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ABSTRACT

Trends in the German Income Distribution: 2005/06 to 2010/11[1]

We analyze the potential influence of a number of factors on the distribution of equivalized net incomes in Germany over the period 2005/2006 to 2010/11. While income inequality considerably increased in the years before 2005/2006, this trend was stopped after 2005/2006. Among many other factors, we consider the role of the employment boom and the development of inequality in wage incomes after 2005/2006. Our results suggest that, despite further increases in wage inequality, inequality in equivalized net incomes did not increase further after 2005/2006 because increased within-year employment opportunities compensated otherwise rising inequality in annual labour incomes. On the other hand, income inequality did not fall in a more marked way after 2005/2006 because also the middle and the upper part of the distribution benefitted from the employment boom. Other factors, such as changing household structures, population aging and changes in the tax and transfer system had no important effects on the distribution. Finally, we find little evidence that the distribution of equivalized net incomes was affected in any important way by the financial crisis and the subsequent great recession.

JEL Classification:	C14, D31, I30
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1 Introduction

Despite considerable public interest in distributional issues in Germany as well as in many other countries, systematic analyses of the evolution of the income distribution and its potential determinants remain surprisingly rare. There is a well-established literature in labour economics that studies rising inequalities in wage incomes (for Germany, see Dustmann et al., 2009, Fuchs-Schündeln et al., 2010, Fitzenberger, 2012, and Card et al., 2013, among others). The distribution of wages paid in the labour market is certainly a major component of the overall distribution of incomes, and it is important for our understanding of how labour markets work. However, the final distribution of disposable incomes in a population is the complex outcome of a large number of further factors such as the development of household forms, the employment opportunities and employment decisions of households, the influence of other income sources such as capital incomes, and the transformation of market incomes into net disposable incomes through the tax and transfer system.

The goal of this paper is to provide a detailed analysis of the potential influence of these factors on the German income distribution for the period 2005/2006 to 2010/2011. We consider in detail the potential impact of changes in the composition of the population with respect to household types and household characteristics, changes in household employment outcomes and labour market returns, the role of capital incomes as well as the potential effect of reforms in the tax and transfer system. Each of these factors may have their own effect on the distribution of net incomes and some of these effects may oppose each other. Among many other things, we address the puzzling question why, after considerable increases in inequality and poverty risk between 1999/2000 and 2005/2006, the highly dynamic development of the German labour market did not lead to a decrease in inequality and poverty after 2006. We also provide evidence that reconciles seemingly contradictory results on further increasing wage inequality derived from administrative data sources such as the SIAB and the finding that inequality in yearly labour incomes as measured in a household survey like the SOEP did not increase further after 2006. Finally, as our period under consideration covers the financial crisis of 2007/2008 and the subsequent great recession, we are able to assess the potential influence of these important global events on the German income distribution.

Our study complements and extends the limited number of contributions that deal with the general evolution of the German income distribution, see Biewen and Juhasz (2012), Grabka et al. (2012), Grabka and Goebel (2013), IAW (2013), Schmid and Stein (2013), Sachverständigenrat (2011, 2015), Corneo (2015), and Feld and Schmidt (2016). Grabka et al. (2012), Grabka and Goebel (2013), Schmid and Stein (2013), Sachverständigenrat (2011, 2015) as well as Feld and Schmidt (2016) document and discuss a number of relevant trends in the distribution of equivalized net incomes but do not explicitly model their potential influence on the distribution. There are only few exceptions that adopt a more analytic approach to changes in the German income distribution, see in particular Peichl et al. (2012) and Jessen (2016). Using comparable methods as in the present paper, Biewen and Juhasz (2012) and IAW (2013) analyzed the development of the distribution between 1999/2000 and 2005/2006, which is the period immediately preceding the period considered in the present study. For a comprehensive overview of a number of relevant developments in the German income distribution, see Corneo (2015).

The rest of this paper is structured as follows. Section 2 introduces the data on which our study is based. In section 3, we present general trends as well as our analysis of the potential influence of different factors on the distribution. Section 4 concludes. The appendix describes details of the different techniques used by us to estimate the effect of underlying factors on the distribution.

2   Data

Our study is based on data from the German Socio-Economic Panel (SOEP).[2] Despite a number of limitations, the SOEP is the only data suitable for the present analysis, as it is the only data set that provides sufficiently rich information on annual incomes and its different sources along with a range of individual and household characteristics. Our analysis of the influence of different factors on the income distribution focusses on the period 2005/2006 to 2010/11, but in many cases we show long-term trends from 1994 onwards. Our dependent variable is real annual equivalized net income in prices of 2011 which is calculated from annual net household income. The latter is provided in the SOEP as annual household gross income (reported by all household members) minus household income taxes and household social security contributions (both calculated by the data provider DIW) plus household public transfers (as reported by the household members).

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[2]See Wagner et al. (2007).

Household gross income comprises all private sources of income including labour income, capital income (i.e. income from interest, dividends, rent etc. but not including capital gains), private transfers and private retirement incomes.

Following common practice, we include in household gross income imputed social security contributions for civil servants (which are fully paid by the employer and thus do not appear in civil servants' reported gross income) as well as imputed rental values for owner occupied housing. The latter are calculated by the data provider as the rent for owner occupied housing minus operating costs, interest payments on mortgages and property taxes. Imputed rental values are the equivalent of income from rent received by owners who do not use their property as their own housing (they are thus a form of capital income). Household public transfers include the full range of government transfers such as unemployment benefits, child benefits, student grants, subsistence allowance as well as old age pensions from the public pension system. As completed annual incomes can only be reported for the previous year, we shift all income information by one year. In this way we make sure that our analysis of a particular year refers to the incomes reported by the population for that year.

We equivalize household annual net incomes using the widely used modified OECD equivalence scale, where the household head receives a weight of one, further household members over 14 years receive a weight of .5 and those aged 14 years or less a weight of .3. Note that our analysis refers to individuals not to households. This means that all individuals in the household (including children) are assigned the value of equivalized personal income $hhnet/s$ (where $hhnet$ is the household net income and s is the sum of equivalence weights for the household). We distinguish between six different household types: (i) single pensioner households (65 years or older), (ii) multiple pensioner households (at least one household member 65 years or older and no household member under 55 years), (iii) single adults without children, (iv) multiple adults without children, (v) single adults with children, and (vi) multiple adults with children.

We make use of a wide range of further household characteristics.[3] In particular, we consider the number of adults in the household, the proportion of female adults in the household, the proportion of adult household members with different educational qualifications (university degree, high school and/or vocational training, no such degree or qualification), the proportion of household members with disabilities, the proportion of married adults in the household, the proportion of

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[3]For some summary statistics, see table 3.

household members in different age groups (0-3 years, 4-11 years, 12-17 years, 18-30 years, 51-64 years, 65 years or older) as well as a variable indicating whether the household lived in East Germany. In order to describe household employment, we define the following ordinal range of household employment outcomes: (i) no part-time or full-time job in the household, (ii) no full-time job but at least one part-time job in the household, (iii) one full-time job but no part-time job, (iv) one full-time job and at least one part-time job, and (v) at least two full-time jobs in the household. Our definition of part-time jobs also includes marginal employment ('Mini-/Midijobs'). Category (iii) thus also covers the case where one and the same individual holds both a part-time job (e.g. 'Minijob') and a full-time job.

3   Overall trends

Figures 1 and 2 display general inequality trends in equivalent incomes over the period 1994 to 2011 measured by a number of commonly used indices.[4] There are three distinctive subperiods: (i) 1994 to 1998: slightly decreasing inequality and poverty, (ii) 1999 to 2005: substantially rising inequality and poverty, and (iii) 2006 to 2011: constant or slowly declining inequality along with constant or slightly increasing poverty. The period 1999 to 2005 was analyzed in detail in Biewen and Juhasz (2012) and IAW (2013). The evidence presented there suggests that around 40 to 50 percent of the substantial rise in inequality and poverty over this period can be accounted for by changes in labour market returns, around 20 to 30 percent by changes in employment and unemployment, and another 20 to 30 percent by changes in the tax system. Changes in the transfer system (in particular the Hartz reforms), changes in household structures as well as changes in the composition of the population with respect to age, education, nationality and other characteristics played only a minor role.

— Figures 1 and 2 around here —

In the present paper, we analyze the influence of a broad range of factors on the changes in the distribution for the subsequent period 2006 and 2011. During this period, inequality in

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[4]For these indices, see, e.g., Cowell, 2000. Following common practice in the European Union, we define the poverty rate as the proportion of individuals with incomes less than 60% of the median. 'Income richness' is defined as the proportion of individuals whose incomes are higher than two times the median.

disposable incomes displayed a horizontal to slightly decreasing trend, while measured poverty slightly increased. Our measure of income richness also followed a generally horizontal trend, with a slight dip after 2007, which was also reflected in the ratio of the 90th to the 50th percentile of the distribution displayed in figure 2. Apart from inequality, poverty and the share of the affluent, the development of the average standard of living is an essential determinant of social welfare. The evolution of mean and median equivalized incomes over the period 1994 to 2011 are shown in figure 3. Again, three different subperiods can be distinguished: (i) substantially rising average equivalent incomes between 1994 and 1998, (ii) stagnating or falling incomes between 1999 and 2005, and (iii) moderately increasing incomes between 2006 and 2011.

— Figure 3 around here —

The fact that there was a clear rise in median equivalent income from 2006 to 2011 raises the question to what extent the rise in the poverty rate over the same period was due to a rise in the relative poverty line of 60 percent of the median rather than due to falling incomes of the poor. Figure 4 shows that this was completely the case. If the poverty line had been fixed at its 2006 level, the proportion of the poor would even have declined over the period 2006 to 2011. This means that low income groups did not participate in income increases to the same extent as more affluent groups but also that low income groups did not suffer absolute income losses over this period.

— Figure 4 around here —

Table 1 addresses the question to which extent the moderate changes of the distributional indices over the period 2006 to 2011 were statistically significant. In order to increase statistical precision and in order to make the analysis less dependent on individual years, we consider the changes between the pooled observations 2005/2006 and 2010/2011.[5] It turns out that the measured changes were economically rather small and in many cases statistically insignificant. For example, a change of the Gini by -.005 corresponds to a redistribution of one percent of mean income from each individual in the upper half of the distribution to each individual in the lower half of the

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[5]We compute bootstrap confidence intervals taking account of the longitudinal correlation in our data set and the clustering of observations at the household level (see Biewen, 2002).

distribution (Blackburn, 1989). The change in average income was also moderate (plus 685 Euros for the mean and plus 744 Euros for the median), amounting to an increase of the average standard of living over the period considered by us of around 3 to 4 percent.

— Table 1 around here —

Figure 5 summarizes the overall change of the distribution of equivalent incomes between 2005/2006 and 2010/2011.[6] The figure confirms the trends described previously, i.e. there was a significant shift of the distribution to the right, while its disperson stayed constant or was slightly narrowing.

4 Empirical analysis

The apparent stability of the distribution between 2005/2006 and 2010/2011 is surprising given the dynamic development of the labour market and other underlying factors over this period (see below). Note that this apparent stability may also be the result of countervailing trends which compensate each other. One of the goals of the following analysis is to investigate to what extent this was the case. In order to do so, we consider the potential effects of a number of factors on the shape of the distribution and on summary measures of inequality, poverty and richness. For this purpose, we employ different techniques of constructing counterfactual distributions in which we change a given factor in isolation and consider the effect of doing this on the distribution. Detailed descriptions of the methods used for each factor are provided in the appendix.

4.1 Changes in household structures

Changes in the composition of the population with respect to different household types will change the distribution of incomes if average incomes differ systematically across household types. For example, inequality and poverty may rise if household types with unfavorable income positions (e.g. lone parents) become more prevalent in the population. In the present analysis

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[6]In order to facilitate graphical analysis, the figure shows the distribution of *log* equivalent incomes.

we distinguish between the six household types defined in section 2. Figure 6 shows the evolution of their population shares over time.

— Figure 6 around here —

During the period under consideration (shaded grey), we observe a marked increase in the population share of multiple adult households without children at the cost of multiple adult households with children. We also observe slight increases in the proportion of single adult households without children and that of multiple pensioner households. In order to gauge the potential effect of these changes on the distribution of equivalent incomes, we construct an income distribution that would result if we keep everything at the level of the base period 2005/2006 but change the composition of the population with respect to household types to its 2010/2011 level.[7]

— Figure 7 and table 2 around here —

The result of this exercise is shown in figure 7. The effect on our range of distributional indices is given in table 2. The observed changes in the distribution of household types tends to shift the upper half of the distribution to the right. This makes sense as we observe increasing population shares of household types with higher average equivalent incomes at the cost of those with lower average equivalent incomes. However, the total effect of these changes on the distribution is rather small and in most cases statistically insignificant (see table 2).

4.2 Changes in other household characteristics

Next, we consider the effect of changes in further household characteristics. In particular, we consider changes in the composition with respect to nationality (e.g. as the result of migration), educational qualifications, the more detailed age structure of households, and with respect to similar characteristics. As table 3 shows, most of these household variables did not change substantially between 2005/2006 and 2010/2011. The only exceptions are slight changes in the share of certain age groups (higher shares of older household members at the cost of lower shares of younger household members) and a slight shift towards higher educational qualifications.

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[7]See appendix for a more detailed description.

— Table 3 around here —

In order to gauge the effect of these changes on the distribution of equivalent incomes we construct a distribution that would result if we keep everything as in 2005/2006 but change the joint distribution of the list of household characteristics shown in 3 to the level of 2010/2011.[8] The results of doing this are shown in figure 8 and table 4. The changes in question appear to induce a slight shift of the middle and the upper part of the distribution to the right which is consistent with the observation that there were more households with higher educational qualifications and fewer children in 2010/2011 when compared to 2005/2006. Although table 4 shows that these effects were often statistically significant, they were small in economic terms. For example, the induced change for the poverty rate is around one third of a percentage point, the effect for the Gini and other inequality indices was similarly small.[9]

— Figure 8 and table 4 around here —

4.3 Changes in household employment outcomes

During the period under consideration, the German labour market experienced a considerable boom. Employment rose continuously between 2006 and 2011, leading to record levels in 2011 and to the lowest unemployment rate since reunification (see, e.g., Sachverständigenrat, 2011, Kapitel 7). This positive trend was not stopped by the financial crisis of 2007/2008, during which the German labor market stayed surprisingly robust (Möller, 2010). In order to see how these trends manifested themselves at the household level, we distinguish between the five different household employment intensities described in section 2. The evolution of the proportion of households in each of the five groups are shown in figure 9. The decline in unemployment is reflected in the declining proportion of households in which no household member is employed. There was a strong increase in the number of households with part-time but no full-time employment, and a moderate increase in the number of households with at least two full-time jobs. We also note the secular decline of households with exactly one full-time job but no part-time (or marginal) employment.

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[8]See appendix for more details.

[9]Note that, apart from statistical significance, the relatively small changes observed may well lie within the margin of potential misspecification of our counterfactual distributions.

— Figure 9 around here —

In order to assess the effects of these changes on the income distribution, we construct a counterfactual distribution in which we keep everything as in 2005/2006 but shift to the level of 2010/2011 the probabilities that a household with the list of characteristics shown in table 3 reported one of the five employment outcomes shown in figure 9.[10] In this way, we capture the effect of changes both in the level and in the composition of employment between 2005/2006 and 2010/2011, conditional on household characteristics.

— Figure 10 and table 5 around here —

Perhaps surprisingly, the result of this operation as shown in figure 10 and table 5 suggests that the employment changes between 2005/2006 and 2010/2011 did not lead to major changes of the distribution of equivalent incomes. There was a slight shift of the distribution to the right, but otherwise the employment increases were distributionally neutral. In order to investigate why this was the case, table 6 describes which kind of households benefitted from the employment gains. The table describes how households with certain employment outcomes in a given year changed their employment to the next year and averages these yearly changes over the years 2005 to 2011. For example, the average yearly employment gains (full-time or part-time) between 2005 and 2011 in households with exactly one full-time job was .123, while that of households without employment (e.g. due to unemployment) was only .085. This means that the employment boom did not only bring unemployed households into employment but also increased employment in households in which there already was full-time employment.[11]

— Table 6 around here —

A more detailed analysis distinguishing between full-time and part-time employment gains reveals that especially households who already reported part-time employment but also households with

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[10]See appendix for more details.

[11]Note that the net employment changes reported in the table mask a great deal of heterogeneity, as households change their employment behaviour for many different reasons such as demographic or labour market events, independently of aggregate employment gains. The negative net employment changes in households with at least two full-time jobs are the result of a ceiling effect (being the top category, these households are likely to downgrade their employment).

full-time employment were able to further increase their full-time employment. In particular, the middle panel of table 6 suggests that households with one full-time and at least one part-time job upgraded to two or more full-time jobs. As such households tended to belong to the middle or even the upper part of the distribution, these employment gains were not necessarily inequality reducing. The results in the lower panel of table 6 point in the same direction. Additional part-time employment was not only picked up in households without any employment but especially in households in which there was already full-time employment (or even double full-time employment). We observe an average decrease of part-time employment in households with part-time (but no full-time) jobs, suggesting that these households were able to upgrade their part-time employment to full-time employment (consistent with the numbers in the middle panel of table 6).

— Figure 11 around here —

The hypothesis that the expansion of employment from 2006 to 2011 was distributionally neutral is further supported by figure 11. The figure compares the average number of jobs per household in non-pensioner households across the deciles of the distribution of equivalent incomes. It turns out that the average number of jobs per household in 2010/2011 lies above the average number of jobs in 2005/2006, uniformly across the deciles of the income distribution. Distinguishing between full-time and part-time jobs, the interesting finding emerges that the average number of part-time jobs was higher in 2010/2011 at the bottom and the middle of the distribution, whereas the higher number of full-time jobs applied to the middle to the upper part of the distribution. Again, this is consistent with the hypothesis that the employment gains over the years 2006 to 2011 were distributionally neutral, as absolute gains have to be higher for the upper part of the distribution if relative proportions are to be preserved.

4.4 Changes in labour market returns

Changes in the labour market returns of individual characteristics such as educational qualifications or work experience have been the subject of an important recent literature in labour economics (Dustmann et al., 2009, Fuchs-Schündeln et al., 2010, Fitzenberger, 2012 and Card et al., 2013). As shown in Biewen and Juhasz (2012) and IAW (2013), this factor can account for up

to 40 to 50 percent of the inequality increase in net equivalent incomes between 1999 and 2005. In order to investigate how changing labour market incomes carry through to the distribution of equivalized net incomes, figure 12 displays the evolution of inequality in equivalized household labour market income including households with zero labour market incomes (i.e. households without employment). The graph shows a declining trend of inequality. However, this result might be due the fact that some households increased their labour income from previously zero to a positive amount (as a consequence of the employment boom).[12] By comparison, figure 13 shows the evolution of inequality in household labour incomes *conditional on employment* (i.e. excluding households with zero labour income). The resulting inequality trend is now essentially flat, implying that the inequality decline in figure 12 was indeed caused by falling numbers of households with zero labour income.

— Figures 12 and 13 around here —

Figure 13 suggests that - in contrast to the period 1999 to 2005 analyzed in Biewen and Juhasz (2012) - there were no inequality increasing effects of household labour income after 2006. In order to test this hypothesis, we construct a counterfactual distribution of equivalent incomes that results if we keep everything as in 2005/2006 but shift the labour market returns to household characteristics and household employment outcomes to the level of 2010/2011.[13] The resulting effects are shown in figure 14 and in table 7. It turns out that, due to rising real wages between 2005/2006 and 2010/2011, the distribution of equivalent net incomes shifted to the right, but did not increase its spread.

— Figure 14 and table 7 around here —

At first sight, the finding in figures 13 that inequality in labour incomes did not increase anymore after 2006 appears to contradict evidence based on other data sources such as the SIAB (Sample of Integrated Labor Market Biographies) or the VSE (Structure of Earnings Survey), see Fitzenberger (2012), Card et al. (2013) and Möller (2016). For example, based on the

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[12]The graph shows only the Gini as other commonly used inequality indices cannot deal with zero values.

[13]These returns were estimated by regressions of annual household labor income on household characteristics and household employment outcomes separately by household type, see appendix for more details.

SIAB, Möller (2016) finds that wage inequality increased up to 2011, but presents evidence that there was no further increase after 2011. However, there are important differences between these studies and the analysis of labour incomes conducted here. First, the studies cited focus on individual wage income from dependent full-time employment, whereas our data defines labour incomes in a more comprehensive way including part-time employment, marginal employment and self-employment. Second, we consider household labour income as opposed to individual wage income, which we equivalize (in order make the link to equivalized net income, our income concept of interest). Third, and most importantly, the studies cited usually consider inequality in monthly, daily or hourly wages, whereas we focus on the cumulated annual labour incomes of all household members.

— Figure 15 around here —

In order to shed more light on the latter difference, figure 15 shows inequality in *individual monthly* labour incomes (individual annual labour incomes divided by the number of months worked). As in Möller (2016), the graph suggests that inequality in individual monthly labour incomes continued to increase after 2006, although at a lower rate as during the period before that. The finding that inequality further increased after 2006 in monthly but not in yearly labour incomes may have been the result of increased possibilities to prop up labour incomes by additional marginal employment ('minijobs') or by the fact that falling unemployment implied fewer (or shorter) interruptions of annual employment. Note that our definition of household employment outcomes above did not accomodate these differences in the intensive employment margin. Figure 16 shows that this difference is indeed the source of the differences between figures 13 and 15. It can be seen that the still rising inequality trend in *individual monthly* labour incomes (figure 15) is completely eliminated if *individual yearly* labour incomes are considered (figure 16). Our analysis thus reveals that within-year variations in employment, either through additional marginal employment or through fewer interruptions by unemployment, tended to compensate otherwise further rising inequalities in monthly labour incomes.

— Figure 16 around here —

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4.5 Changes in capital incomes

Apart from labour incomes, changes in household capital incomes as well as changes in the ratio of capital to labour incomes may influence the distribution of equivalized net incomes. This is particularly interesting as capital incomes may have been substantially affected by the financial crisis of 2007/2008.[14] Figure 17 displays the evolution of inequality in equivalized household capital incomes including households with zero capital income. Note the very high level of the Gini of over 80 percent which is due to the fact that most households have zero capital incomes. Inequality in equivalized capital incomes decreased after 2005 - and in an accelerated manner after the financial crisis 2007/2008 - but returned to the level of 2005 in the year 2011. A potential reason for the falling inequality in household capital incomes after 2007 appears to be that average capital incomes (measured in households with positive capital incomes) fell from 2007 onwards after they had been continuously increasing since at least 1994 (see figure 18).

— Figures 17 and 18 around here —

We assess the potential influence of these changes on the distribution of net equivalized incomes by constructing a distribution that results if everything is kept at the level of 2005/2006 but the distribution of capital income is shifted to its level of 2010/2011. We do this by assuming that the ranks of households in the distribution of capital incomes stay constant, i.e. a household who was at the 36th percentile of the capital income distribution in 2005/2006 is assigned the 36th percentile of the capital income distribution of 2010/2011.[15] As figure 19 and table 8 show, the effect of doing this is essentially zero. Apart from the very modest changes in the distribution of capital incomes, the likely reason for this is that capital incomes only represent a small share in overall household gross income (seven to nine percent), as shown in figure 20.

— Figure 19 and table 8 around here —

Our analysis of capital incomes is subject to the important caveat that very high incomes are likely to be underrepresented in sample surveys like the SOEP. As capital incomes are mostly

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[14]The potential impact of the financial crisis 2007/2008 on different components of the distribution is discussed in more detail in section 4.8.

[15]See appendix for more details.

concentrated at the top of the distribution, our analyis may therefore underestimate the influence of this factor on the distribution of net equivalized incomes. For a detailed discussion of this issue, see Drechsel-Grau et al. (2015) and Bartels and Schröder (2016). Note however, that taking into account evidence from other data sources, Germany generally does not seem to display the drastically rising shares of top incomes observed in some Anglo-Saxon countries (Bartels and Jenderny, 2015, and Atkinson et al., 2011).

— Figure 20 around here —

4.6   Changes in the transfers system

After the fundamental changes of the Hartz-IV reform that took effect in 2005 (analyzed in Biewen and Juhasz, 2012, IAW, 2013), there were only relatively minor changes in the transfer system after 2005. These included, besides minor adjustments to different benefits and allowances, the (re-)extension of the maximal entitlement period of unemployment benefits I (ALG I) from 18 to 24 months for older workers in January 2008, as well as the abolition of a particular allowance ('Armutsgewöhnungszuschlag') in January 2011 that aimed to mitigate the transition from unemployment benefits I (depending on previous wages) to the generally much lower unemployment benefits II (a lump-sum and means-tested basic income).[16]

In order to assess the potential effect of these changes on the distribution of net equivalized incomes, we construct a counterfactual distribution in which we keep everything at the level of 2005/2006 but assign to each household the change in benefits that results from the changes in the transfer system. For the computation of the difference in transfers under the old transfer system of 2005/2006 and the new transfer system of 2010/2011, we use the microsimulation model $IZA\Psi MOD$.[17]

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[16]This allowance amounted to two thirds of the difference between unemployment benefit I and unemployment benefit II in the first year of unemployment benefits II, and to one third of the difference in the second year.

[17]See appendix and Löffler et al. (2014). We thank Nico Pestel and Eric Sommer for their help in using $IZA\Psi MOD$. The $IZA\Psi MOD$ version used by us covers all changes in transfers and allowances over the period under investigation including the abolition of the 'Armutsgewöhnungszuschlag' but excluding the extension of the maximal entitlement period for older workers. We do not expect the latter changes to have any noticeable effect on the distribution however, as the individuals affected represented a tiny proportion of the population and

The results shown in figure 21 and table 9 are statistically significant but, again, economically small. There was a small shift from the very bottom of the distribution to the lower middle part which was the likely result of several adjustments of transfer payments to general income growth. Note that, as expected, the changes of the transfer system were concentrated in the lower part of the distribution as only these households receive substantial amounts of transfer incomes.

4.7 Changes in the tax system

Apart from minor adjustments to exemptions and allowances, there were two relatively substantial changes to the German tax system during the period considered by us. The first one was the introduction of a so-called 'rich tax' (January 2007) which raised the marginal tax rate from 42 to 45 percent for taxable incomes above 250.000 Euros. The second one was the introduction of a withholding tax ('Abgeltungssteuer') for certain kinds of capital incomes with a proportional rate of 25 percent which replaced the taxation of these capital incomes within the more general system of income taxation (January 2009).

In order to gauge the effect of these changes on the distribution of equivalized net incomes, we compute a counterfactual income distribution in which we keep everything as in the situation of 2005/2006 but apply to the taxable incomes of these years the changed tax system as of 2010/2011. We do this by replicating the information on household tax payments in the SOEP (which are based on tax simulations carried out by the data provider DIW) using flexible regression methods and by counterfactually applying the tax schedule obtained in this way to the taxable incomes in 2005/2006.[18] Figure 22 and table 10 suggest that these changes implied small changes to the upper part of the distribution of net equivalized incomes, which conforms to

as the much more substantial changes in unemployment benefits due to the Hartz-IV reform did not have any substantial effects according to our analysis in Biewen and Juhasz (2012). Also note that our analysis does not consider potential behavioural adjustments to the changes in the transfer system. However, given the evidence in Jessen (2016) such potential behavioural reactions appear to be rather small.

[18]This method was used, e.g., by Frenette et al., 2007. See appendix for more details. Note that we (as in our simulations of the transfer system) ignore potential behavioural reactions to tax changes in this way. However, given the evidence in Jessen (2016) and given that the mechanical effects on the income distribution are already very small, it is unlikely that incorporating behavioural reactions would change any of our results.

the expectation that the tax changes under consideration (the 'rich tax' and the withholding tax for capital incomes) mostly referred to this part of the distribution. As figure 22 shows, higher incomes appear to have been net beneficiaries of these changes, although the gains were small in economic terms. Again, the important caveat applies that top incomes are likely to be underrepresented in the SOEP so that we might underestimate the effects of the tax reforms considered.

— Figure 22 and table 10 around here —

4.8 Specific effects of the financial crisis 2007/2008

In this section, we provide a brief discussion of the potential effects of the financial crisis 2007/2008 on the German income distribution. The financial crisis began in the year 2007 as the consequence of the bursting of the U.S. housing bubble and culminated in the breakdown of Lehmann Brothers in 2008. In Germany, the financial crisis led to a drop in GDP by 5.6 percent in the year 2009, which was followed by a swift recovery and which had surprisingly limited consequences for the German labour market (Möller, 2010). The financial crisis quickly spread across global financial markets leading to a drop in asset values and falling returns to financial assets in many countries of the world.

In relation to the years of the financial crisis, we make the following observations. These observations are not necessarily causal but they are suggestive of the potential effects of the crisis on different components of the German income distribution. First, we observe average equivalized household capital income to start falling after 2007, after continuous increases in the years before (figure 18). Second, inequality in equivalized household capital incomes fell after 2007 in a marked way and did not pick up again until 2010 (figure 17). Third, our index of income richness exhibited a marked fall from 2008 to 2009, also reflected in the ratio of the 90 percent percentile and the median which, however, was already falling from 2006 onwards (figure 2). Fourth, the share of capital income in total household gross income slightly decreased after 2007 after continuous increases up to that point (figure 20). By contrast, the time series of average household labour income as well as that of inequality in household labour incomes did not exhibit obvious co-movements with the financial crisis (figures 13 and 23). This is consistent with the hypothesis that the financial crisis and the subsequent great recession had only very limited consequences

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for the German labour market.

— Figure 23 around here —

Taken together, there is little evidence that the distribution of net equivalized incomes in Germany was substantially affected by the financial crisis and the subsequent great recession. While we observe a number of more or less obvious co-movements of capital income related measures with the years of the crisis, we do not observe such co-movements for labour related measures. As the latter dominate capital incomes in their effect on the distribution of net equivalized incomes, we conclude that the net effect of the financial crisis on the distribution of equivalized net incomes was very limited.

5   Conclusion

This paper considered the evolution of equivalized net incomes in Germany over the period 2005/2006 to 2010/2011. After steep increases before 2005, inequality in equivalized net incomes stayed constant or decreased over the period 2005/2006 to 2010/2011. The relative poverty rate followed a slightly increasing trend after 2006, which was not the result of an increasing proportion of low incomes but the consequence of significant increases in average incomes which also raised the poverty line. Hence, low income households participated less in the general income growth than middle or high income households. We provide a detailed analysis of the role of a number of factors for the distribution of equivalized incomes. Despite notable changes in the distribution of household types over the period considered by us (falling population shares of multi-adult households with children at the cost of those without children), we do not find that this trend had substantial effects on the distribution of equivalent incomes. Similarly, we do not find that changes in other household characteristics such as the trend towards higher average ages and higher educational qualifications of household members had substantial consequences for the income distribution over the period 2005/2006 to 2010/2011. In the same way, our results suggest that changes in the transfer system after 2006 as well as the potentially highly relevant changes in the tax system ('rich tax' and withholding tax for capital incomes) did not have important effects on the distribution of equivalized net incomes during the period under consideration.

Our analysis further addressed the puzzling question why the considerable employment boom after 2006 did not lead to a more marked decrease in inequality. Our results suggest that this boom led to employment gains for all parts of the distribution, so that the distributional effects of falling unemployment and increasing total employment were limited. On the other hand, our analsyis provides a solution to the puzzle that, while wage inequality kept increasing after 2006 (although at a lower rate than in the years before), inequality in annual household labour incomes did not increase further after 2006. We present evidence that this was consequence of increases in within-year employment, i.e. additional marginal employment and fewer interruptions by unemployment tended to compensate otherwise further rising inequalities in monthly labour incomes. Taken together, this means that rising employment helped to prevent further inequality increases after 2006, but that the fact that not only low income households benefitted from the employment boom also prevented inequality from dropping in a more marked way after 2006.

Finally, we observe a number of co-movements of capital income measures with the state of financial markets after the financial crisis of 2007/2008. We observe falling average asset incomes and falling shares of capital income in overall income but these changes did not seem to have had important effects on the distribution of equivalized net incomes. By contrast and consistent with the literature, we find that household labour incomes were little affected by the crisis of 2007/2008, so that the overall effect of the financial crisis and the subsequent great recession on the distribution of equivalized net incomes in Germany appears to have been very limited. We acknowledge potential limitations of our data base with respect to the coverage of capital incomes and very high incomes as discussed in Drechsel-Grau et al. (2015), Bartels and Schröder (2016) and Bartels and Jenderny (2015). These issues remain an important area for future research.

6 Appendix

In this appendix, we document details of the different methods used to assess the influence of particular factors on the distribution of equivalized incomes. As a general note, we point out that all our computations take full account of the SOEP sampling weights.

6.1 Changes in household structure

The counterfactual distribution under the assumption that only the composition of the population with respect to household types shifts to the target period $t = 1$ (=2010/2011) but everything else is held at the level of the base period $t = 0$ (=2005/2006) is constructed as

$$f_{cf}(y) = \sum_{j=1}^{6} w_{1j} f_{0j}(y), \tag{1}$$

where f_{0j} is the distribution of equivalent incomes of individuals in households of type j in the base period (household types are defined in section 2). The counterfactual weights w_{1j} for household types j are taken to be those of the target period instead of the base period.

6.2 Changes in other household characteristics

Using the reweighting technique of DiNardo et al. (1996), the counterfactual income distribution of individuals in household type j under the assumption that only the joint distribution of household characteristics x is shifted to the target period is given by

$$f_{cf,j}(y) = \int_e \int_x f_{0j}(y|x,e) \, dF_{0j}(e|x) \, dF_{1j}(x) \tag{2}$$

$$= \int_e \int_x f_{0j}(y|x,e) dF_{0j}(e|x) \left[\frac{dF_{1j}(x)}{dF_{0j}(x)} \right] dF_{0j}(x), \tag{3}$$

where e denote the household employment outcomes defined in section 4.3.

The reweighting factors

$$\frac{dF_{1j}(x)}{dF_{0j}(x)} = \frac{P_j(x|t=1)}{P_j(x|t=0)} = \frac{P_j(t=1|x)}{P_j(t=0|x)} \cdot \frac{P_j(t=0)}{P_j(t=1)} \tag{4}$$

are computed using logit predictions $P_j(t = 1|x), P_j(t = 0|x)$ estimated separately for each household type j. The quantities $P_j(t = 1), P_j(t = 0)$ are the (weighted) sample shares of period $t = 1$ and $t = 0$ in the pooled sample comprising both periods $t = 1$ and $t = 0$. The income distribution of the overall population results from the aggregation across household types, i.e.

$$f_{cf}(y) = \sum_{j=1}^{6} w_{0j} f_{0j}(y). \tag{5}$$

6.3 Changes in household employment outcomes

The counterfactual income distribution of individuals in household type j that results if one keeps everything as in the base period but shifts to the level of the target period the propensity of households with characteristics x to have one of the employment outcomes e, is given by

$$f_{cf,j}(y) = \int_e \int_x f_{0j}(y|x, e) \, dF_{1j}(e|x) \, dF_{0j}(x) \tag{6}$$

$$= \int_e \int_x f_{0j}(y|x, e) \left[\frac{dF_{1j}(e|x)}{dF_{0j}(e|x)} \right] dF_{0j}(e|x) dF_{0j}(x). \tag{7}$$

The implied reweighting factors can be computed as

$$\frac{dF_{1j}(e|x)}{dF_{0j}(e|x)} = \frac{P_{1j}(e|x)}{P_{0j}(e|x)} \tag{8}$$

using predictions $P_{1j}(e|x), P_{0j}(e|x)$ from ordinal logit models estimated in periods $t = 1$ and $t = 0$. The ordinal logits model the probability for a household with characteristics x to have one of the employment outcomes e. Again, these were estimated separately for each household type j.

6.4 Changes in labour market returns to household characteristics

We construct the counterfactual household net income from the perspective of the base period that takes into account that a household with characteristics x and employment outcome e will experience shifts $\widehat{\Delta} y_{lab}$ in the labour market returns to household characteristics from period $t = 0$ to $t = 1$ as

$$y^{cf} = y_{gross,0} + \widehat{\Delta} y_{lab} + y_{transf,0} - y_{sscontr,0} \cdot \frac{y_{gross,0} + \widehat{\Delta} y_{lab}}{y_{gross,0}} - tax_0(y_{tax,0} + \widehat{\Delta} y_{lab}), \tag{9}$$

where $y_{gross,0}$ denotes the household gross income (i.e. labour and capital income), $y_{transf,0}$ household transfers, $y_{sscontr,0}$ household social security contributions and $y_{tax,0}$ the household taxable income of the base period. Note that the counterfactually changed household labour income also changes the social security contributions and the taxes paid by the household which is reflected in the last two terms.[19]

The shift factor $\widehat{\Delta}y_{lab}$ was computed as

$$\widehat{\Delta}y_{lab} = z_0{}'\hat{\beta}_{1j} - z_0{}'\hat{\beta}_{0j}, \tag{10}$$

i.e. as the result of changing returns to household characteristics and household employment outcomes $z = (e, x)$ from $\hat{\beta}_{j0}$ to $\hat{\beta}_{j1}$. The labour market returns to household characteristics $\hat{\beta}_{j0}$, $\hat{\beta}_{j1}$ were computed by regressing in each period $t = 0$ and $t = 1$ household labour incomes y_{lab} on household employment outcomes e, household characteristics x, and a flexible set of their interactions. Again, the regressions were carried out for each household type separately.

6.5 Changes in capital incomes

We compute the counterfactual net household income that results under the assumption that only the location and the dispersion of capital incomes are shifted to that of the target period as

$$y^{cf} = y_{gross,0} + \widehat{\Delta}y_{cap} + y_{transf,0} - y_{sscontr,0} - tax_0(y_{tax,0} + \widehat{\Delta}y_{cap}). \tag{11}$$

The capital income shift factor is defined as

$$\widehat{\Delta}y_{cap} = percentile_1(rank_0)\frac{y_{cap,0}}{percentile_0(rank_0)} - y_{cap,0} \tag{12}$$

where $percentile_1(\cdot)$, $percentile_0(\cdot)$ are the percentiles of the distribution of household capital incomes in period $t = 1$ and $t = 0$, and $rank_0$ is the rank of the household in the distribution of capital incomes in the base period $t = 0$. Again, we take account of the changed tax burden as a result of the change in pre-tax income.

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[19]See section for how we implemented the tax schedule $tax_0(\cdot)$ in our calculations.

6.6 Changes in the transfer system

We compute the counterfactual household net income under the assumption that only the transfer system is shifted to the level of the target period as

$$y^{cf} = y_{gross,0} + y_{transf,0} - y_{sscontr,0} - \; tax_0(y_{tax,0}) + (IZA\Psi MOD_{transf,1} - IZA\Psi MOD_{transf,0})$$
(13)

where $IZA\Psi MOD_{transf,1}$, $IZA\Psi MOD_{transf,0}$ are transfer payments for the given household computed by the $IZA\Psi MOD$ simulation model under the alternative transfer systems of $t = 1$ and of $t = 0$. This means each household is assigned counterfactual transfer difference $IZA\Psi MOD_{transf,1} - IZA\Psi MOD_{transf,0}$.

6.7 Changes in the tax system

The counterfactual household net income that results under the assumption that only the tax system $tax_0(\cdot)$ is changed to that of the target year $t = 1$ is defined as

$$y^{cf} = y_{gross,0} + y_{transf,0} - y_{sscontr,0} - \; tax_1(y_{tax,0}),$$
(14)

i.e. we counterfactually apply the tax system of the target period to the taxable income of the base period. For our computations, we estimated the counterfactual tax schedule $tax_1(\cdot)$ by a flexible regression of the SOEP household tax burdens (simulated by the data provider DIW) on household taxable income which results from household gross income accounting for standard exemptions and allowances. The SOEP household tax burdens incorporate all changes in exemptions and allowance as well as the introduction of the 'rich tax' in January 2007 and the introduction of the withholding tax ('Abgeltungssteuer') for capital incomes in January 2009.[20]

We emphasize that our computations regarding changes in the tax and transfer system ignore potential behavioural reactions to these changes. However, given the relatively small effects and given the fact that behavioural reactions often tend to counteract the original effects (e.g., Jessen, 2016), we would not expect that taking account of behavioural reactions would change any of our results.

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[20]We thank Markus Grabka for his information on the SOEP tax simulation model.

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8 Tables

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Table 1 – Statistical significance of changes 2005/2006 to 2010/11

Index	Change	Confidence interval	
Mean (Euro/year)	685.07*	350.62	1014.49
Median (Euro/year)	744.07*	456.89	1023.40
P90/P10	-0.0480	-0.1555	0.0707
P90/P50	-0.0076	-0.0480	0.0338
P50/P10	-0.0179	-0.0641	0.0328
Theil	-0.0018	-0.0434	0.0005
MLD	-0.0073	-0.0169	0.0015
Gini	-0.0055	-0.0137	0.0026
Poverty rate	0.0004	-0.0090	0.0092
Income richness	-0.0019	-0.0078	0.0043

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Source: SOEP 2006-2012, own calculations. *=statistically significant at 5%

95% bootstrap confidence intervals account for longitudinal design and HH-clustering

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Table 2 – Distributional effects of changing household structures

Index	Change	Confidence interval	
Mean (Euro/year)	244.88*	83.51	328.01
Median (Euro/year)	130.82*	52.09	223.58
P90/P10	0.0145	0.0000	0.0688
P90/P50	-0.0025	-0.0051	0.0211
P50/P10	0.0103*	0.0021	0.0205
Theil	0.0009	-0.0006	0.0061
MLD	0.0043	-0.0015	0.0054
Gini	0.0046	-0.0018	0.0056
Poverty rate	0.0020*	0.0002	0.0035
Income richness	0.0012	-0.0001	0.0021

</div>

Source: SOEP 2006-2012, own calculations. *=statistically significant at 5%

95% bootstrap confidence intervals account for longitudinal design and HH-clustering

Table 3 – Trends in household characteristics

HH Characteristic	Mean 2005/2006	Mean 2010/2011
Number of adults in HH	1.99	2.00
Number of children in HH	0.69	0.61
Proportion women HH adults	0.53	0.53
Proportion foreign nationality in HH	0.09	0.09
Proportion HH members with disabilities	0.11	0.11
Proportion married HH adults	0.58	0.56
Proportion university HH adults	0.16	0.19
Proportion *Abitur/Lehre* HH adults	0.60	0.59
Proportion low education HH adults	0.24	0.22
Proportion 0-3 y. HH children	0.07	0.05
Proportion 4-11 y. HH children	0.17	0.15
Proportion 12-17 y. HH children	0.16	0.14
Proportion 18-30 y. HH adults	0.17	0.16
Proportion 31-50 y. HH adults	0.44	0.41
Proportion 51-64 y. HH adults	0.19	0.21
Proportion 65 y. or older HH adults	0.21	0.22
HH in East Germany	0.21	0.21

Source: SOEP 2006-2012, own calculations.

Table 4 – Distributional effects of changing household characteristics

Index	Change	Confidence interval	
Mean (Euro/year)	563.67*	358.02	692.46
Median (Euro/year)	341.98*	235.73	474.01
P90/P10	0.0682*	0.0435	0.1376
P90/P50	0.0153*	0.0050	0.0457
P50/P10	0.0206*	0.0123	0.0336
Theil	0.0021	-0.0075	0.0083
MLD	0.0064*	0.0004	0.0083
Gini	0.0068*	0.0002	0.0087
Poverty rate	0.0034*	0.0016	0.0052
Income richness	0.0040*	0.0017	0.0060

Source: SOEP 2006-2012, own calculations. *=statistically significant at 5%

95% bootstrap confidence intervals account for longitudinal design and HH-clustering

Table 5 – Distributional effects of changing employment outcomes

Index	Change	Confidence interval	
Mean (Euro/year)	259.33*	74.60	374.29
Median (Euro/year)	341.98*	235.73	474.01
P90/P10	-0.0575	-0.0983	0.0273
P90/P50	-0.0202	-0.0281	0.0079
P50/P10	-0.0102	-0.0312	0.0170
Theil	-0.0041	-0.0075	0.0029
MLD	-0.0000	-0.0061	0.0026
Gini	0.0002	-0.0062	0.0023
Poverty rate	-0.0023	-0.0062	0.0021
Income richness	-0.0010	-0.0033	0.0008

Source: SOEP 2006-2012, own calculations. *=statistically significant at 5%

95% bootstrap confidence intervals account for longitudinal design and HH-clustering

Table 6 – Average annual employment gains conditional on current household employment status, 2005 to 2011

Current employment status	Avg. employment gain	Confidence interval	
Change in number of jobs per HH and year			
0 PT, 0 FT	0.085*	0,076	0,093
≥1 PT, 0 FT	-0.014	-0.037	0.009
0 PT, 1 FT	0.123*	0.109	0.136
≥1 PT, 1 FT	-0.069	-0.087	-0.050
≥0 PT, ≥2 FT	-0.178	-0.198	-0.157
Change in number of FT jobs per HH and year			
0 PT, 0 FT	0.035*	0.030	0.041
≥1 PT, 0 FT	0.181*	0.160	0.201
0 PT, 1 FT	-0.019*	-0.029	-0.009
≥1 PT, 1 FT	0.058*	0.043	0.072
≥0 PT, ≥2 FT	-0.221*	-0.241	-0.201
Change in number of PT jobs per HH and year			
0 PT, 0 FT	0.049*	0.043	0.055
≥1 PT, 0 FT	-0.195*	-0.215	-0.175
0 PT, 1 FT	0.142*	0.131	0.153
≥1 PT, 1 FT	-0.127*	-0.141	-0.113
≥0 PT, ≥2 FT	0.043*	0.028	0.058

Source: SOEP 2006-2012, own calculations. *=statistically significant at 5%

95% bootstrap confidence intervals account for longitudinal design and HH-clustering

Table 7 – Distributional effects of changing labour market returns

Index	Change	Confidence interval	
Mean (Euro/year)	527.627*	213.90	759.92
Median (Euro/year)	636.05*	394.55	899.02
P90/P10	-0.0670	-0.1256	0.0489
P90/P50	-0.0376*	-0.0598	-0.0024
P50/P10	0.0026	-0.0276	0.0499
Theil	-0.0112*	-0.0291	-0.0020
MLD	0.0002	-0.0096	0.0045
Gini	-0.0030	-0.0117	0.0015
Poverty rate	-0.0007	-0.0055	0.0078
Income richness	-0.0047*	-0.0086	-0.0014

Source: SOEP 2006-2012, own calculations. *=statistically significant at 5%

95% bootstrap confidence intervals account for longitudinal design and HH-clustering

Table 8 – Distributional effects of changing capital incomes

Index	Change	Confidence interval	
Mean (Euro/year)	88.44	-44.39	121.73
Median (Euro/year)	-26.05	-60.86	24.53
P90/P10	0	-.0151159	.046234
P90/P50	0	-.0075862	.0238904
P50/P10	0	-.0040882	.0024089
Theil	-.0008036	-.0016762	.004048
MLD	.0034816	-.0021385	.004232
Gini	.0039434	-.0023985	.0048102
Poverty rate	.0001508	-.0005058	.0005005
Income richness	.0018228	-.0000464	.0029354

Source: SOEP 2006-2012, own calculations. *=statistically significant at 5%

95% bootstrap confidence intervals account for longitudinal design and HH-clustering

Table 9 – Distributional effects of changes in the transfer system

Index	Change	Confidence interval	
Mean (Euro/year)	230.41*	123.12	242.01
Median (Euro/year)	157.09*	129.91	221.06
P90/P10	-0.1234*	-0.1359	-0.0719
P90/P50	-0.0227*	-0.0250	0
P50/P10	-0.0431*	-0.0518	-0.0329
Theil	-0.0061*	-0.0066	-0.0014
MLD	-0.0021*	-0.0077	-0.0013
Gini	-0.0016*	-0.0076	-0.0012
Poverty rate	-0.0067*	-0.0082	-0.0053
Income richness	-0.0010*	-0.0014	-0.0006

Source: SOEP 2006-2012, own calculations. *=statistically significant at 5%

95% bootstrap confidence intervals account for longitudinal design and HH-clustering

Table 10 – Distributional effects of changes in the tax system

Index	Change	Confidence interval	
Mean (Euro/year)	392.86*	129.18	540.95
Median (Euro/year)	183.40*	157.00	323.99
P90/P10	0.0732*	0.0534	0.1711
P90/P50	0.0281*	0.0152	0.0746
P50/P10	0.0103*	0.0072	0.0208
Theil	-0.0148	-0.0276	0.0088
MLD	0.0025	-0.0104	0.0077
Gini	0.0047	-0.0093	0.0085
Poverty rate	0.0015*	0.0008	0.0034
Income richness	0.0071*	0.0031	0.0079

Source: SOEP 2006-2012, own calculations. *=statistically significant at 5%

95% bootstrap confidence intervals account for longitudinal design and HH-clustering

9 Figures

Figure 1 – Inequality trends 1994 to 2011
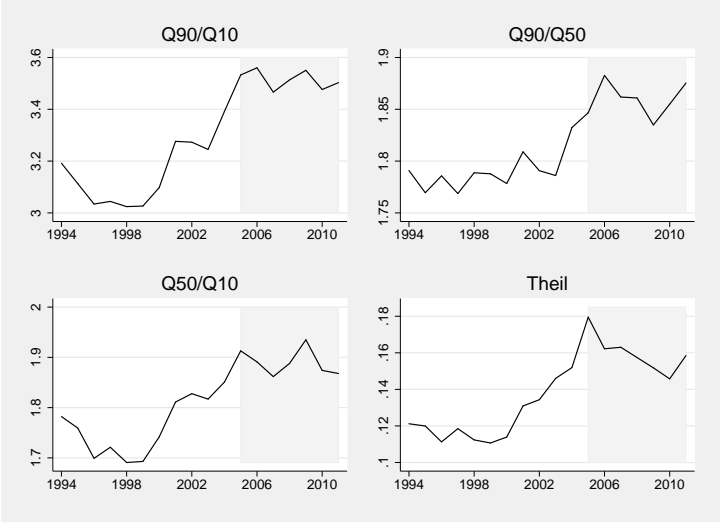
Source: SOEP 1995-2012, own calculations.

Figure 2 – Inequality trends 1994 to 2011
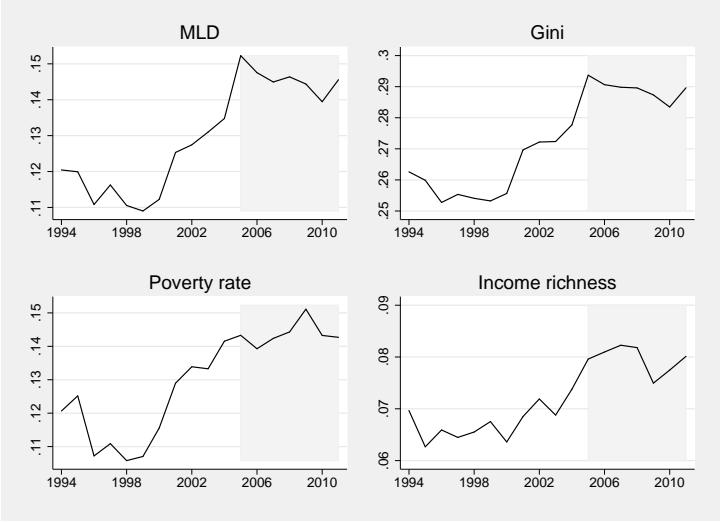
Source: SOEP 1995-2012, own calculations.

Figure 3 – Mean and median equivalent income
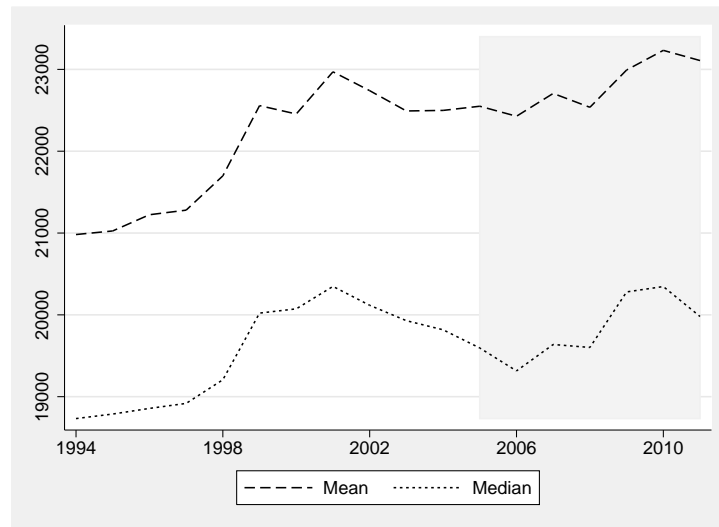
Source: SOEP 1995-2012, own calculations.

Figure 4 – Poverty rate with/without poverty line fixed at 2006

Source: SOEP 1995-2012, own calculations.

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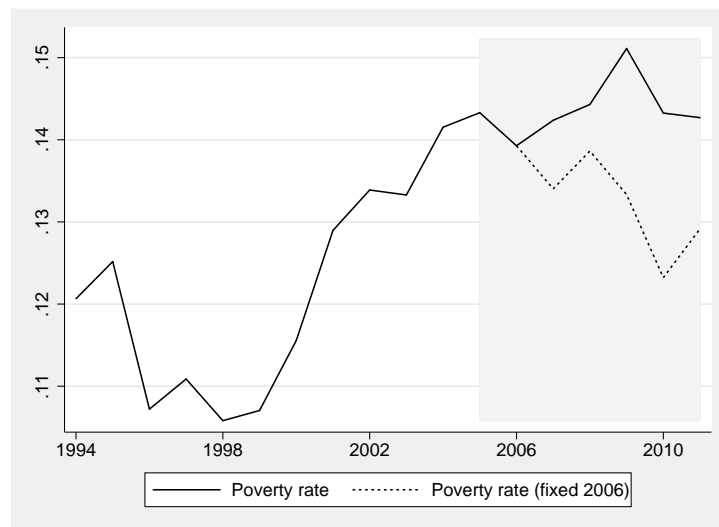
Figure 5 – Distribution of log equivalent incomes
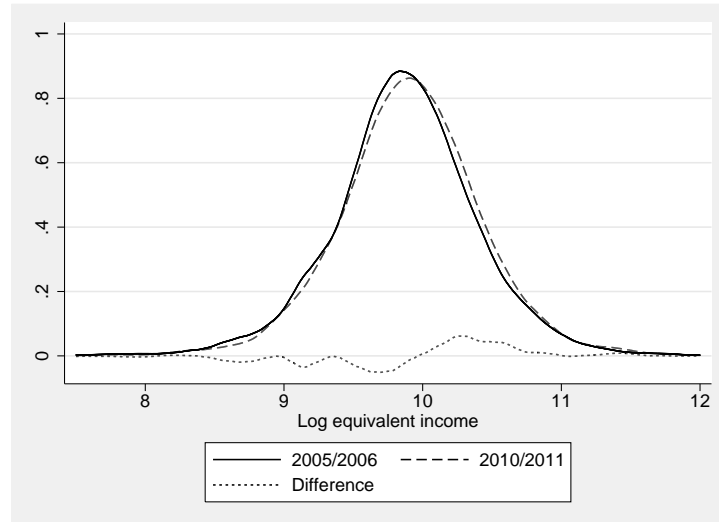
Source: SOEP 1995-2012, own calculations.

Figure 6 – Changes in household structures
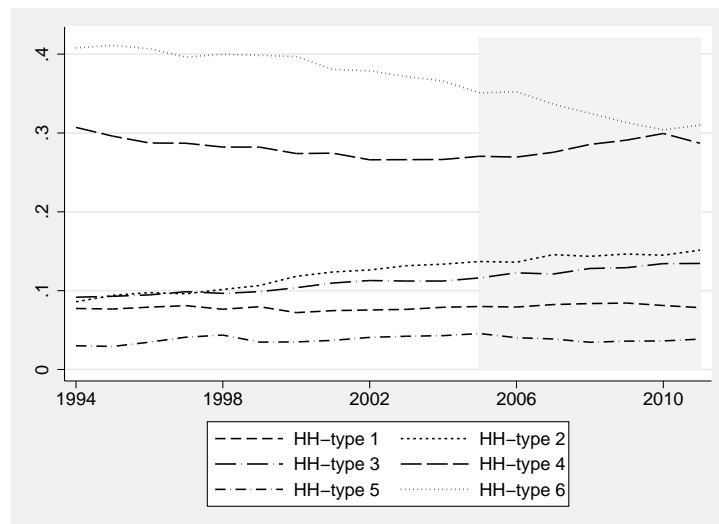
Source: SOEP 1995-2012, own calculations. HH-type 1=Single pensioners, HH-type 2=Multiple pensioners, HH-type 3=Single adults w/o children, HH-type 4=Multiple adults w/o children, HH-type 5=Single adults with children, HH-type 6=Multiple adults with children

Figure 7 – Distributional effects of changing household structures
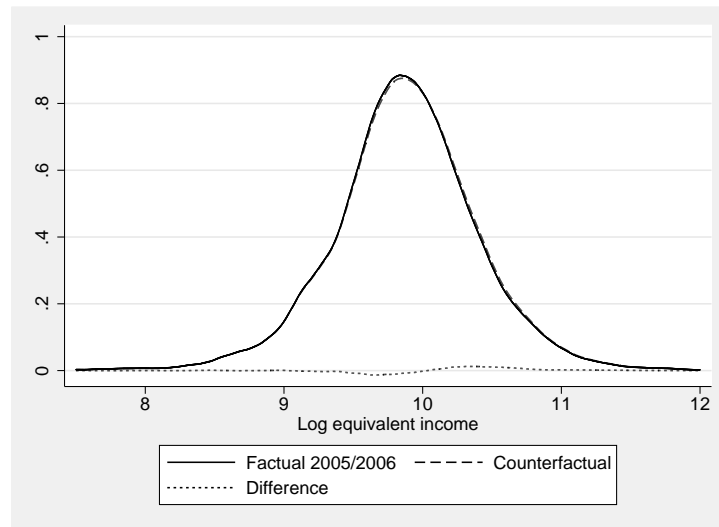
Source: SOEP 1995-2012, own calculations.

Figure 8 – Distributional effects of changing household characteristics
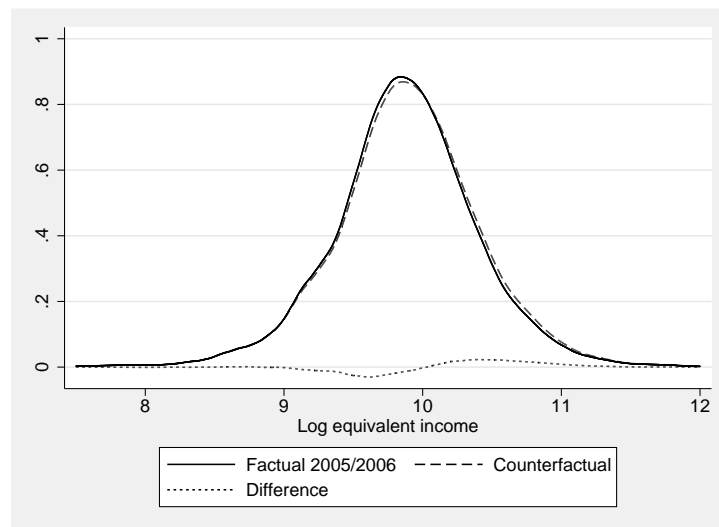
Source: SOEP 1995-2012, own calculations.

Figure 9 – Changes in household employment outcomes
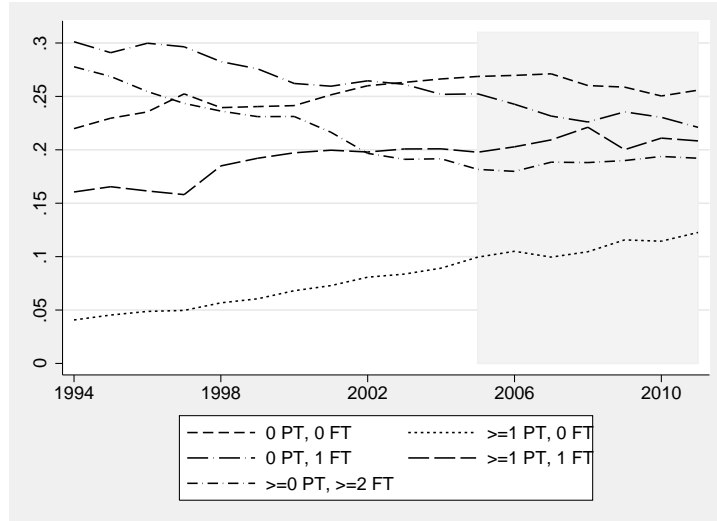
Source: SOEP 1995-2012, own calculations. FT=Full-time jobs in HH,
PT=Part-time jobs in HH (including marginal employment)

Figure 10 – Distributional effects of changing employment outcomes
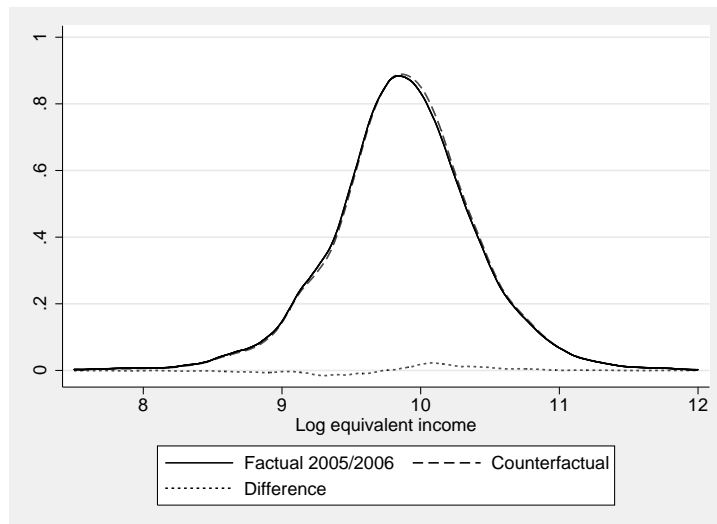
Source: SOEP 1995-2012, own calculations.

Figure 11 – Average number of jobs in non-pensioner households across deciles
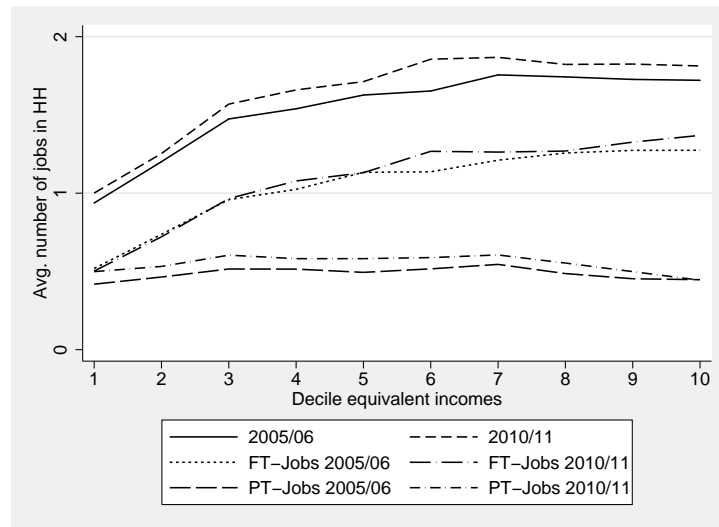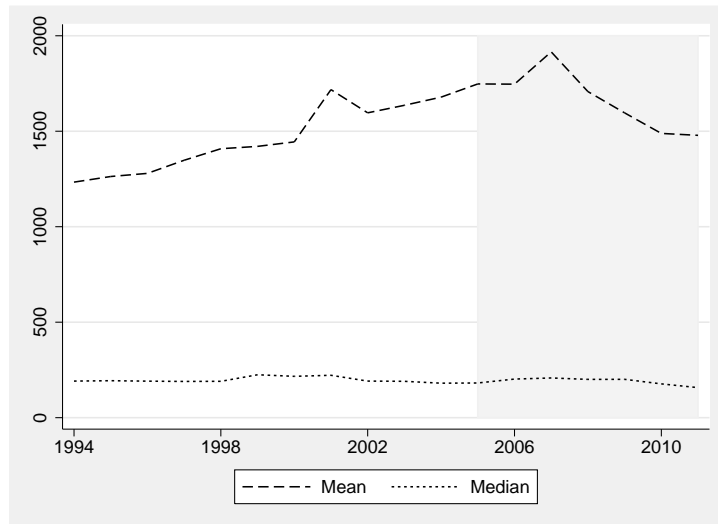

Source: SOEP 1995-2012, own calculations.

Figure 12 – Inequality in equivalized household labour income (including zero incomes)
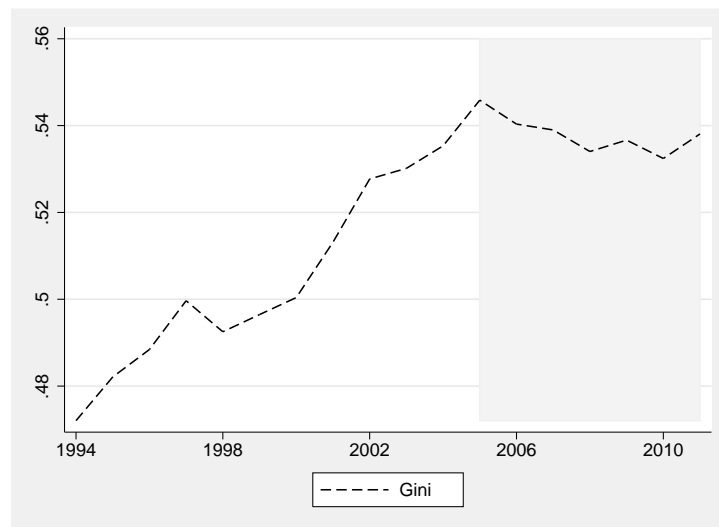
Source: SOEP 1995-2012, own calculations.

Figure 13 – Inequality in equivalized household labour income (excluding zero incomes)
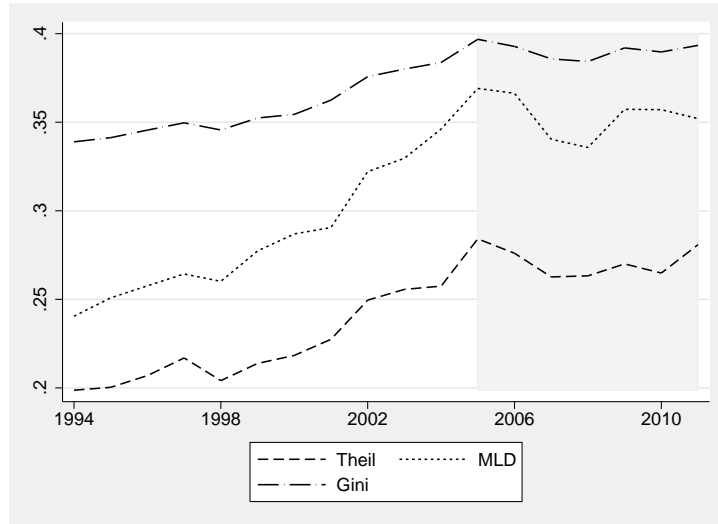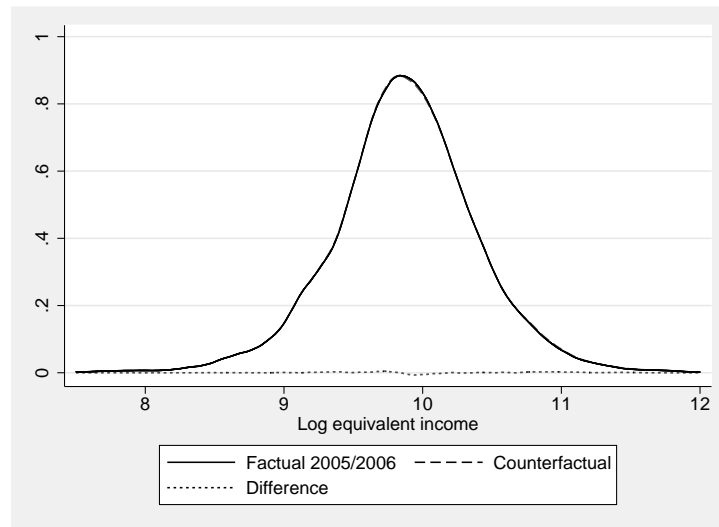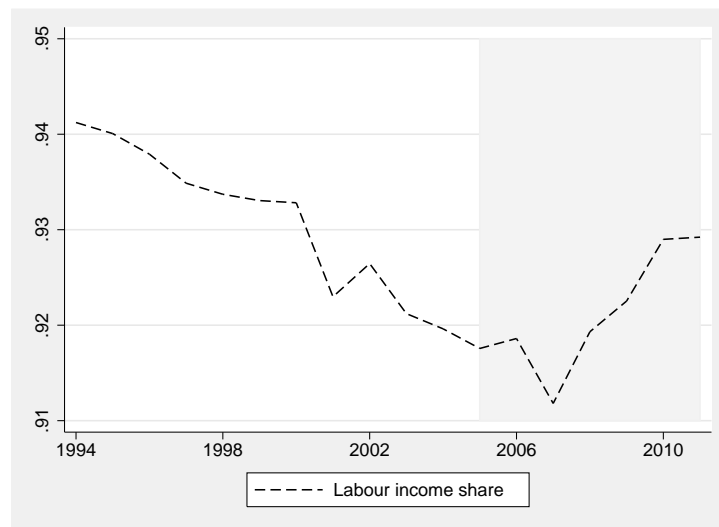

Source: SOEP 1995-2012, own calculations.

Figure 14 – Distributional effects of changing labour market returns
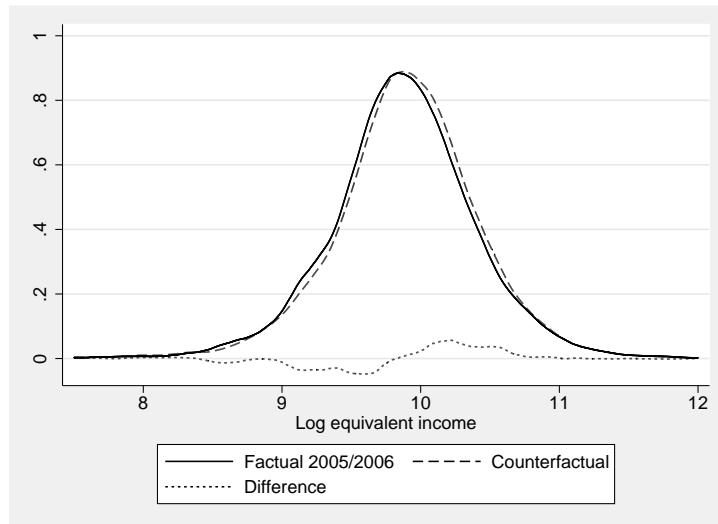
Source: SOEP 1995-2012, own calculations.

Figure 15 – Inequality in individual monthly labour income (exluding zero incomes)

Source: SOEP 1995-2012, own calculations.

Figure 16 – Inequality in individual annual labour income (exluding zero incomes)
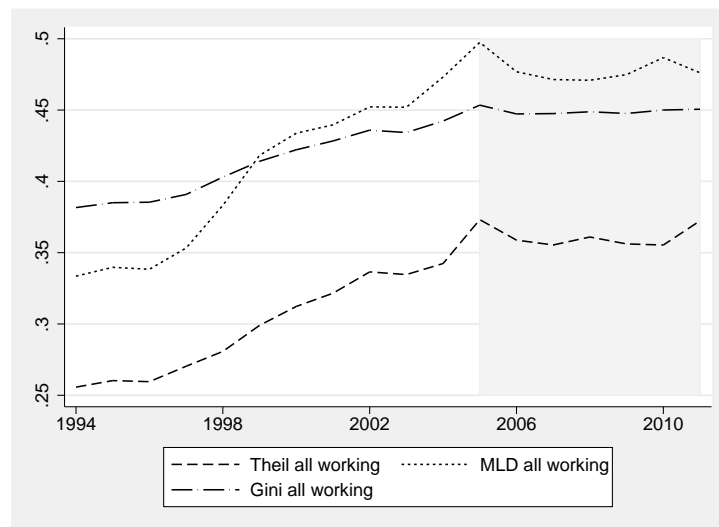
Source: SOEP 1995-2012, own calculations.

Figure 17 – Inequality in equivalized household capital incomes (including zero incomes)
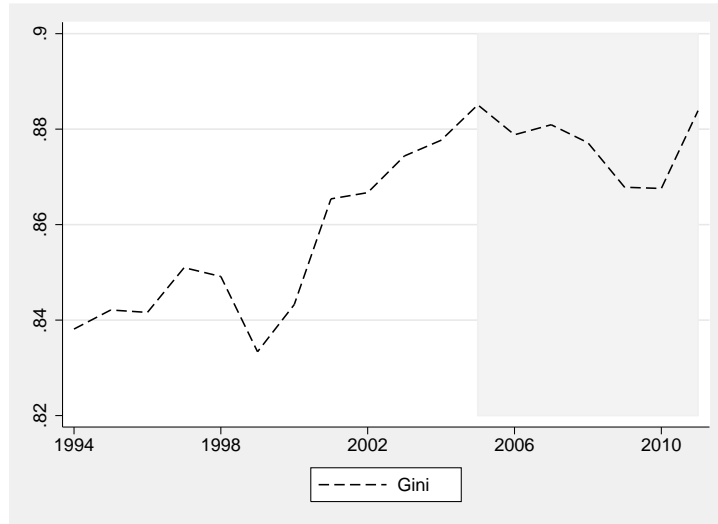
Source: SOEP 1995-2012, own calculations.

Figure 18 – Mean and median equivalized household capital income (excluding zero incomes)

Source: SOEP 1995-2012, own calculations.

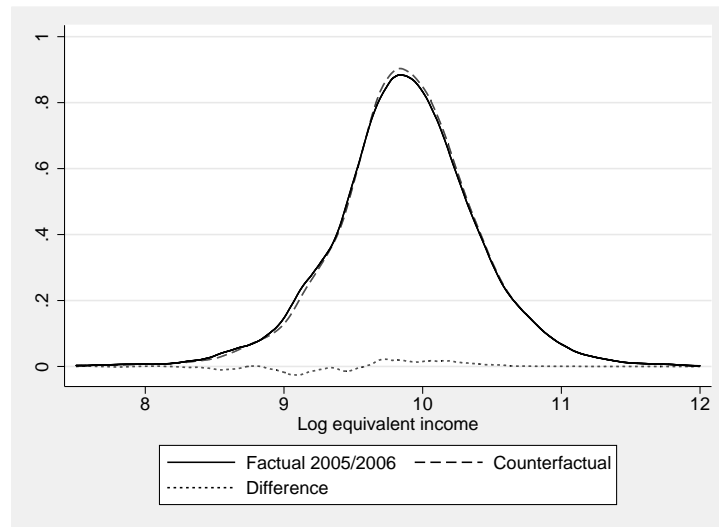**Figure 19** – Distributional effects of changing capital incomes

Source: SOEP 1995-2012, own calculations.

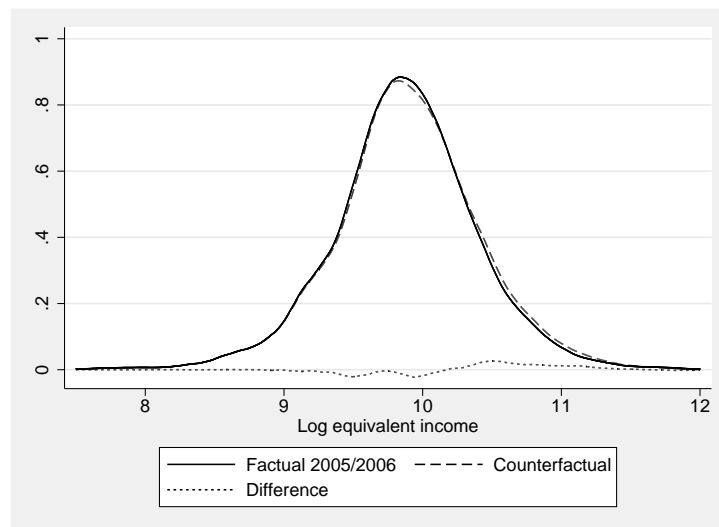**Figure 20** – Share of labour income in household market income

Source: SOEP 1995-2012, own calculations.

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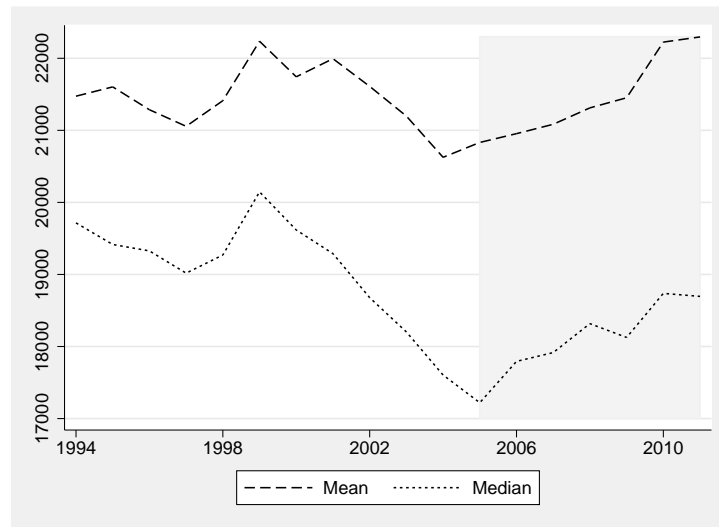**Figure 21** – Distributional effects of changes in transfer system

Source: SOEP 1995-2012, own calculations.

Figure 22 – Distributional effects of changes in tax system

Source: SOEP 1995-2012, own calculations.

Figure 23 – Mean and median household labour income (including zero incomes)

Source: SOEP 1995-2012, own calculations.