and private transfers).[4] As a result, not only is data from even earlier survey years (for example, data from *t-2* for *t-1*) used for missing data in earlier survey years (up to *t-1*), but also for future data (for example, data from t for *t-1*). All the missing data are imputed, also retroactively, for each new data survey which can lead to changes in previous evaluations (as between SOEP version v27 and v28, see Box 3). However, these changes are generally minor. Since no information for *t+1* is available at the current boundary (*t*), the imputation for the current survey boundary is less certain than that for *t-1* and earlier survey years, which is why a further wave of collected data at the current boundary may lead to relatively larger changes in imputed values.

Since first-time respondents provide less accurate information, especially for income data, than people familiar with the SOEP, the first wave of individual SOEP random samples is excluded from the calculations. Studies show that the respondents' behavior is subject to learning effects after the first survey.[5]

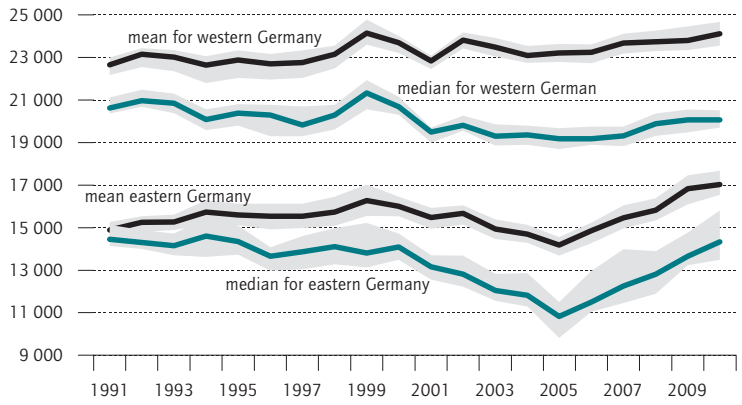
3 J.R. Frick and M.M. Grabka (2005), „Item Non-response on Income Questions in Panel Surveys: Incidence, Imputation and the Impact on Inequality and Mobility," Allgemeines Statistisches Archiv, 89(1): 49–61.

4 J.R. Frick, M.M. Grabka, and O. Groh-Samberg (2012), „Dealing with incomplete household panel data in inequality research," Sociological Methods and Research, 41 (1): 89-123.

5 J.R. Frick, J. Goebel, E. Schechtman, G.G. Wagner, and S. Yitzhaki (2006), „Using Analysis of Gini (ANOGI) for Detecting Whether Two Subsamples Represent the Same Universe: The German Socio-Economic Panel Study (SOEP) Experience," Sociological Methods Research vol. 34 no. 4: 427–468.

Figure 1

Real Household Market Income[1]
In euros at 2005 prices



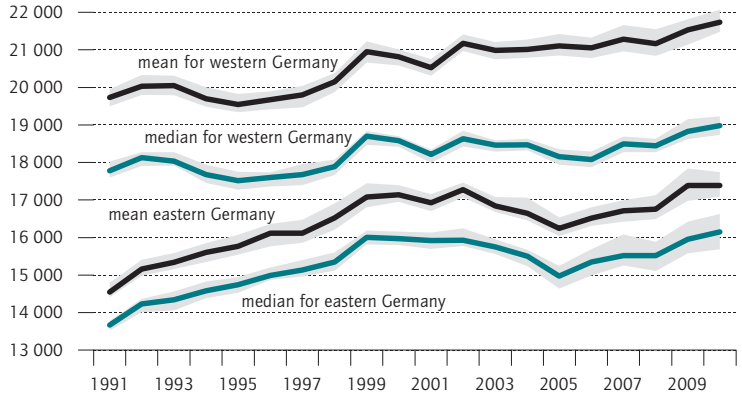
1 Data on annual incomes gathered in the following year, market income including a nominal employer contribution for civil servants, needs-weighted in line with the modified OECD equivalence scale. The gray shading shows the 95-percent confidence bands (see Box 3).

Source: SOEPv28.

Market incomes have increased more in eastern Germany than in western Germany since 2005.

Figure 2

Real Disposable Household Income[1]
In euros at 2005 prices



1 Data on annual incomes gathered in the following year included the rental value of owner-occupied housing, needs-weighted in line with the modified OECD equivalence scale. The gray shading shows the 95-percent confidence bands (see Box 3).

Source: SOEPv28.

Disposable incomes and market income developed along similar lines.

the disposable income of private households.[7] In western Germany, the increase in real disposable income from 2005 to 2010 amounted to just over 600 euros (three percent). Income in eastern Germany increased by more than 1,100 euros (seven percent). Nevertheless, incomes in eastern Germany still average only four-fifths of western German income levels.

Looking only at the development from 2009 to 2010 for Germany as a whole, there are clear differences between the income groups. The lower 40 percent of the population were able to increase their disposable income in real terms by an above-average two percent. This development was accompanied by an increase in the number of people with earned income by around 700,000.[8] Moreover, the collective wage increases during this period were higher than in previous years and this is likely to have also been reflected in actual earnings.[9] In contrast, medium and high disposable incomes remained static in 2010. The decline in income from assets would have played a considerable role here.

...and Reduced Income Inequality

The standard unit for measuring income inequality is the Gini coefficient. It can have values between 0 and 1. The higher the value, the more pronounced the inequality. According to this measurement, the inequality of market incomes in eastern Germany during the transformation process was statistically significant and rose from 0.37 in 1991 to 0.55 in 2005 (see Figure 3). The inequality of market incomes in western Germany also rose appreciably during this period, but much less than in eastern Germany. Since the mid-90s, the distribution of market incomes in eastern Germany has been significantly less equal than in the west.

From 2005 onwards, during the economic upturn and the subsequent improvements in the labor market situation, income inequality in the whole of Germany decreased. This development was more pronounced in

7 M.C. Burda and J. Hunt (2011), „What Explains the German Labor Market Miracle in the Great Recession?," NBER Working Paper, no. 17187, and J. Hunt (2012), „Flexible Work Time in Germany: Do Workers Like It and How Have Employers Exploited It Over the Cycle?," SOEP papers, no. 489, DIW Berlin. Despite this, it cannot be ruled out that the type of survey in the SOEP underestimate the effects of the financial market and economic crisis, since it does not ask about the precise gross income from gainful employment for every month in the previous year but only an average amount.

8 The number of employees paying social insurance contributions increased to 550,000 from December 2009 to December 2010, see Federal Employment Agency, Arbeitsmarkt in Zahlen (2012). Beschäftigungsstatistik. Beschäftigung nach Ländern in wirtschaftlicher Gliederung (WZ 2008). (June 2012).

9 R. Bispinck (2011), Tarifpolitischer Jahresbericht 2010. (Wirtschafts- und Sozialwissenschaftliches Institut in der Hans-Böckler-Stiftung (WSI).

eastern than in western Germany. The Gini coefficient decreased by almost nine percent in the east, and by three percent in the west. In both parts of the country, market income inequality declined to where it was at the beginning of the last decade.[10]

In addition to the Gini coefficients, income inequality in terms of disposable household income is also measured using mean logarithmic deviation (MLD). This indicator is more sensitive to changes in the lower half of the distribution than the Gini coefficients.

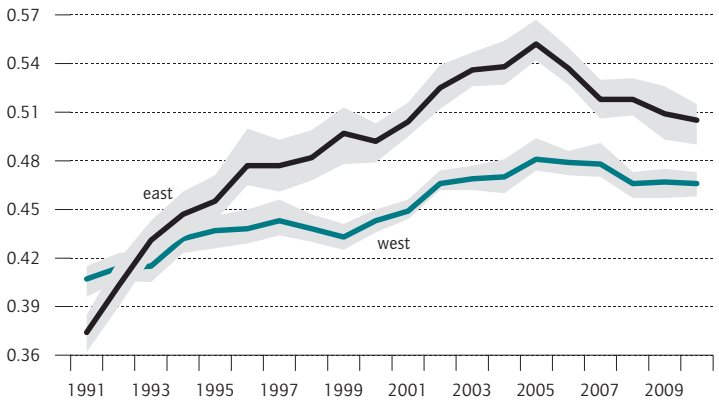
Changes since 1991 can be roughly divided into three phases. From 1991 to 2000, inequality in the distribution of disposable household income barely changed, but it then increased significantly up until 2005 (see Figure 4). Consequently, income inequality from the early 1990s to 2005, measured using the Gini coefficients, increased by almost 20 percent in both parts of the country. From 2005 to 2010, the inequality of disposable income in western Germany declined, parallel to the development of market income (Gini coefficient: -4 percent, MLD: -9 percent). However, this trend is only statistically significant in the choice of a somewhat narrower confidence band with only 90 per cent (instead of 95 percent) robustness over random statistical errors.

The situation is different in eastern Germany. Here, disposable income inequality remained static between 2005 and 2010. For MLD coefficients with 90 percent certainty, there was even an increase from 2007 to 2010. This suggests growing inequality in the bottom half of income distribution.

Disposable income inequality did not decline in eastern Germany, despite decreases in market income, because the employment rate in eastern Germany continued to be lower than in the west and pensioners' income has a greater weight in eastern Germany. Certainly, pensioners have suffered real income losses since 2000 but positive developments among the employed have not compensated for this.

Figure 3

Inequality of Real Market Household Income[1]
Gini coefficient



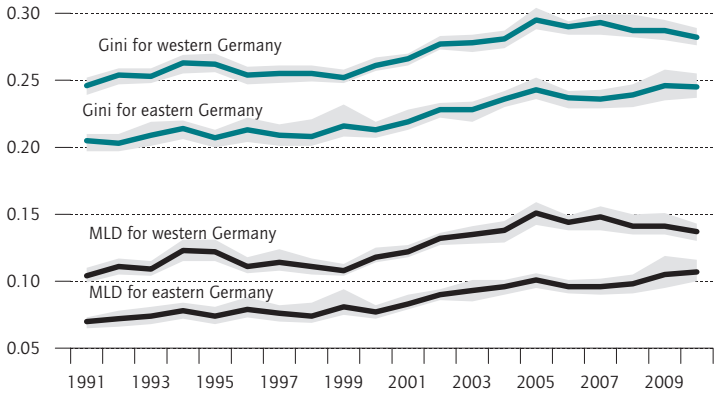
1 Data on annual incomes gathered in the following year, market income including a nominal employer contribution for civil servants, needs-weighted in line with the modified OECD equivalence scale. The gray shading shows the 95-percent confidence bands (see Box 3).

Source: SOEPv28.

In eastern Germany, market incomes are distributed less equally than in western Germany, but the gap is closing.

Figure 4

Inequality of Real Disposable Household Income[1]
Gini coefficient and mean log deviation



1 Data on annual incomes gathered in the following year included the rental value of owner-occupied housing, needs-weighted in line with the modified OECD equivalence scale. The gray shading shows the 95-percent confidence bands (see Box 3).

Source: SOEPv28.

Contrary to the trend in market income, the inequality of disposable income in the east remains high.

10 The figure for per capita market income is also influenced by changes in the population structure because people with no market income—in particular, pensioners—are given a value of zero in the calculations. The SOEP data for individual earnings show an almost continuous increase in inequality up to the middle of the last decade, and this is especially true when using the MLD coefficient which is sensitive to changes in the lower part of the distribution. During this period, the low-pay sector in Germany became increasingly important, see T. Kalina and C. Weinkopf (2012), „Niedriglohnbeschäftigung 2010: Fast jede/r Vierte arbeitet für Niedriglohn," IAQ Report, no. 1; K. Brenke and M.M. Grabka (2011), „Schwache Lohnentwicklung im letzten Jahrzehnt," Wochenbericht des DIW Berlin, no. 45. The increase in employment, which began in 2005, put an end to the trend of rising income inequality.

Poverty Risk Trends Differ in Eastern and Western Germany

According to the concept of relative income poverty, a person is threatened by poverty if they have to survive on less than 60 percent of the median net household income of total population (see Box 2). Accordingly, the poverty risk threshold in 2010 based on annual income in the SOEP was around 990 euros per month.[11]

Eleven million people or 14 percent of the total population were below this threshold in 2010. This is a slight and statistically insignificant decline in the poverty risk rate after it reached a record high of almost 15 percent in 2009 due to the economic crisis.[12] The main reason for this decline may have been the overall positive developments in the labor market.

Basically, the poverty risk has stabilized at a high level since 2005. At that time, it reached 14 percent largely due to negative labor market developments in Germany, while the rate fluctuated more in the '90s between ten and twelve percent (see Figure 5).

The poverty risk rate for eastern Germany was significantly higher than the corresponding figure in western Germany which developed similarly to the trend in the whole of Germany. The high ratio in eastern Germany is probably related to higher unemployment, lower wages, and often a lack of additional revenue, such as rental income or other investment income.[13] In the course of the transformation process since reunification, the poverty risk rate decreased significantly in the east because of initially high income growth of almost 19 percent in 1991 to 13 percent in the late '90s. However, after that, it rose again sharply and in 2005 it was at almost 20 percent, more than six percentage points higher than in western Germany. In subsequent years, the poverty risk rate remained at roughly the same level. Further longitudinal analyses are needed to determine whether these developments lead to an increasing number of people at short-term poverty risk, or whether there are signs that households will remain in low-income positions.

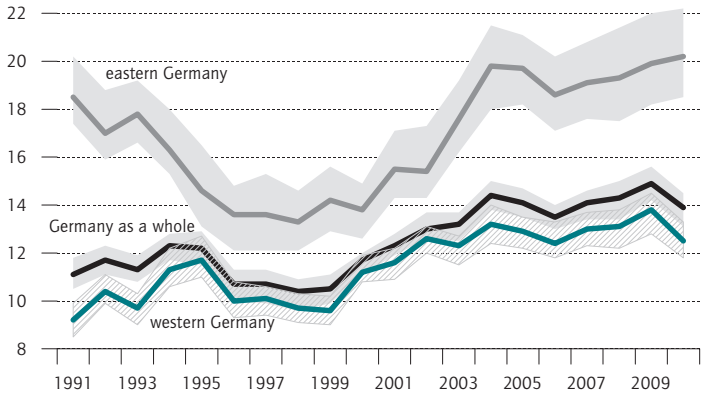
11 This represents a higher poverty risk threshold than social reporting by the Federal Statistical Office based on the microcensus (see www.amtliche-sozialberichterstattung.de).

12 The average number of short-time workers in 2009 was 1.1 million, see Federal Employment Agency (2012), Der Arbeits- und Ausbildungsmarkt in Deutschland, Monatsbericht (May).

Figure 5

Poverty Risk Ratio[1] by Region

Figures in percent



1 People with less than 60 percent of median disposable income. Data on annual incomes gathered in the following year included the rental value of owner-occupied housing, demand-weighted in line with the modified OECD equivalence scale. The gray shading shows the 95-percent confidence bands (see Box 3).

Source: SOEPv28.

After an all-time high, the percentage of people at risk of poverty in Germany fell slightly in 2010.

Adolescents and Young Adults at Highest Poverty Risk of All Age Groups

Poverty risk among the individual age groups has developed steadily over the past ten years (see Figure 6). Adults in the two middle age groups (35 to 44 and 45 to 54 years) are still at the least risk of income poverty because in this period of life labor force participation is high and they achieve the highest average incomes. However, in both these groups, the proportion of those threatened by poverty within ten years has increased from seven and eight percent, respectively to roughly ten percent in 2010. However, that is still four percentage points less than the average for the total population, and also the trend has been reversing since 2005: at that time, the proportion was actually at eleven and twelve percent, respectively.

Poverty risk among 65 to 74-year-olds is roughly on a par with the average for total population. However, when considering only the former East German Länder, this finding is no longer valid. The proportion of people threatened by poverty at the age of 65 years or older is now at 15 percent—a significant increase from 9.5 percent in 2003 and higher than the national average. One reason for this could be that statutory pension contributions for

13 P. Krause and I. Ostner (2010), Leben in Ost- und Westdeutschland. Eine sozialwissenschaftliche Bilanz der deutschen Einheit 1990–2010. Campus.

Box 2

Definitions, Methods, and Assumptions Used in Poverty Risk Measurement

The procedure chosen for this report for empirically recording income inequality and poverty risk follows recommendations by the European Commission and the Statistical Office of the European Union (Eurostat) in calculating national Laeken indicators.[1] These indicators are part of national action plans initiated by the EU to combat poverty and social exclusion in Europe. The measurement methods are largely taken into account in the German government's Poverty and Wealth Report.[2]

According to this report, those whose income falls below the relative poverty line are at risk of poverty. European convention determines this figure to be 60 percent of the median of annual net equivalized income per household (based on the whole of Germany), including the net rental value of owner-occupied housing ("imputed rent," see also Box 1).

The concept of relative income poverty is often criticized[3] for not sufficiently taking overall wealth gains into account, and therefore shows an equal poverty risk level—even if the income of all persons increases by a certain percentage. However, this property ensures, among other things, that poverty risk remains unchanged irrespective of the currency used to measure the incomes. It is often overlooked that this relative poverty threshold does not describe a minimum subsistence level, but rather the level of income considered necessary to achieve a minimum level of socio-cultural participation in society as it is currently developing.

Table

Poverty Risk Threshold of Selected Household Types in 2010 Based on Nominal Net Household Income[1]

	Equivalence weight according to the new OECD scale	In euros per month		
		Lower threshold[2]	Estimated value	Upper threshold[2]
1-person household	1.0	981	993	1,005
(Married) couple with no children	1.5	1,472	1,490	1,508
(Married) couple with 1 child	1.8	1,766	1,788	1,809
(Married) couple with 2 children	2.1	2,060	2,086	2,111
(Married) couple with 3 children	2.4	2,354	2,384	2,412
Single parent with 1 child	1.3	1,275	1,291	1,307
Single parent with 2 children	1.6	1,570	1,589	1,608

1 For information: median of nominal equivalized net household income 19,866 and 1,655 euros per month. 2 Threshold values of 95-percent confidence band.

Source: SOEPv28.

1 The Laeken indicators are calculated annually for each EU Member State. See T. Atkinson, B. Cantillon, E. Marlier, and B. Nolan, Social Indicators. The EU and Social Inclusion (Oxford: 2002), and P. Krause and D. Ritz, EU indicators on social inclusion in Germany, Vierteljahrshefte zur Wirtschaftsforschung 75 (1), (DIW Berlin, 2006): 152–173.

2 See Federal Ministry of Labor and Social Affairs (2008): Lebenslagen in Deutschland. Der 3. Armuts- und Reichtumsbericht der Bundesregierung. Bonn.

3 For example, H.-W. Sinn (2008), „The demand-weighted cheese and the new poverty," Ifo Schnelldienst 61(10): 14-6.

new pensioners in eastern Germany have declined continuously since 2003.[14]

Elderly people aged 75 and over have an above-average rate of poverty risk: 16 percent of this age group have to live on an income below the poverty threshold. The reason is that many of these people live alone; often they are widows due to the higher life expectancy of women. In addition, single persons have to bear the fixed costs of a household alone, limiting their spending capabilities.[15]

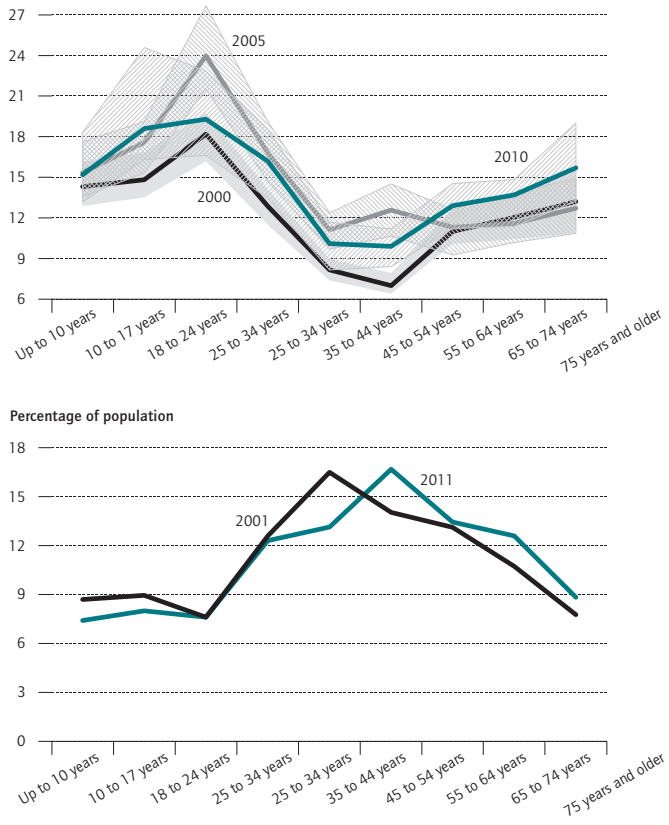
Adolescents (10 to 17 years) and young adults (18 to 24 years) are currently most at risk of being poor. Among young adults, this finding is due to an increasing percentage of people in tertiary education, in particular university education, which has delayed entry into the la-

14 See Goebel and Grabka (2011), „Altersarmut in Deutschland." The average contribution for new pensioners in eastern Germany in 2010 was only 785 euros for men and 666 euros for women.

15 Moreover, since 2005, there has been a structural change to those living in poverty. While the proportion of people of working age to all those affected by poverty declined in 2005, this figure has been increasing for those aged 55 and over since 2005. The poverty risk is therefore increasingly concentrated on older people.

Figure 6

Poverty Risk Ratio[1] by Age Group
Figures in percent



1 People with less than 60 percent of median disposable income. Data on annual incomes gathered in the following year included the rental value of owner-occupied housing, demand-weighted in line with the modified OECD equivalence scale, population structure of the subsequent year. The gray shading shows the 95-percent confidence bands (see Box 3).

Source: SOEPv28.

Middle-aged adults are at the lowest risk of poverty, adolescents and young adults at the most.

bor market and earning an income.[16] The trend of young people moving out of the parental household increases the risk of young adults living close to the poverty risk threshold.[17] In addition, entry into the labor market is increasingly dependent on precarious employment,[18] low paid internships, and in some cases vocational training does not necessarily protect against precarious income situations. As a result, over half of young adults are working in the low-pay sector.[19]

Following a significant increase in poverty risk to 24 percent in 2005, its ratio fell to 19 percent in 2010.[20] This decline was not as sharp in any other group.[21] Among 25 to 34-year-olds, the poverty risk rate was lower, at over 16 percent in 2005 and 2010, but still above average for the total population. The much-discussed and precarious employment situations here could also be the main cause.[22]

It is evident in all three years under review that children and young adults[23] have an above-average poverty risk. This has increased slightly since 2000, but this increase is not statistically significant. The household constellation is instrumental to the risk of growing up in poverty, whether there is only one parent living in the household and, in particular, whether the adult members of the household are in employment.

Single Parents and Young Adults Living Alone Particularly Affected by Precarious Income Situations

Of all the household types surveyed, single parents still have by far the highest poverty risk rates. Almost half of all single parents with two or more children were thre-

16 See OECD (2011), Education at a glance.

17 S. Scherger (2008), Flexibilisierte Lebensläufe? Die Dynamik von Auszug und erster Heirat, M. Szydlik, Flexibilisierung. Folgen für Arbeit und Familie, (Wiesbaden), 193-212.

18 B. Keller, S. Schulz, and H. Seifert (2012), „Entwicklungen und Strukturmerkmale der atypisch Beschäftigten in Deutschland bis 2010," WSI Diskussionspapier, no. 182, Dusseldorf.

19 Kalina and Weinkopf, „Niedriglohnbeschäftigung.", l.c.

20 In the group of young adults living alone, it is possible that they receive transfers from the parental home, which cannot be fully taken into account here (this applies, for example, to taking over housing costs or financing commodities or consumer goods).

21 This finding is also explained by the increase in the number of 20 to 25-year-olds in employment subject to social insurance contributions. This figure increased by 180,000 or eight percent between March 2006 and March 2010. Federal Employment Agency (2012), Arbeitsmarkt in Zahlen – Beschäftigungsstatistik. Sozialversicherungspflichtige Beschäftigte nach Altersgruppen; see also K. Brenke (2012), „Unemployment in Europe: Young People Affected Much Harder than Adults," Economic Bulletin no. 9.

22 It is important to note here that people in the low-pay sector work more hours than the average, presumably to achieve a certain standard of living, and not to fall into poverty, see K. Brenke (2012), „Long Hours for Low Pay," Economic Bulletin, no. 7.

23 See also P. Krause, H. Falkenberg, I. Herzberg, and J. Schulze-Buschhoff, Zur Entwicklung von Armutsrisiken bei Kindern, Jugendlichen und jungen Erwachsenen. Evaluations based on SOEP. Unpublished draft of the 14th Children and Youth Report will probably be published in the first quarter of 2013. According to the draft of the 4th Poverty and Wealth Report of the Federal Government, all relevant data sources, such as the microcensus, EU-SILC, or the Income and Consumption Survey, reveal an above-average poverty risk for children.

atened by income poverty in 2010 (see Figure 7). One third of all single parents with one child are affected. The corresponding rate for both groups has increased by six percentage points since 2000, although this is not statistically significant due to the small sample size in this population group. The main reason for the low income of single parents is most probably the problem of reconciling family and career.

By contrast, both married and unmarried couples of working age with only one child or no children have the lowest poverty risk at less than six percent. These households benefit from having more than one earned income and are able to share basic household costs. After an interim increase in the poverty risk rate of three percentage points between 2000 and 2005, this figure is now the same as it was at the beginning of the decade.

The fact that an increasing number of children means an increasing risk of poverty also applies to cohabiting households: if a couple has three or more children, their poverty risk in 2010 was almost 14 percent. But the evidence shows that even for this group, the poverty risk declined between 2005 and 2010.

Compared to couples, those who live alone have an above-average poverty risk. In the 30 to 65-year age group, one in five singles were affected by income poverty in 2010, representing a significant increase since 2000 of approximately five percentage points or almost 600,000 people. 22 percent of people living alone at retirement age were threatened by poverty, especially widows living alone.

Young people living alone up to the age of 30—almost three percent of the population—are most at risk of poverty. Due to the size of the group, the increase in poverty risk is not significant, but at nine percentage points (49 percent in 2010 compared to 40 percent in 2000) very appreciable. This age group is likely to be particularly affected by the expansion of the low-pay sector and precarious forms of employment, which has an adverse effect on their income situation so, for example, the proportion of full-time workers in this age group has declined from 60 percent in 2000 to 45 percent in 2010.

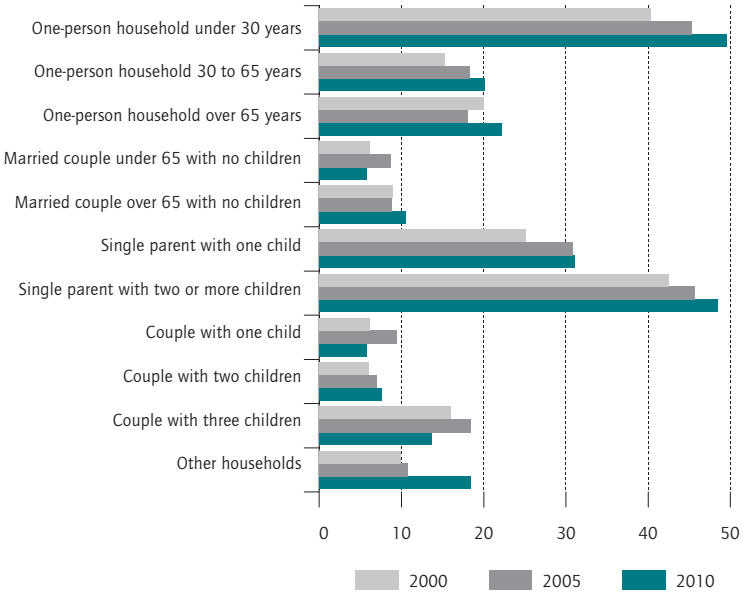
Poverty Risk Despite Employment

Gainful employment is generally considered the best protection against poverty. Also, the amount of future state pension is linked to social contributions paid. Against the background of a low-pay sector that has been increasing for many years and employment situations not requiring the payment of social insurance contributions which are usually limited to monthly earnings of 400 euros, the question arises as to whether household income earned from employment is sufficient to exceed the poverty risk threshold at working age, and, more importantly, at retirement age.

If at least one person in a household is employed, regardless of whether the job is full or part-time, the poverty risk was reduced by about a quarter, or three percentage points, in 2010 (see Figure 8). If at least one person has a full-time job, then the poverty risk decreases by up to ten percentage points less than the total working-age population. In the long term, the development of poverty risk for individuals living in households in which at least one person is employed (whether full or part-time) is similar to overall developments in poverty risk rates. This means that up to 2005, a significant increase was observed, but since then, poverty risk has remained at eleven percent. The situation is different for households where at least one member has a full-time job. In this case, only about five percent have been at risk of poverty over the last 15 years. Consequently, it

Figure 7

Poverty Risk Ratio[1] by Household Type
Figures in Percent



1 People with less than 60 percent of median disposable income. Data on annual incomes gathered in the following year included the rental value of owner-occupied housing, demand-weighted in line with the modified OECD equivalence scale, population structure of the subsequent year.

Source: SOEPv28.

Young single-person households and single parents are most at risk of poverty.

Box 3

Updating SOEP Data and Comparison with Other Data Sources

The SOEP microdata (version v28 based on the 28th data collection wave in 2011) underlying these analyses produce a representative picture of the population in private households, taking into account extrapolation and weighting factors, thereby allowing conclusions to be drawn about the entire population. The weighting factors correct differences in the design of the various SOEP random samples, and the participation behavior of respondents. People living in institutional households (for example, in retirement homes) are not generally considered here.

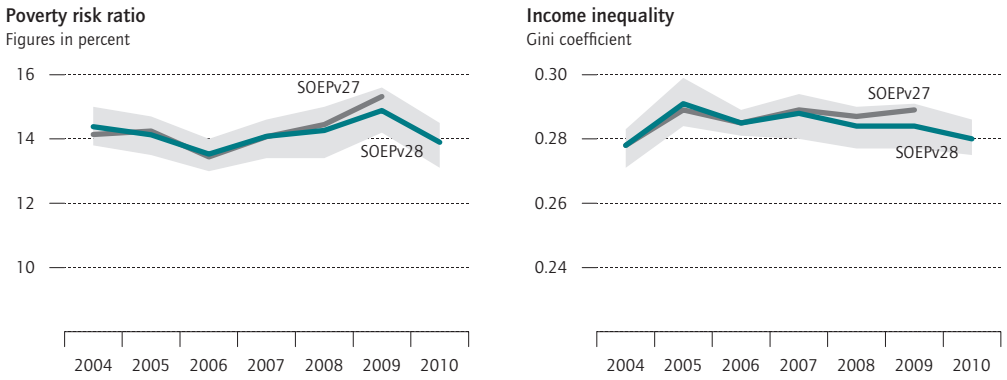
As well as updating imputations of missing values from the previous year's income, a targeted revision of extrapolation and weighting factors has also been undertaken. To increase compatibility with official statistics, these factors will be adapted to currently available framework data from the microcensus of official statistics. Among other things, this includes information regarding the ownership rate of apartments and residential houses from the microcensus. This information is only collected in the microcensus every five years, however, so an interpolation is necessary for the intervening years. In 2011, data on the ownership rate was captured again in the microcensus, so a revision of the weighting factors in SOEP's current data supply was implemented retroactively.

For income years 2004 to 2008, this revision only has a minor effect on measured income inequality and the poverty risk rate (see Figure 1). But for the 2009 income year, both the degree of inequality and the poverty risk rate were overestimated by almost three percent in the non-revised version where no account was taken of the current ownership rate. According to SOEP v27, the poverty risk rate in 2009 was 15.3 percent, while according to the data in SOEP v28 it is now 14.9 percent. The results do not differ significantly from each other in statistical terms, that is, they are not outside the statistical random error rate which is taken into consideration in any case when interpreting the results.

The use of random samples to estimate, for example, the median of income distribution will necessarily lead to random sampling fluctuations. The median income and the poverty risk threshold and rate derived from this can therefore only be determined to within a certain range. As well as taking confidence bands into account, which have a 95-percent probability of identifying the appropriate range of values, only clear differences should be interpreted as real changes. If one considers, for example, the poverty risk rate for the whole of Germany in the last decade, it shows that only the increase from income year 1999 to income year 2004 was statistically significant, so it can be assumed with great probability that the increase calculated from the SOEP sample actually took place. After 2004, it can

Figure 1

Impact of Revised Data on the Poverty Risk Ratio[1] and Inequality



1 People with less than 60 percent of median disposable income. Data on annual incomes gathered in the following year included the rental value of owner-occupied housing, demand-weighted in line with the modified OECD equivalence scale. The gray shading shows the 95-percent confidence bands.

Sources: SOEPv27 and SOEPv28, calculations by DIW Berlin.

be observed that the upper boundary of the significance band in 2004 was already higher than the lower boundary in subsequent years. Accordingly, this cannot be considered a significant increase in the poverty risk rate.

Compared to social reporting by the Federal Statistical Office based on the microcensus (see www.amtliche-sozialberichterstattung.de) and the draft of the 4th Poverty and Wealth Report by the German government, the threshold at which a person is considered at risk of poverty is higher here (826 euros compared to 993 euros). This can be explained primarily by two factors: the microcensus asked about net monthly income—using income classes—in which typically irregular incomes such as investment income, Christmas or other bonuses are under-recorded, and also fluctuations in income streams during the year, for example, due to seasonal unemployment, cannot be adequately accounted for. In addition, the rental value of owner-occupied housing is not included in the microcensus. This notional, but highly relevant income component makes up an average of five percent in terms of disposable income.

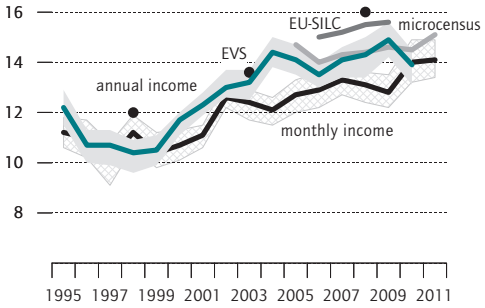
Both these income concepts (current monthly income and previous year's income) are included in the SOEP to measure poverty in such a way that their development can be directly compared to one other. The boundaries of relative poverty based on monthly income are determined using a similar method to annual income, with two restrictions: irregular income components and "imputed rents" are not accounted for. Since monthly income is based on information coming directly from the householder, these income figures are rounded much more than annual income comprising many individual components. However, the median and therefore the poverty risk threshold are sensitive to rounding effects.[1]

In SOEP's 28th data collection wave, 84 percent of monthly income figures are rounded to 50 euros. In order to prevent any jumps occurring in the poverty risk ratio, all households in the SOEP study that gave a rounded figure were allocated a normally distributed random value with a median of 0 and a standard deviation of 1.[2] This means, for example, the 333 values that were exactly 800 euros are spread among the 796 to 803 euro range. According to the selected random distribution, the change is less than 0.5 euros in approximately 38 percent of cases; as a result, they remain at the original value of 800.

Figure 2

Poverty Risk Rates Based on the Different Data Sources

Figures in percent



The gray shading shows the 95-percent confidence bands.

Sources: Draft of the 4th Poverty and Wealth Report by the German government: Lebenslagen in Deutschland (2012). BMAS, monthly and annual income from SOEP: SOEPv28; EVS 1998: 3rd Poverty and Wealth Report by the German government, Lebenslagen in Deutschland (2008). BMAS, EU-SILC (2010): Press release by the Federal Statistical Office no. 362, October 17, 2012.

The draft of the 4th Poverty and Wealth Report by the German government (2012) and official social reporting have also provided results for the poverty risk rate from microcensus surveys, the Income and Expenditure Survey (EVS) and the EU-SILC European panel.[3]

Figure 2 compares the five different sources for calculating the poverty risk rate. A direct comparison illustrates the differences arising from variations in income concepts, sampling methods, response rates, and statistical random error rates (the confidence bands for EU-SILC and EVS are not available, while the confidence band for the microcensus is extremely narrow due to the sample size). Despite clear methodological differences, the tendencies of these different measurements of poverty are largely congruent, that is, a significant increase in poverty risk up to around 2005 and since then it has remained constant.

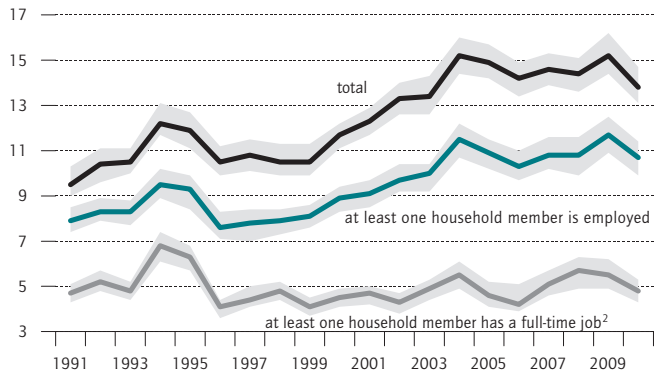
1 J. Drechsler and H. Kiesl (2012), „MI double feature: multiple imputation to address nonresponse and rounding errors in income questions simultaneously,". Paper presented at the FCSM Research Conference, Federal Committee on Statistical Methodology (FCSM), Washington, D. C., 12.01.2012.

2 Coincidentally, the poverty threshold in the data for 2009 was a nominal 800 euros which in turn was given by 333 households. As a result, the poverty rate jumped from 12.3 to 12.8 percent. Had the poverty threshold been 801 euros, the rate would have been correspondingly lower.

3 For a discussion of the advantages and disadvantages of each study, see also J.R. Frick and K. Krell (2011), „Einkommensmessungen in Haushaltspanelstudien für Deutschland: Ein Vergleich von EU-SILC und SOEP," AStA –Wirtschafts- und Sozialstatistisches Archiv 5 (3): 221–248.

Figure 8

Poverty Risk Ratio[1] by Employment in Household
Figures in percent



1 People with less than 60 percent of median disposable income. Data on annual incomes gathered in the following year included the rental value of owner-occupied housing, demand-weighted in line with the modified OECD equivalence scale.
2 In the previous year, mostly (6 months or more) in a full-time job. The gray shading shows the 95-percent confidence bands (see Box 3).

Source: SOEPv28, persons in households with members aged up to 65 years.

Full-time employment significantly reduces the risk of poverty.

can be asserted that full-time employment reduces the risk of households falling into relative income poverty in the long term.

Conclusion

Income inequality and poverty risk did not increase overall in Germany between 2005 and 2010. Recent results from the German Socio-Economic Panel Study (SOEP) even show a decline in the inequality of market incomes since 2005; however, it is not currently possible to draw any conclusions from SOEP data for the period after 2010. Improvements in the labor market situation have had a significant influence on the development of income inequality and poverty risk. Unemployment figures have fallen significantly since 2005, and the number of workers—including those paying social insurance contributions—has increased notably. However, when considering disposable income, that is, income after government transfers and net of direct taxes and social security, the picture is more mixed.

While in western Germany the development of inequality in disposable household income has declined slightly, it continues to rise in the eastern part of the country because of the added divergence of the income gap at the lower end. But overall the inequality of disposable income in the east is still less than that of the west, in contrast to the relation in market income.

Nevertheless, income growth and the reduction of inequality in income distribution have not led to a significant decline in poverty risk. While in Germany overall 14 percent of the total population had to live on no more than 60 percent of median income in 2010, and were therefore considered at risk of poverty, poverty risk in the new Länder has steadily increased since 2006, and in 2010 it reached the 2005 record of 20 percent again.

Adolescents and young adults are still subject to an above-average poverty risk. Differentiated by type of household, single parents and young adults living alone aged up to 30 are particularly endangered with a poverty risk rate of almost 50 percent. Minor jobs or part-time work may only restrict poverty risk to a certain degree. In addition, the longer someone remains in what is frequently referred to as precarious employment, the greater the poverty risk in old age, because not only do they have minimal claims on statutory pensions but private or occupational pension insurance is normally not financially feasible because of the low income.[24]

Against this background, it is still too early to refer to a sustained decline in poverty risk in Germany, especially as there has been negative news recently about the labor market and economic development in Germany.[25]

But clearly Germany has succeeded in limiting the social and economic risks of the economic and financial crisis of 2009 to the extent that poverty risk did not increase. Although large numbers of jobs with reduced working hours did not prevent the poverty risk rate rising briefly in 2009, SOEP results indicate that during the recovery phase economic actors succeeded in applying the brake to the previously increasing inequality of income distribution.

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24 See V. Steiner and J. Geyer (2010), „Erwerbsbiografien und Alterseinkommen im demografischen Wandel – eine Mikrosimulationsstudie für Deutschland," Policy Advice Digest, no. 55, DIW Berlin.

25 See Federal Ministry of Finance (2012), Monatsbericht. www.bundesfinanzministerium.de/Content/DE/Monatsberichte/2012/09/Inhalte/Kapitel-5-Wirtschafts-und-Finanzlage/5-1-konjunkturentwicklung-aus-finanzpolitischer-sicht.html, September 21; see also F. Fichtner et al. (2012) , „Herbstgrundlinien 2012," Wochenbericht des DIW Berlin, no. 40.

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