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Income and Wealth Inequality after the Financial Crisis: The Case of Germany

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Income and Wealth inequality after the financial crisis – the case of Germany¹

Abstract

The topic of rising income inequality does not only gain in relevance since the two prominent reports by the OECD (2008, 2011) but rather since the financial crisis. So far there is only scarce empirical evidence—besides a rather broad literature dealing with the US—about the consequences of the financial crisis on income inequality in Europe (e.g. Jenkins et al. 2013) and more important about wealth inequality (Lundberg and Waldenström 2014). In this paper we focus on the short-term distributional effects in Germany, as this country was one of the OECD countries which had been hit hardest—as measured by a decline in GDP—by the Great Recession in 2008/2009. The underlying data source comes from the German Socio Economic Panel (SOEP) which is a representative longitudinal survey of private households in Germany. This survey provides consistent yearly information about incomes since 1984 and for wealth in at least three survey years. Thus, we are able to identify any potential effects of the financial crisis on incomes (e.g. earnings, market income, post-government income) and wealth components (e.g. property, business assets, financial assets, net worth) and their respective inequality in Germany. Our main finding is that we do not find any significant distributional changes during the Great Recession. However, the Great Recession temporary froze the income structure while afterwards income mobility tries to make up leeway. Findings of a factor decomposition showed as expected that the relative contribution of capital income to overall inequality lost in relevance during the Great recession. Several factors attenuated the impact of the Great Recession and will be discussed in detail.

Keywords: Income inequality, wealth inequality, financial crisis, SOEP

JEL-Codes: D31, I31, I32

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Introduction

The topic of rising income inequality does not only gain in relevance since two prominent reports by the OECD (2008, 2011) but rather since the financial crisis. So far there is only scarce empirical evidence—besides a rather broad literature dealing with the US—about the consequences of the financial crisis on income inequality in Europe (e.g. Jenkins et al. 2013 with in-depth studies of six individual countries) and more important about wealth inequality in Europe (e.g. Lundberg and Waldenström 2014) given that a financial crisis in fact should have an impact on financial assets and net worth of private households. While Jenkins (2011) stated that he was “*surprised at how little household incomes changed in the years immediately after the Great Recession began*” given that “*this has been the worst macroeconomic downturn in most OECD countries since the Great Depression of the 1930s when there were substantial increases in poverty rates and other significant changes to the income distribution.*” For instance Wolff (2012) found much more pronounced effects for the US. E.g. median net worth was cut in half in the U.S. during the Great Recession, and Pfeffer et al. (2013) find that actually between 2007 and 2011, one fourth of American families lost at least 75 percent of their net worth. The changes for post-government income in the U.S. were somewhat smaller. Smeeding (2012) showed that this income type dropped by at least 10 percent at the median after the financial crisis.

In this paper we focus on Germany, given that this country was one of the OECD countries which had been hit hardest by the Great Recession in 2008/2009. The GDP fell in 2009 by more than 5 percent, which was the strongest recession in Germany after World War II.² Not even the oil crisis in the early 1970’s had a comparable strong impact on the whole economy. At that time the GDP fell only by less than 1 percent in Germany. Other West European countries were not as much affected by the Great Recession. So for example in 2009 the GDP in Spain contracted by only 3.8 percent, in France by 3.2 percent and even in Portugal only by 2.9 percent (Eurostat 2014).

By making use of micro-data from the German Socio Economic Panel (SOEP) (Wagner et al. 2008) we are able to identify any potential short-term distributional effects of the financial crisis on incomes (e.g. earnings, market income, post-government income) and on wealth components (e.g. property, business assets, financial assets, net worth) and their respective inequality in Germany.³

² The Great Recession in Germany last for 12 months between Q2-2008 until Q1-2009 measured by quarter-on-quarter changes of seasonally adjusted real GDP.

³ Long-term effects of the Great Recession will be a topic for future research.

The paper is organized as follows: In chapter 2 we describe the data source used for the following analyses. In chapter 3 the impact of the financial crisis on labor income, market household income and post-government income will be presented. Additionally, a factor decomposition is used to better disentangle the relative contribution of different income components. Besides these cross-sectional analyses, income mobility figures are rendered to control for individual upward or downward mobility during the crisis. Chapter 4 provides information about the distributional effects of the Great Recession on wealth. In chapter 5 a discussion of the findings is provided and finally chapter 6 concludes.

2. Data source

We make use of micro-data from the German Socio Economic Panel (SOEP). The SOEP is a representative panel survey of private households in Germany. The first wave was conducted in 1984, since then the survey is repeated on an annual basis. In 2012 more than 20.000 adult respondents were interviewed. The SOEP currently consist of ten different subsamples, whereof two oversample migrants to better capture changes in the underlying population. In 2002 a high income sample was drawn to better cover the top of the income distribution. A main advantage of the SOEP is that consistent yearly information about incomes since 1984 and for wealth in at least three observation years is available. Item-non response in case of income is imputed using the row-and-column technique described by Little and Su (1989).⁴ Wealth is multiple imputed using a heckman correction regression (see Frick et al. 2010). The SOEP follows largely the recommendations by the Canberra Group, i.e. among other things annual incomes (collected for the respective previous year) are provided. In the following three income concepts will be presented. That is annual labor income, household market income and post-government income. The latter two are equalized using the modified OECD equivalence scale and encompass the net rental value of owner occupied housing. We make use of mean, median and selected percentiles for the three income types.

The wealth situation was examined in detail in special thematic surveys in 2002, 2007, and 2012. Traditional surveys gather data about wealth at the household level and usually distribute it evenly among the members of the household when analyzing its distribution. In contrast, the SOEP ascertains the components of wealth for all adults (from age 17 on). This

⁴ This imputation technique has been also applied to the Australian HILDA panel survey (Watson and Starick 2011). For more details about income imputation in SOEP see Frick and Grabka (2005) and the respective imputation quality compared to other prevalent imputation techniques see Watson and Starick (2011).

also makes it possible to analyze private redistribution within households. The SOEP surveys eight different components of wealth: (1) owner-occupied property, (2) other real estate (including undeveloped land, vacation and weekend homes, and rented real estate), (3) financial assets (savings accounts, bonds, stocks, and investment certificates), (4) assets from private insurance policies (whole life insurance and private pension insurance, including so called “Riester” retirement plans), (5) building loan contracts, (6) business assets (ownership of individual companies and shares in joint partnerships or corporations; after deducting business liabilities), (7) non-monetary assets in the form of valuable collections, such as gold, jewelry, coins, or works of art, and (8) debts (consumer and mortgage loans). Other durable consumer goods, including the value of vehicles, cash and entitlements to public pension systems are not included in the survey.⁵ Deducting liabilities from gross assets gives total net worth, which is relevant in terms of welfare economics and is usually referred to for analyses of the distribution of personal wealth.⁶

3. Impact of the Great Recession on income

Annual gross labor income

We first start to look at the development of annual labor gross income, as one can assume that a Great Recession usually might have a deep impact on the labor market, either by increasing shares of unemployed and/or by decreasing income levels, e.g. by a reduction of overtime premiums, bonuses or a reduction of working hours. Nevertheless neither mean, median, p10 nor the p90 percentile show any significant changes⁷ during the Great Recession i.e. between 2007 and 2011 (not shown here).⁸ Real annual labor income remained stable over the last 10 years in Germany with a mean value of 28,000 Euros (in prices of 2010 deflated using the CPI), while the median showed overall a slight decrease in the last decade.⁹

⁵ On the relevance of entitlements to public pension schemes see Frick and Grabka (2010).

⁶ As is the case in other wealth surveys worldwide financial assets are significantly underestimated in SOEP compared to figures from the National accounts with a share of only 33 percent in 2012 for aggregate gross financial assets. Additionally, top wealth households are typically underrepresented in population surveys like the SOEP, thus lead to an underestimation of the true degree of wealth inequality.

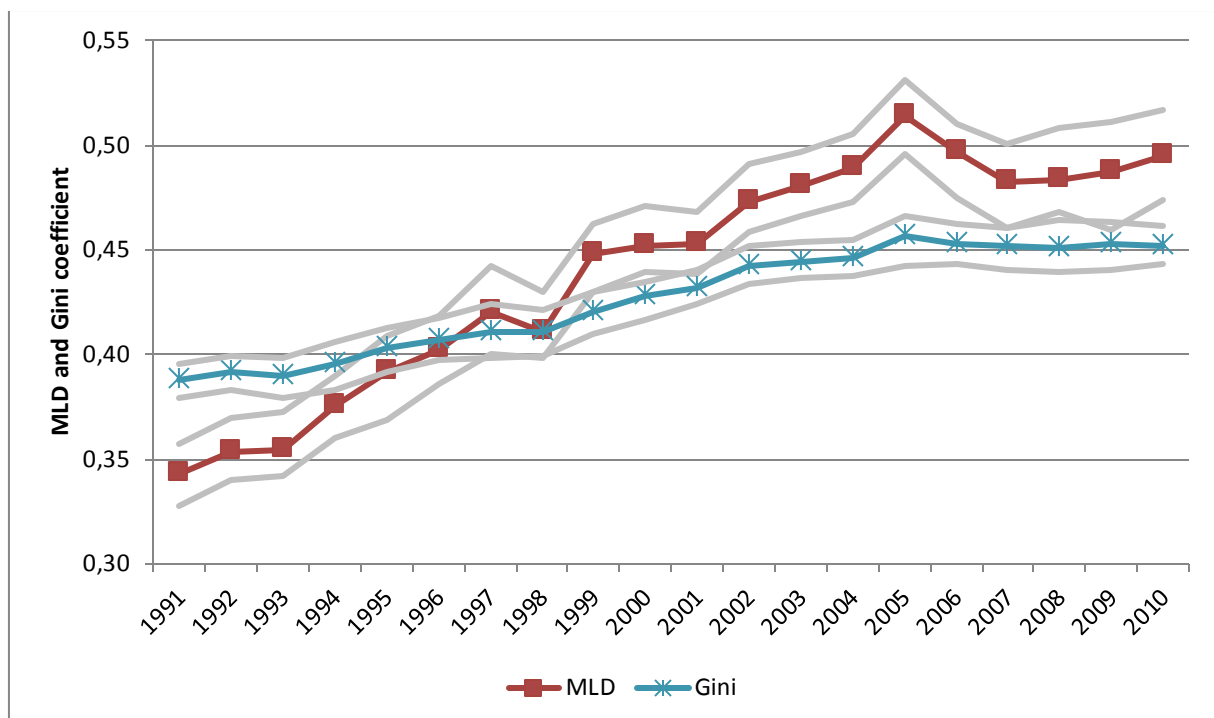
⁷ Confidence intervals are generated using the bootstrap method with 500 replications.

⁸ In order to consider the findings by Alvaredo (2013) about the relevance of the top 1 percent earners we also controlled for the mean and median of annual labor income for the top 1 percent employees and find again no significant change during the Great Recession.

⁹ Figures from the national accounts about aggregate compensation for employees confirm our findings. Here no drop occurred but rather a slight increase even during the Great Recession of at least 0.3 percent in 2009 took place. Thus the most important income component of private households in Germany—namely labor income—did not suffer from the Great Recession but only yield to below average increases.

In figure 1 we show the development of the Gini¹⁰ and mean-log-deviation (MLD) for annual labor income for the last 20 years in Germany. As has been described in a couple of papers, inequality of labor income strongly increased in the last two decades (e.g. Dustmann et al. 2009), while the increase was somewhat more pronounced at the lower end of the income distribution as illustrated by the MLD-coefficient. However, when focusing on the period of the Great Recession no significant changes can be observed.

Figure 1: Inequality of annual gross labor income



Source: SOEPv29, persons in private households, income years are presented. Grey lines present a 95 percent confidence interval.

Household market income

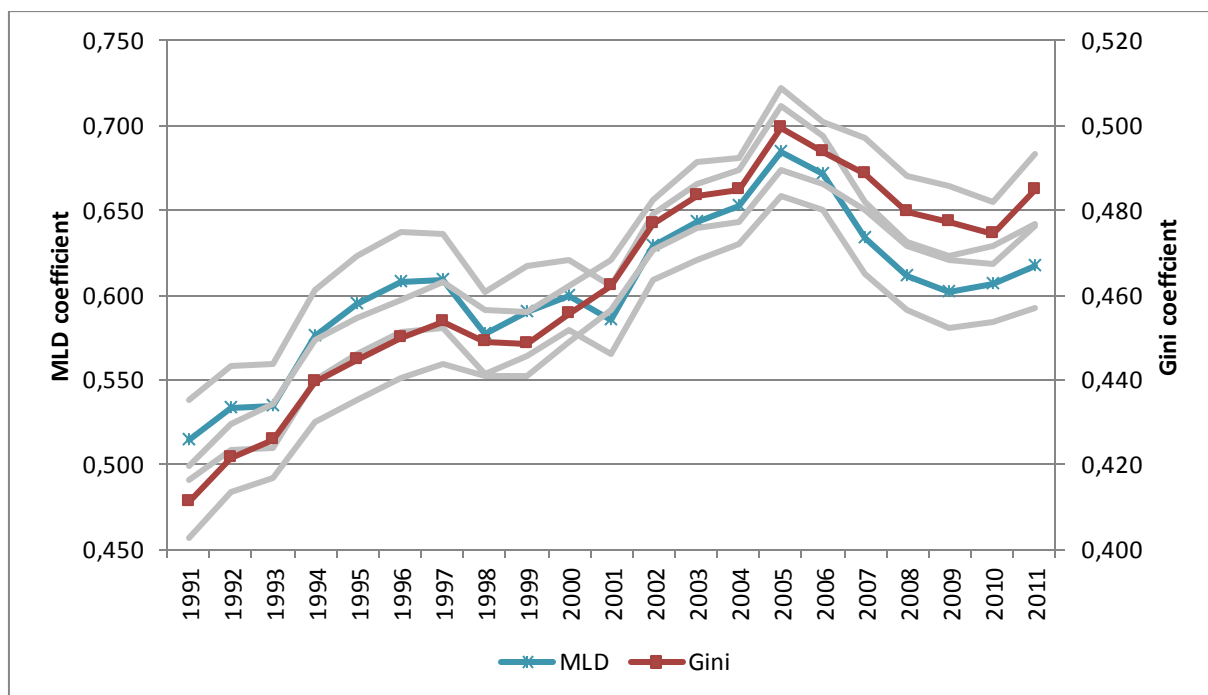
Household market income consists of labor income, capital income, private transfers, private pensions and imputed rents, i.e. all incomes of a household earned at the market without any government transfers. Again mean, median, p10 and p90 percentiles denote no significant change during the Great Recession while the overall long-term trend depicts a slight increase for the mean and stagnation for the median (see e.g. Grabka and Goebel 2013).

With respect to inequality of household market income one can again observe the

¹⁰ Two common inequality indicators will be applied for the analysis of income. This is the Gini-coefficient as an inequality indicator which is sensitive to changes in the middle of the distribution and the mean-log deviation which belongs to the class of entropy inequality measures, which is sensitive to changes at the lower end of a distribution. For the wealth analyses we primarily focus on the Gini coefficient but complement this by using percentiles and percentile ratios.

long-term trend of a significant increase in inequality up to 2005—the year with the highest number of unemployed in Germany after reunification—and since then a slight but significant decrease, which comes along with the pronounced decline of unemployment (figure 2).¹¹ Between February 2005 and February 2012 the number of unemployed decreased by more than 2.1 million which represents a decline of 41 percent. However, the Great Recession seems to have no relevant effect on the since 2005 established trend of inequality in Germany. This is in clear contrast to the developments e.g. in Ireland where the Gini for market household income strongly increased from 0.519 in 2008 to 0.586 in 2011 (Callen et al. 2013).

Figure 2: Inequality of household market income



Source: SOEPv29, persons in private households, income years are presented. Grey lines present a 95 percent confidence interval.

Household post-government income

The development is somewhat more positive when it comes to post-government household income.¹² For the last 15 years there is a long-term trend of a slight increase of at least 0.6 percent per year in the real mean. While for the median we observe stagnation in the

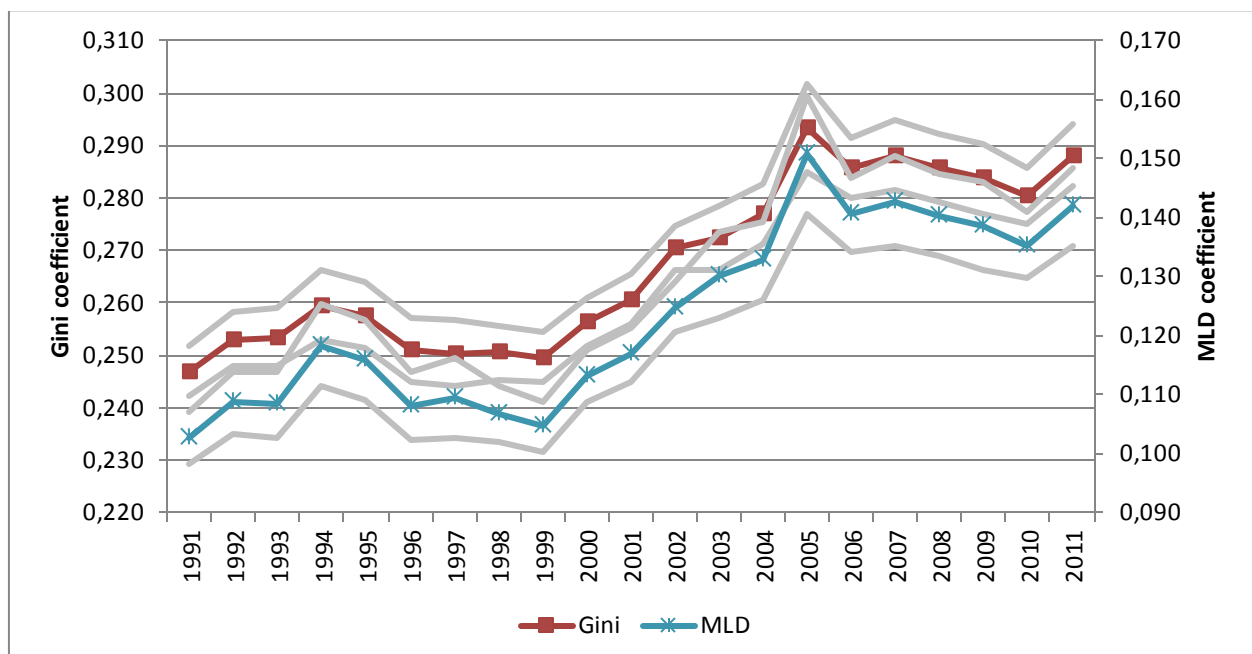
¹¹ Besides changes in the labor market inequality has been affected by demographic shifts in recent years towards an increasing share of elderly in Germany e.g. from 16.6 in 2000 to 20.6 percent in 2010 (Federal Statistical Office 2013), and as a result, the share of people with no or only low market incomes is increased.

¹² Post-government household income consists of market incomes, statutory pensions as well as state transfer payments such as child benefits, housing assistance, and unemployment benefits, minus direct taxes and social security contributions.

last 10 years (Grabka and Goebel 2013). Again the Great Recession seems to have no relevant effect on the mean and median.¹³ A small effect could be observed at least at the top of the income distribution. The p90 percentile depicts a fall of 1.5 percent in 2008, however this finding is not significant at the 95 percent level.

The trend of increasing income inequality up to 2005 is also apparent in post-government income (Figure 3). Again since 2005 a slight decrease—however only significant at a 90 percent confidence level—until 2010 can be seen. But likewise the Great Recession seems to have no significant effect on this new established trend of inequality in Germany.¹⁴ In contrast for the majority of OECD countries a slight increase during the Great Recession can be found, and in particular for France, Spain, Sweden or the U.S. (OECD 2014).

Figure 3: Inequality of household post-government income



Source: SOEPv29, persons in private households, income years are presented. Grey lines present a 95 percent confidence interval.

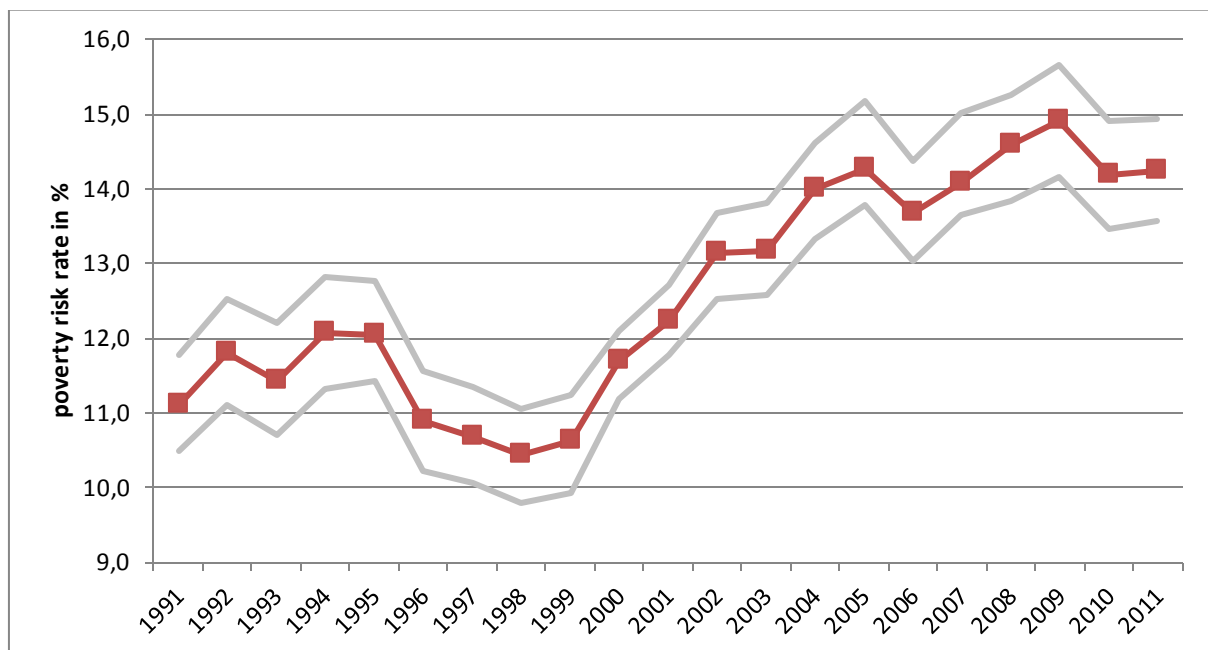
The concept of relative income poverty defines a person as at risk of poverty if he or she has less than 60 percent of the median of the total population’s net household income available. According to that, the at-risk-of-poverty threshold in 2011, based on the SOEP sample, was approximately 980 euros per month for a single-person household.

¹³ One reason for stagnating real incomes is the weak development of pensions in the statutory pension insurance scheme. For example, pensions rose in the last 10 years in all years below the inflation rate thus leading to real losses of about 15 percent.

¹⁴ The small but insignificant increase for the most recent year maybe partly the result of a new subsample in SOEP, which showed below average incomes and thus may lead to a small change in the overall income distribution.

In recent years, the poverty risk has largely developed in parallel to the progression of income inequality (Figure 4). Up until the end-1990s, the poverty risk in Germany was roughly less than 11 percent—with the rate higher overall in eastern than in western Germany. In the years following the turn of the millennium, poverty risk significantly increased to a peak of 15 percent in 2009. In the last two years of the observation period (2010 and 2011), the poverty rate in Germany initially declined slightly, but has remained at a constantly high level since then. Although income poverty was the highest in Germany in 2009 for the last two decades, the changes since 2005 were not statistically significant. Thus, there is no indication for a direct effect of the Great Recession on income poverty in Germany. It is much more astonishing that income poverty had not been declined since 2005 given that the number of unemployed heavily decreased in that period. Usually a lower degree of unemployment goes along with a lower risk of income poverty (see also Rehm et al. 2014) which was the typical pattern in Germany at least until 2005 (Frick et al. 2005).¹⁵

Figure 4: At risk of poverty rate in Germany



Source: SOEPv29, persons in private households, income years are presented. Grey lines present a 95 percent confidence interval.

¹⁵ One explanation for this unusual observation is that unemployment decreased primarily in households which already had a strong labor market attachment and thus had already incomes above the poverty threshold, while households with a low labor market attachment tend to remain in unemployment which is supported by the stable number of long-term unemployed in Germany.

Factor decomposition of household post-government income

Analyses by population subgroups are not further presented here given that first results for Germany by Grabka and Frick (2013) showed no impact of the Great Recession on neither the number of employed individuals, their degree of labor market attachment, the actual working hours per week, the length of overtime worked nor income changes by household type. Instead, for a better understanding of the distributional effects of the Great Recession on household post-government income we make use of a decomposition method by factor components presented by Shorrocks (1982).¹⁶ This technique allows analyzing whether income components changed their relative contribution to overall inequality of post-government income. We consider the coefficient of variation instead of the half-squared coefficient of variation, given that the former allows for negative income such as taxes and social contributions which reduce total income inequality. In total we consider eight different income components, namely labor income, capital income, imputed rents, private transfers received, private pensions, public transfers, public pensions and finally taxes and social contributions, all of them add up to post-government household income. We focus on capital income given that before the Great Recession capital income played a prominent role in explaining the rise in income inequality (e.g. Fräβdorf et al. 2011, Garcia-Penalosa and Orgiazzi 2013). Capital income here consists of interest, dividends and realized gains from assets including income from renting and leasing (minus operating costs).

At first the incidence of capital income—the share of households having income from capital investment—decreased in the last decade from 84 percent to only 80 percent during the Great Recession and further shrank to 78 percent in 2011.¹⁷ Additionally, the relevance of capital income also diminished (see also Rehm et al. 2014). While at the beginning of the new decade capital income made up a share of 11 percent of household market income this value has been reduced to only 9 percent in 2009. In 2011 this value further decreased to 8.8 percent maybe due to low interest rates after the bust of the business cycle which can be seen as a mid-term effect of the Great Recession.

A change of inequality of post-government income can be the result of variations of the relative contribution of the eight income components (table 1). It can be hypothesized that e.g. an increase in unemployment leads to an increase of the relative contribution of labor income given that low paid jobs were laid off during the Great Recession with a more unequal

¹⁶ This has been implemented in Stata by Jenkins (2009).

¹⁷ This finding goes along with an increasing share of individuals in Germany having negative net worth (Grabka and Westermeier 2014).

residual distribution of labor income. By contrast diminishing returns from capital investments due to decreasing interest rates, dividends or capital gains may lead to a buffering effect of that income component. Ex ante it is unclear which factor prevails or whether they level out each other.

Table 1: Relative contribution of different income components to overall inequality of post-government income using the coefficient of variation

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Labor income	128,0	113,7	117,3	58,3	45,4	42,8	100,6	72,2	106,6	110,8	113,8	124,2
Capital income	23,2	30,5	36,6	101,6	106,8	106,6	44,1	75,1	41,3	33,4	28,2	27,8
Imputed rents	5,1	4,8	5,0	2,3	2,0	1,5	3,7	2,9	3,7	4,2	3,9	3,2
Private transfers	-0,2	-0,3	-0,3	-0,2	-0,2	-0,1	-0,2	-0,1	-0,1	-0,2	-0,3	-0,2
Private pensions	4,6	5,3	2,8	1,5	1,3	0,9	3,1	2,4	3,6	3,3	3,3	3,0
Public transfers	-3,0	-3,2	-3,3	-1,3	-1,3	-0,9	-2,5	-1,9	-2,4	-2,5	-2,3	-2,3
Public pensions	5,2	6,8	4,0	1,7	1,6	1,2	2,8	2,4	2,0	3,8	3,6	2,2
Taxes & social security contributions	-62,8	-57,5	-62,1	-63,9	-55,6	-52,0	-51,6	-52,9	-54,9	-52,8	-50,3	-57,8
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Source: SOEPv29, persons in private households. Equalized income using the modified OECD-scale.

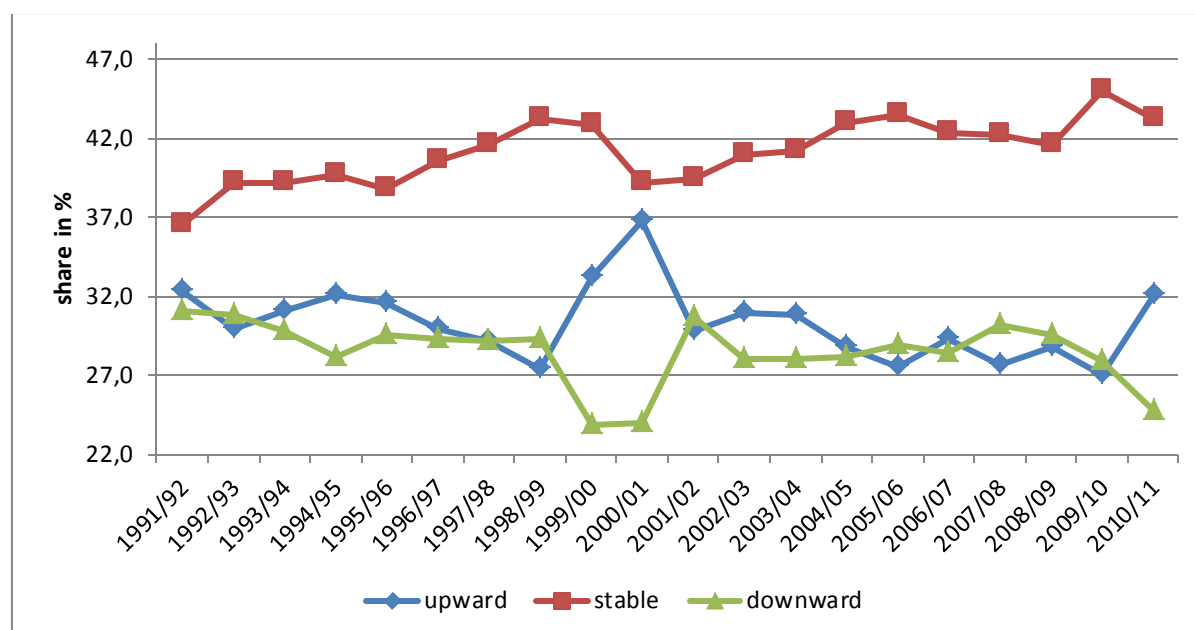
The most important factor in explaining inequality of post-government income is labor income (either from dependent employment or self-employment), whose relative contribution significantly decreased from the beginning of the decade to only about 43 percent in 2005 and then recovered to formerly known levels. In contrast, the relative contribution of capital income followed a contrary pattern. While in the mid of the last decade capital income had an above-average impact on overall inequality—as has been confirmed by e.g. Fräβdorf et al. (2011)—it has been fallen to a relative contribution of less than 30 percent at the end of the decade. That is to say, capital income no longer plays a relevant role in explaining the historical rather high level of income inequality in Germany. During and after the Great Recession capital gains lost in relevance and in particular the low interest rates lead to lower returns for those holding financial assets. However, capital income is concentrated mainly in top of the income distribution and thus had a buffering effect on the overall distribution during and after the Great Recession. All other income components showed only small variations, however taxes and social security contributions lost their buffering effect over the Great Recession. While in 2003 the relative contribution of this income type was almost -64 percent this decreased to about -50 percent in 2010 only. One explanation for this finding is,

that in 2009 a flat rate withholding tax for capital income was introduced which explicitly reduced the redistribution effect.¹⁸

Income Mobility

The presented rather stable income levels during the Great Recession in Germany may mask changes in the underlying income hierarchy, due to opposing movements of individuals within the distribution, e.g. due to changing overtime premiums¹⁹, shift of working hours or changes in their returns from capital. To answer such questions, mobility matrices are frequently employed to compare relative income positions at the beginning and end of an e.g. two-year period.²⁰ The relative positioning within the income hierarchy is here based on income deciles of post-government income. In figure 5 the three presented lines indicate those who had a stable relative income position, those who went down or rather moved up the distribution in two-year intervals.²¹

Figure 5: Two-year income mobility patterns



¹⁸ In a robustness check a factor decomposition using the Gini-coefficient was applied (by making use of *sgini.do* provided by van Kerm 2010). In principle the general findings are confirmed, however, on a somewhat lower level as the coefficient of variation used in the foregoing decomposition is more sensitive to changes at the upper end of the income distribution.

¹⁹ At least the share of employees working overtime decreased during the Great Recession from about 50 percent in 2006 to less than 40 percent in the first half of 2010 (Grabka and Frick 2013). However, this information is only available in qualitatively terms, since no information about the level of overtime bonuses is collected in SOEP.

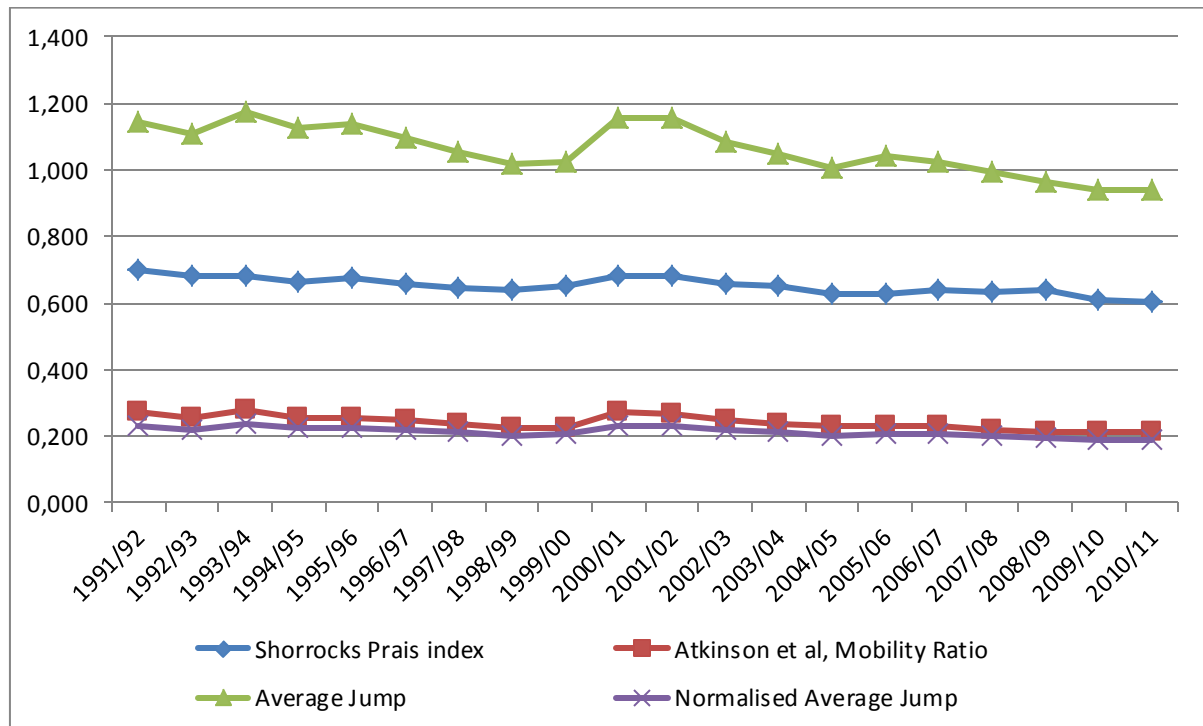
²⁰ Using a window of two survey waves better enables analyzing the short-term effects of intra-generational mobility than longer periods.

²¹ Nevertheless movements within the very same decile are not interpreted as mobility here.

Source: SOEPv29, persons in private households. Income mobility based on movements between deciles of post-government income in two-year periods.

A noticeable effect can be found for the period 2009/10. Here the share of individuals who did not change their relative position was the highest in the last two decades with a value of 45 percent while on average only about 40 percent hold their position. This is tantamount to the lowest level of income mobility in that period. However, in 2010/11 income mobility started to return with a pronounced increase of upward income mobility and the second lowest level of downward mobility in the observation period. One can receive the impression that the Great Recession temporary froze the income structure while afterwards income mobility tries to make up leeway.²²

Figure 6: Income mobility indices



Source: SOEPv29, persons in private households. Income mobility based on deciles of post-government income in two-year periods.

These findings are confirmed by aggregated mobility indices which are also based on income deciles of post-government income in two-year periods (Figure 6). Here four different income mobility indicators are used such as the Shorrocks Prais index, the Atkinson et al. mobility ratio, the average and normalized average jump. E.g. the Average Jump index—as a

²² However, there has been very little research into the causes and mechanisms of income mobility in Germany to date (e.g. Riphahn and Schnitzlein 2011), merely indications that increasing (wage) inequality is associated with the trend toward lower (wage) mobility (Buchinsky and Hunt 1999).

positional income mobility measure— is equal to the number of income class boundaries (here deciles) crossed by an individual (whether upwards or downwards) averaged over all individuals. In case of complete immobility the index take a value of 0, when measuring perfect mobility the index take a value of 1.²³ At least three of these indices indicate that income mobility was the lowest in 2009/10. Only the Shorrocks Prais index slightly further decrease in the subsequent period.

4. Impact of the Great Recession on wealth

It can be assumed that a financial crisis usually should have an impact on financial assets and net worth of private households. The U.S. was significantly affected by the Great Recession, which has had its starting point in a burst of a housing bubble and the collapse of Lehman Brothers. For instance Wolff (2012) found that median net worth was cut in half in the U.S. during the Great Recession, while Pfeffer et al. (2013) find that actually between 2007 and 2011, one fourth of American families lost at least 75 percent of their net worth. So far no empirical evidence is available for European countries and for Germany accordingly. However, with the most recent SOEP data we are at least able to describe wealth changes before (2002 and 2007) and after the Great Recession (2012).

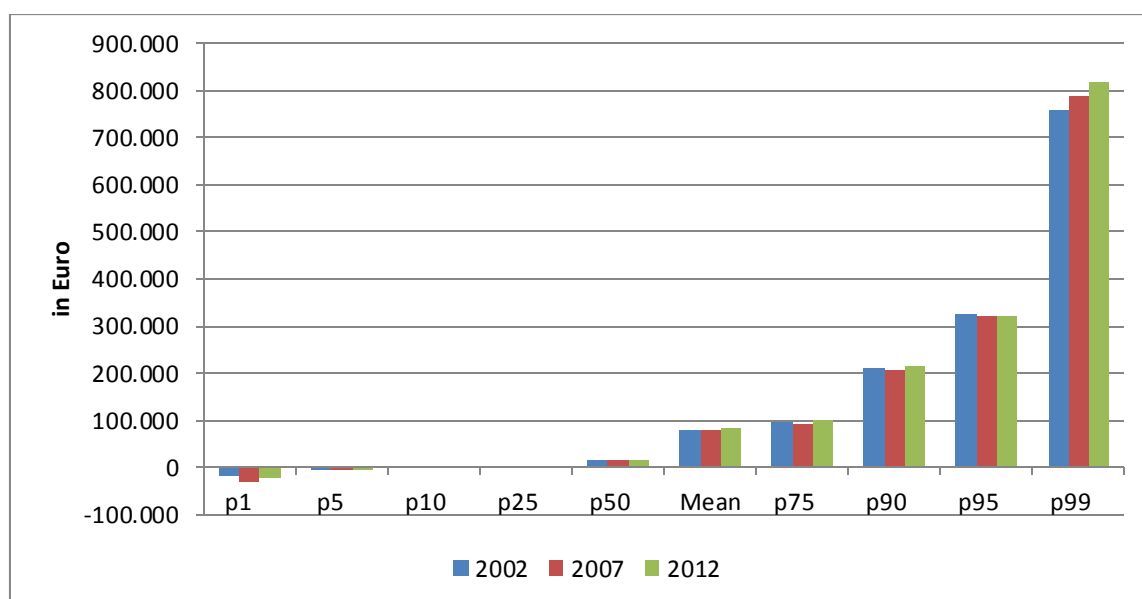
In 2012, net assets per adult (persons aged 17 or over) were roughly 83,000 euros in Germany (Figure 7). The median of the wealth distribution, that is, the value separating the wealthier 50 percent of the population from the poorer half, was 17,000 euros, distinctly lower than the average—a consequence of the unequal distribution of wealth.²⁴ Roughly one-fifth of all adults had no net assets—seven percent even had debts greater than their gross assets. The wealthiest tenth of the population aged 17 or over had net assets of at least 217,000 euros, and the wealthiest one percent at least 817,000 euros. Compared with 2007, there is only one significant change in wealth distribution. The value of the 75th percentile significantly increased slightly between 2007 and 2012 from 91,000 euros by 10 percent.²⁵

²³ For more details about the measurement and interpretation of various income mobility indices see Jäntti and Jenkins (2013).

²⁴ It must be taken into account that, like other similar studies, the SOEP does not entirely cover the upper margin of the distribution of wealth, thus underestimating it, as billionaires or multi-millionaires are not or only insufficiently included in the sample. When making use of information from the World Wealth report of Capgemini and RBC Wealth Management (2014) the number of high-net worth individuals with assets of at least US\$1 million (excluding primary residence, collectibles, consumables, and consumer durable) decreased in Germany from 826.000 in 2007 by 1.9% in 2008. However, since then the number of HNWIs strongly increased by almost 40 percent to 1,130 million in 2013.

²⁵ This result may be partly driven by the increase of the share of owner-occupiers in Germany. Owner occupied property is the quantitatively most important wealth component and in particular relevant in the upper half of the wealth distribution (see also Grabka 2014).

Figure 7: Individual net worth in Germany



Source: SOEPv29, individual net worth of individuals aged 17 or over in private households.

When analyzing standard inequality measures, there are again no significant changes between 2007 and 2012 (table 2). At best there is a small tendency of a decrease of wealth inequality, given that the Gini-coefficient slightly decreased from roughly 0.8 to 0.78 in 2012. Likewise the two presented percentile ratios also indicate a small compression of the wealth distribution, however again not significant. The p90/p50 ratio shrank from 14 to 13. These small changes point to losses at the upper part of the wealth distribution, which are confirmed when looking at wealth shares for those at the top of the distribution. For example the wealth share of the top-1-percent decreased slightly from 21.3 percent to 18.7 percent. However, again this change is not statistically significant.

Table 2: Distribution of net worth in Germany 2007/2012

	Lower bound	2007	Upper bound	Lower bound	2012	Upper bound
Gini	0.786	0.799	0.812	0.765	0.780	0.794
p90/p50	12.5	14.0	15.5	11.2	13.0	14.8
p75/p50	5.5	6.2	6.8	5.2	6.0	6.8
Wealth share of the top ...						
10 percent	58.9	60.5	62.2	56.0	57.5	59.0
5 percent	42.7	44.7	46.7	40.0	41.7	43.4
1 percent	19.1	21.3	23.4	17.1	18.7	20.4
Share with net worth <0 (%)	6.9	7.4	7.9	6.7	7.4	8.0
Share with net worth=0 (%)	18.9	19.7	20.5	19.3	20.2	21.1

Source: SOEPv29, individual net worth of individuals aged 17 or over in private households. Lower/upper bound represent a 95 percent confidence interval.

Significant changes in the wealth portfolio or in the incidence of wealth components did also not occur between 2007 and 2012 in Germany (not shown here). And even an analysis by subgroup e.g. by occupational status, age, sex or household type shows no significant changes in that period (for further details see Grabka and Westermeier 2014).

5. Discussion

Although Germany's economy was severely affected by the Great Recession as measured by real GDP we cannot find any significant short-term effect on neither income levels, its distribution nor the wealth distribution. One relevant factor for that stability is that the Great Recession yielded only a rather short-lived economic slump in Germany. In the last quarter of 2010, nominal GDP had already surpassed pre-recession levels. Thus, within less than three years, the German economy already resolved the crisis. An important factor for this quick recovery was a surge in the global demand for German exports. The sector affected most severely by the Great Recession was manufacturing—the sector that had been driving growth in Germany before the start of the recession and also one with high cash reserves. There are also indications that firms in this sector lacked skilled workers just before the start of the Great Recession (Burda and Hunt 2011).

One policy instrument that was reactivated and expanded to preserve these industries is short-time compensation (STC). The basic idea of STC is that a firm with financial difficulties—due, for example, to a slump in demand—can apply for financial aid from the Federal Employment Agency to prevent the need for layoffs. In return, the firm has to reduce working hours and pay. While STC plans are designed to last for six months in non-recession periods, from late 2008 to early 2009, they were lengthened to 24 months.²⁶ The STC program was heavily used in Germany during the Great Recession. The peak level of more than 1.4 million employees in STC was reached in early 2009 (this corresponds to about 5 per cent of all employees who are subject to social insurance contributions). But within less than 1.5 years, the number of employees in STC had fallen to pre-recession levels.²⁷

²⁶ STC is beneficial not only for employers but also for employees. STC payments in Germany have the same replacement rate as regular unemployment benefits: 60 per cent for single workers and 67 per cent for workers with dependents. Employer costs are also subsidized extensively. In the first six months, the employer has to pay only 50 per cent of social security contributions and beginning with the seventh month, all social security contributions are reimbursed. In some cases, employers do not even have to cover wages—for example, if workers are undergoing training.

²⁷ Other European countries were also able to cushion households from the immediate effects of the Great Recession by means of benefits and other social safety nets, which stabilized household net incomes in these countries (Jenkins et al. 2013).

Another important factor to explain the rigidity of the German income distribution during the Great Recession is the general trend towards more flexible work arrangements in Germany with e.g. increasing prevalence of working time accounts and so called ‘working-time corridors’ (Burda and Hunt 2011) which allow to buffer short-term lack of demand. In particular the manufacturing industry, which shrank by almost 20 per cent during the Great Recession in Germany, was a sector with economically strong firms, which had most severe recruitment problems before the crisis. Given that these firms were in a relatively good financial situation before the Great Recession, they were also able to hoard labor—by making use of working time accounts and working-time corridors—for at least a few months, and thus decided to retain their skilled workers in order to have them available when demand picked up again (Arico and Stein 2011).

Besides these labor market factors, an important element in stabilizing the whole economy and thereby also household incomes during the Great Recession were quick economic stimulus plans not only by the German government but also by other countries. So for example the German government passed two bills to sustain the economy during the Great Recession. These bills include e.g. a reduction in contributions to the statutory unemployment insurance, a government grant to the statutory health insurance, and a car scrappage scheme.²⁸ In addition, the government initiated public investments in infrastructure and in building renovation. The total amount spent by the government was estimated at about €80 trillion in 2009/2010, however a significant part of this was new liabilities. As a result total public debts increased from 64.9 percent of GDP in 2007 to more than 83 percent in 2010, which is far above the Maastricht criterion of 60 percent.²⁹ In parallel, total public deficit was about -3 percent in 2009 and -4.1 per cent in 2010. Because of the quick recovery of the German economy, the deficit in 2011 fell to only -0.9 percent and even +0.1 percent in 2012.

In addition to these economic stimulus plans the German government also decreased public spending on low-income families in particular and undertook a general cut in public expenditures. Although fiscal consolidation plans usually are accompanied by rises in income inequality as described by Woo et al. (2013) or Agnello and Sousa (2014), no relevant distributional change happened so far in Germany. However, the medium-term effects of the Great Recession will be lower rates for public investments (Bach et al. 2013) as the public

²⁸ The car scrappage scheme came into effect in January 2009, preserving the automotive industry against a severe slump, and entitled new car buyers to a €2,500 premium for their old vehicle which amounted to around € trillion.

²⁹ While for EU28 a comparable increase of total public debts can be observed a much more pronounced change happened e.g. in Ireland where total public debt amounted to less than 45 percent in 2008 and more than doubled to about 106 percent in 2011.

debt has to be pushed below the euro convergence criteria (also known as the Maastricht criteria) of 60 percent of GDP.

Thus the number of registered unemployed changed only very little during the Great Recession in Germany. While in 2005 the highest number of unemployed with more than 5 million (corresponding to an unemployment rate of 12.1 per cent) has been observed, a strong decline happened—in parallel with the implementation of several sweeping labor market reforms (such as the Unemployment II benefit). Unemployment in Germany reached a low point in October 2008 with less than 3 million unemployed (an unemployment rate of 7.6 per cent). The Great Recession put a temporary stop to this development in 2009, slightly increasing the number of unemployed by only 0.5 million (corresponding to a 0.7 per cent increase in the unemployment rate). Since then, unemployment has begun to decline again. This phenomenon is also described as the German labor market miracle (Boysen-Hogrefe and Groll 2010). The authors argue that among other things the pronounced wage moderation in the years before the Great Recession played also an important role for the small impact of the Great Recession on the German labor market, which constitutes a distinct difference to all other recessions in Germany.³⁰

Besides these substantial factors one should also keep in mind methodological effects which might hide or at least underestimate relevant changes with respect to income. In SOEP annual income as of the previous year is surveyed to approximate the welfare position of private households in Germany. This is done by first asking whether a certain income component was received, if yes how many months this income type has been obtained and finally how much this was on average per month. However, by asking this in the respective way income changes during a year might be underestimated due to job changes, negotiated wage increases or variations of compensations which goes beyond basic pay. It is likely that in particular the latter may be relevant in times of recessions. In addition the SOEP only collected information whether employees received STC but not the amount. It can be assumed that employees did not distinguish between basic pay and STC—given that both is usually paid by the employer—and thus underestimated the true degree of income changes. Another methodological restriction is the underrepresentation of top-income and top-wealth households in SOEP as is the case for all population surveys.³¹ It can be assumed that households at the very top of the income and wealth hierarchy may be significantly affected

³⁰ In 2012, the German unemployment rate was the lowest since reunification at 6.8 per cent.

³¹ For the relevance of top-wealth households on the distribution of net worth using the HFCS see Vermeulen (2014).

by a financial crisis and may have lost wealth and received lower capital and business income from their investments. However, as this population is not very well captured in SOEP the presented results may underestimate the true degree of the Great Recession on income and wealth inequality.

Despite the surprising small effect of the Great Recession on income levels and income inequality in Germany it is much more astonishing that no distributional effects can be described for wealth at least with the data at hand. At first it is important to keep in mind that Germany was hit by the Great Recession due to a backlash of global demand though predominantly not by a financial crisis or a burst of the housing market like in the U.S. Nevertheless, figures from the national accounts show that aggregate real gross financial assets dropped by at least 4.7 per cent between late 2007 and the first quarter of 2009 in Germany. This figure already reached pre-crisis levels in the fourth quarter of 2010.

Given that we had only data for two points in time available namely 2007 and 2012 it is therefore not remarkable that no relevant change could be observed.³² Thus one can argue that the Great Recession only led to short-term book losses which were hardly realized during that period. Over and above real prices for property reached record lows in Germany at the time of the Great Recession—after a strong decline of about 15 years—and started to increase by at least less than two percent per year since then (Dreger and Kholodilin 2013), which also stabilized private net worth in Germany after the Great Recession.³³ Lastly, given the small changes in incomes during the Great Recession there was no need to compensate income losses by liquidating assets.

6. Conclusion

The Great Recession led to a strong but only temporary decline in real GDP as well as in aggregate financial assets in Germany. However, this economic downturn had only small effects on the labor market given that the unemployment rate rose by only 0.7 percent in 2009. Since then the labor market has begun to recover with an unemployment rate of less than 7 percent in 2012 which was the lowest since reunification. Four factors played an important role for this general development: Firstly, the quick reactivation and expansion of short-time compensation, secondly flexible labor arrangements which allowed overcoming

³² The income and expenditure survey (EVS) of the Federal Statistical Office also only collects wealth information in five-year intervals, the last two surveys took place in 2008 and 2013. Again no relevant changes can be found. In contrast the US panel study of income dynamics (PSID) collects every other year wealth information.

³³ In contrast to almost all OECD countries the German housing market contracted strongly before the Great Recession. The contraction already started in the mid 1990's and lasted until 2009.

the immediate effects of the Great Recession. Thirdly, economic stimulus plans not only by the German Government tried to alleviate the economic burden of the Great Recession on companies and firms by amongst a reduction in contributions to the statutory unemployment insurance and public investments in infrastructure and in building renovation. Lastly, and maybe most important a surge in the global demand for German exports helped the German economy to recover early and faster than other economies.

In consequence, we do observe only short rather small effects of the Great Recession on income levels either on gross labor income, household market income or post-government household income based on SOEP data. When it comes to distributional effects we find no significant changes for the three income concepts under consideration. Even findings for the at-risk-of poverty rate indicate no significant change so far. When it comes to income mobility one gets the impression that the Great Recession temporary froze the income structure while afterwards income mobility tries to make up leeway. Findings from a factor decomposition showed that capital income lost their relevance in explaining the historically rather high levels of inequality during the Great Recession. In contrary the relative contribution of labor income to overall inequality recurred and meanwhile the buffering effect of taxes and social contributions diminished.

Despite the surprisingly small effect of the Great Recession on income levels and income inequality in Germany it is much more astonishing that no distributional effects can be described for wealth at least with the data at hand. Here the lack of adequate prompt micro data is relevant to explain this finding given that the SOEP does provide wealth information for 2007 and 2012 only, while the financial markets already recovered rather quickly. However, no sensible alternative data source is available in Germany to describe wealth inequality during the Great Recession.

Here we described the short term distributional effects of the Great Recession only. However, the German government already decreased public spending on low-income families and undertook a general cut in public expenditures. Although fiscal consolidation plans usually are accompanied by rises in income inequality as described by Woo et al. (2013) or Agnello and Sousa (2014), no relevant distributional change happened so far in Germany. However, in the medium term one can assume deferred effects of the Great Recession also in Germany. Most recent findings from the Federal Statistical Office (2014) allude that the poverty risk rate started slightly to increase further.³⁴ Additionally, one can assume that in the

³⁴ Future research should try to disentangle how much of this increase is related to these medium term effects of the Great Recession.

medium term income inequality will further increase, because of the recovery of capital income. Future research about the impact of the Great Recession should also widen their view to not only by looking at income levels and their distribution but also investigating e.g. the gain of vulnerable groups or health consequences. For example in Ireland the Great Recession had also rather little impact on levels of relative income poverty or inequality, but it was associated with a doubling of the rate of economic vulnerability (Whelan and Maitre 2014) while Kentikelenis et al. (2014) found that austerity programs in Greece lead to an increase of the number of people reported unmet medical need because they are mostly unable to afford care.

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