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Declining Tax Progression and the German Dual Income Tax

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Declining Tax Progression and the German Dual Income Tax

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Abstract

This paper analyzes the effect of the introduction of a final withholding tax on capital income on the progression of the German income tax. As previous literature shows, even with synthetic income taxation, tax progression was strongest in the middle of the income distribution, decreased for high incomes, and was not observable at the very top (notably for the richest top 0.001 % of potential taxpayers). In 2009, capital income was excluded from the synthetic income tax tariff. Since then, it is taxed at a lower final withholding tax rate. This paper explores the effect of this change on the overall progression on total income and on horizontal equity. The analysis is based on a microlevel panel dataset of income tax returns between 2001 and 2006. This data provides information on the distribution of total taxable income and is particularly representative for the top of the income distribution. Top income fractiles are defined on gross incomes.

Keywords: tax progression, inequality, top incomes, income tax

JEL-classification: D31 D63 H24

1 Introduction

Tax progression, on top of its normative desirability as a prerequisite for equal sacrifices, is considered a strong means against the ever increasing income concentration that we witness in many industrialized countries since the 1980s. This rise in income concentration was particularly

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strong in Anglo-American countries, but recently has also been documented for central European countries, notably for Germany (Bach et al., 2009) and France (Landais, 2008).

In turn, declining tax progression has the opposite effect and enforces the concentration trend. In Germany, such a decline occurred in various dimensions since the late 1950s. The first dimension is the real decline of the threshold income above which the top marginal tax rate is applied. This reduction took place over the whole second half of the last century. It caused an ever growing fraction of tax payers to enter the last (proportional) zone of the tariff and face the top marginal tax rate (Corneo, 2005).¹ This reduced progression between the middle of the income distribution and the top, since progression above this threshold is low. Therefore, in 2005 the very top of the income distribution was not taxed at a pronouncedly higher rate than tax payers who earned the double per capita GDP:

‘whereas in 1958 you had to earn about twenty-three times the per capita GDP level to face the top marginal rate, nowadays even taxpayers earning about twice the per capita GDP level face the top marginal tax rate.’ (Corneo, 2005, p.162)

The second dimension is the abolition of the German wealth tax in 1997. The third, rather rapid development is the massive decline of the top tax rate between 2001, when it was below 50 % for the first time since WW2, and 2005, when it was reduced to 42 %. Since then, a second proportional zone was introduced in 2007 which lifted the top tax rate to 45 % again. This top tax rate is still well below its levels during the second half of the last century, but the threshold income relative to per capita GDP is higher. Figure 1 shows the evolution of the German top tax rate and the relative height of its threshold income in multiples of per capita GDP since the late 1950s.²

PLACE FIGURE 1 HERE

The fourth dimension of declining tax progression is the recent dualization of the German income tax schedule in 2009. Capital income (dividends and interest income) was excluded

¹The German tariff traditionally consists of several zones, the first of which are directly progressive (the marginal tax rate rises with taxable income), while the last zone has a constant marginal tax rate. Progression is stronger in the directly progressive zone.

²Figures A.1 and A.2 in Appendix A compare the whole tariffs on real taxable income and tariffs on multiples of GDP between 1958 and 2007.

from the progressive tax schedule altogether, and is since then taxed with a final withholding tax at a constant marginal tax rate that is significantly lower than the top marginal tax rate in the progressive schedule (25 %, as opposed to 45 %). The benefit of this tax change increases with the personal marginal tax rate in the progressive schedule and with the fraction of capital income in total taxable income received by a given taxpayer. As capital income is concentrated at the top of the income distribution, this change in the marginal tax rate is expected to significantly lower the average tax rate at the top, while the effect on the lower deciles should be small. The overall progression of the tax system is thus expected to be reduced by this tax reform. However, the 2009 reform also broadened the tax base, as capital gains from stocks became taxable at the 25 % tax rate which countervails the regressive reform effect. As the reform effect also depends on the individual composition of income, the dualization of the income tax system is also expected to reduce horizontal equity. It is the aim of this analysis to quantify the impact of the tariff dualization on overall tax progression and on horizontal equity. The remainder of this paper is structured as follows. Section 2 introduces related literature. Section 3 describes the dataset used for the empirical analysis and the applied income concept. Section 4 discusses the methodology and presents empirical results. Section 5 concludes.

2 Literature

Several strands of literature are relevant for this analysis. A natural starting point is the literature that establishes the relevance of the research question in the context of the recent rise in income concentration and wealth-income ratios in several developed countries. Income concentration is not a monocausal phenomenon, but a complex process. Nevertheless, taxation at the top of the income distribution seems to be a core driving factor of income concentration. This proposition has been made by the fastly growing literature on top income shares. The evolution of income shares at the top of the income distribution has been analyzed in many countries with a common methodology, using tabulated income tax statistics over long periods of time. This literature has built on seminal work by Piketty, 2001. Typically, this literature finds a sharp increase in income concentration in Anglo-American countries since the late 1970s, but relatively stable

top income shares in central European countries (Atkinson et al., 2011). German top income shares have been stable according to this methodology (Dell, 2005). More recent literature on German top income shares, however, does find an increase in income shares at the top and a decrease in tax progression since the early 1990s (Bach et al., 2009, 2013). In both analyses, the authors use a cross sectional integrated database (ITR) based on micro data from German income tax returns and the GSOEP, the main German population survey, that includes data until 2003 and 2005, respectively. The rise in concentration goes along with several reductions in top income taxation, like the abolition of the German wealth tax in 1997 and declining top income tax rates since 2000. These results strongly support the relevance of top marginal tax rates for the evolution of income concentration in Germany. A similar turn in findings on concentration occurred for France as another central European country where top income shares also recently increased (Landais, 2008).

A second strand of literature analyzes wealth-income ratios and their driving forces. The size of national wealth in relation to national annual income depends on the propensity to save, on the tax rate on capital income and on the size of the rate of return relative to the growth rate. Wealth-income ratios in several developed countries, including Germany, have increased since the 1970s. This process is most likely driven by low growth rates and comparably high rates of return on capital (Piketty and Zucman, 2013). Theoretically, the link between capital income taxation and the wealth income ratio has been established by Piketty and Saez, 2013. They model individual income in two stochastic dimensions: labor income and inherited wealth. The capital income's share (which stems from inherited wealth) in national product is unbounded above, and depends inter alia on the tax system. If the future rate of return keeps exceeding the growth rate, wealth income ratios are likely to increase. These results commend high taxes on wealth or wealth income for two reasons. First, wealth income represents a rising share of total ability to pay, which renders wealth income an appropriate tax base. Second, if inheritances are concentrated, wealth income taxation is necessary to countervail income and wealth inequality.

A third strand of literature deals with tax progression in Germany. As described above, the long-run evolution of the German tax schedule since WW2 shows a declining threshold income for the top tax rate (in terms of multiples of GDP). Since the late 1990s, the top tax rate was also

massively reduced (Corneo, 2005). Effective progression of the German PIT has accordingly declined since the early 1990s. Apart from the reduction of the top tax rate, reduced taxation on capital gains and some loopholes did also enforce this trend (Bach et al., 2013).

3 Data and Income Fractiles

3.1 Database

The dataset used to analyze the progression effect of the 2009 tax reform is a microlevel panel dataset of income tax returns between 2001 and 2006 (Taxpayer Panel, TPP). The TPP is composed by the German federal statistical office (Destatis). It is a balanced panel of all German tax filers between 2001 and 2006. To be a member of the panel population, it is thus necessary to file in all six years. Out of this population, our dataset is a 5 % sample, stratified by regions (federal states), assessment type (single/married couple), main income source (business/wage/other), average annual gross taxable income (GTI) as well as GTI's coefficient of variation. The dataset strongly oversamples tax units at the top. It contains 85 % of all tax units in the panel population whose average GTI is at least 150 000 €. The data is thus particularly representative for the top of the income distribution.

In the German PIT, filing an income tax return is mandatory for the self employed but not for wage earners, as wage taxes are withheld by the employer. For many high income wage earners, filing is nonetheless favorable.³ In addition, as soon as other income sources exist (for wage earners notably capital income above the annual allowance⁴ or income from renting and leasing), filing is also mandatory. Wage earners at the bottom of the income distribution are therefore underrepresented among tax filers,⁵ while above-average income recipients and especially the top of the income distribution are well represented. Top taxpayers usually have

³High marginal tax rates raise the attractiveness of claiming allowances. For high income wage earners with children, it is also more favorable to claim a childrens' tax allowance than to receive the alternative childrens' transfer (Kindergeld).

⁴between 1 370 € and 1 550 € per person during the period in focus

⁵Households who do not pay income taxes at all, like some pensioners or recipients of governmental transfers, are also not included. These households are expected to have low incomes, too, because filing becomes mandatory as soon as capital incomes exceed the annual threshold.

a significant share of non wage income, which requires an income tax return. They are thus expected to file in all six years and thus belong to the panel population. Exceptions might be due to death, migration or marriage. If two single tax units marry during the period in focus, one of them loses his or her tax id, which then drops out of the panel completely.

The TPP contains detailed information on all types of taxable income: wage income, three types of entrepreneurial income, capital income, income from renting and leasing and pensions. Capital income below a year-specific allowance⁶ is not liable and therefore not contained in the majority of the respective files. Dividend income from incorporated firms is separately reported. Capital gains are only partly included. Capital gains from selling an enterprise are tax exempted under certain circumstances, but nonetheless documented in the data. Capital gains from selling financial assets are excluded if they have been held for longer than a year and then are not documented in the data.

3.2 Definition of Income Ranks and Fractiles

This paper's progression analysis requires a measure of gross income, as gross income is considered to reflect ability to pay better than taxable income. Income ranks and fractiles are therefore defined by a measure of economic gross income defined as gross income before taxes, including all tax exempted income as well as transfers.⁷ Tax exempted income includes all allowances, tax exempted dividends and a fraction of pensions. Labor income is defined as gross income including employees' social security contributions, but not the employers' contributions. For civil servants, the employees' pension insurance payments are imputed.⁸

Tax progression is measured by the reform induced percentage rise in net income by income fractile. Income fractiles are defined by gross income and refer to all potential taxpayers,⁹ the aggregate of which can be computed based on population statistics published by Destatis, 2009.

⁶between 1 370 € and 1 550 € per person during the period in focus

⁷This gross income measure was also used in a previous analysis, where its construction is discussed in further detail. It is defined very similar to the gross income measure used by Bach et al., 2013 which also refers to German micro data on income tax files.

⁸Civil servants receive a pension after retirement, but do not pay pension insurance during their working life. The insurance payment is thus not included in the reported gross wage.

⁹Potential taxpayers are all singles or married couples between 20 and 65.

Analyzed income fractiles are the richest 10 %, 5 %, 1 %, 0.1 %, 0.01 %, 0.001 % and 0.0001 %. Top income fractile members are defined as the N richest tax units in the database whose aggregated weight adds up to the respective number of potential taxpayers.

In accordance with Bach et al., 2009 and (2011), I refer to the richest 0.001 %, a group of 460 tax units, as the economic elite, and to the richest 0.0001 % that each year contains 46 tax units as the super rich. Tax units whose income does not reach the top decile's minimum income are referred to as the bottom 90 %. As many potential tax payers do not file income tax returns, this group is however not representative for the whole bottom 90 % of the population. Tax units with negative incomes are separately reported.

4 Methodology

The data spans the period from 2001 to 2006. As these are years before the dualization of the income tax tariff, the microdata includes the full synthetic income information including capital income. To derive the static effect of the tariff change on tax progression, I simulate the introduction of the dual tariff in all six years. Progression is measured by the growth rate of net income induced by the tax reform by income fractile. For each fractile, the average pre reform net income is computed as gross income (EGI) less (simulated) synthetic income tax. The average post reform net income is computed as gross income (EGI) less (simulated) income tax according to the new tax regime. Progression decreases, if net income grows stronger in higher income fractiles than in lower income fractiles. This growth rate of net incomes measured both on annual distributions and the total difference of individual long term tax rates over six years. The long term effect can control for volatility in both capital and other income. This provides a more reliable estimate of the distribution of capital income, which is especially valuable given that the data includes some pre- and post-reform years. This analysis will also be conducted on subperiods of three years.

PLACE FIGURE 2 HERE

4.1 Details of the Synthetic PIT Tariff since 2001

Several tax reforms are relevant to this analysis. The data period 2001-2006 was subject to major changes in the synthetic tariff, which might impact on the annual distribution of capital income and other income. Marginal tax rates for the years 2001 to 2007 are shown in 2. The 2007 tariff corresponds closely to the tariffs in later years and was therefore the true reference tariff when the final withholding tax on capital income was introduced in 2009. Top marginal tax rates were reduced from 48.5 % (2001) to 42.0 % (2005) and rose again, with the second proportional zone in 2007, to 45.0 %.

PLACE TABLE 1 HERE

Special attention has to be drawn on dividend income taxation in the synthetic tariff. Before 2001, dividends were taxed as gross dividends before corporate taxes at the personal average tax rate. The corporate tax could be credited against the PIT tariff. Gross dividends were thus taxed at the same marginal rate as interest and other income. Since 2001, the corporate tax on dividends ceased to be creditable against the PIT. As a compensation for this double taxation of dividends, only half of the cash dividend (after corporate taxes) was liable to the PIT. This led to marginal tax rates on gross dividends that differed from the marginal PIT rate:

$$t_{divPIT}^m = 1 - (1 - t_{corp}) \cdot (1 - t_{PIT}^m)$$

For the highest tax bracket, the differences between these marginal rates are shown in the first two columns of table 1. The top rate on dividends is only given for years between the end of the PIT tax credit for corporate taxes (2001) and the withholding tax (2009). Note that the top marginal tax rate on dividends depends on both the top marginal PIT tax rate and the corporate tax rate.

4.2 Details of the Withholding Tax Reform 2009

Taxation rules for dividends before the withholding tax are helpful to understand the effect of the final withholding tax on different income sources. The withholding tax was introduced in 2009

and applies a proportional 25 % rate to cash capital income. For interest income, this equals a tax rate reduction by 20 percentage points in the top tax bracket from 2008 to 2009. The withholding tax rate on interest income is given in the third column in table 1 (in parenthesis before the introduction of the withholding tax). For dividend income, things are less straightforward, because, firstly, the withholding tax applies to the whole cash dividend, instead of half the cash dividend that was taxable until 2008:

$$t_{divWT}^m = 1 - (1 - t_{corp}) \cdot (1 - 0.25)$$

Without other changes, this would lead to an increase of the marginal tax rate on dividends, because 25 % withholding tax would always exceed half of the marginal PIT tax rate since 2001. Secondly, the tax rate on gross dividends depends on the corporate tax rate. The fourth column of table 1 reports the withholding tax rates that correspond to the different corporate tax rates between 2001 and 2009. Without any changes to the corporate tax rate, the marginal tax rate on gross dividends would increase under the withholding tax regime. With 25 % corporate tax rate, it would amount to 43.8 %. The final withholding tax was however accompanied by a reduction of the corporate tax rate to 15 % in 2008, which reduces the tax rate on gross dividends in the withholding tax regime to 36.3 %. Compared to its levels in the synthetic PIT tariff before 2008, the marginal tax rate on gross income therefore declines, albeit to a much lesser degree than the marginal tax rate on interest income. In 2008, when the corporate tax was reduced, but the withholding tax was not yet introduced, the marginal tax rate on gross dividends was at an all-time low for the top tax bracket.

A last feature of the final withholding tax is a broadening of the tax base. Capital gains from selling financial assets became taxable when purchased after 2008. Capital gains of that sort were taxable in the synthetic tariff only if they had been held for less than a year. This broadening of the tax base increases progressivity if capital gains are positive. Imputation of these capital gains would require reasonable assumptions about these capital gains' size and their distribution. This is challenging because the tax base broadening does not refer to all dividend income, but only for dividends from corporations when the tax unit holds less than 1 % of the corporation capital.

This usually applies to stocks. If the tax unit holds at least 1 % of the corporation's capital, the capital gain was taxable in the PIT partly taxable before and after 2009 and is therefore included in the data. This usually applies to small corporations, particularly the legal entity form GmbH (Gesellschaft mit beschränkter Haftung/ company with limited liability). Therefore, the dividend income cannot serve as an indicator for the distribution of the new tax base, as it includes dividends from all kinds of corporation shares. As the distribution of dividend income from stocks cannot be assessed in the data, I do not attempt to impute capital gains from stocks. I will discuss reasonable scenarios of the size of the tax base broadening in section 6.1.

PLACE TABLE 2 HERE

4.3 Tax reform simulation

For the empirical analysis, I consider gross dividends as part of the gross income concept (EGI) and therefore regard marginal tax rates on gross dividends. This corresponds to the original logic of the PIT that taxed gross dividends at the marginal PIT rate. It also ensures that income concepts between tariffs stay comparable if the corporate tax rate is not constant. In each analysis, I will compare two tax regimes that are shown in table 2. A synthetic PIT concept (I, pre reform) is compared with a withholding tax concept (II, post reform). Both concepts use the same PIT tariff T_{PIT} . In concept (I), this tariff is applied to the whole taxable income, including half of the cash dividend, which corresponds to the pre-reform taxable dividend income. In concept (II), the tariff is only applied to taxable non-capital income. Capital income (including the cash dividend and capital gains) is taxed at the withholding tax rate. Both concepts differ in the corporate tax rate, as I consider the reduction of the corporate tax as part of the introduction of the withholding tax. As gross income includes gross dividends, I add the corporate tax on gross dividends to both tax concepts. As PIT concept I use the deflated tariff of the year 2007¹⁰ that closely corresponds to the tariff on which the reform was applied in 2009, but still has the higher corporate tax rate that was prevailing during the tax regimes between 2001 and 2008. I conduct an annual analysis

¹⁰The simulation of the synthetic tax was also conducted for the annual tariffs 2001 to 2006, which can be directly compared to the actual income tax in the data. On average, these simulations differ less than a euro from the actual taxes.

in which fractiles are defined by annual gross income, as well as analyses based on three-year and six-year average taxes and gross incomes. These longterm income and tax measures define income fractiles by average gross income (EGI) in the respective time period and provide more permanent top income groups than annual fractiles.

5 Results

Table 3 shows the average growth rates of net incomes by gross income (EGI) fractile. The first panel shows annual results. The vertical reform effect is regressive in all annual distributions. Notably, net income growth rates are negligible for all income fractiles below the annual top 1 %. For the overwhelming part of the income distribution, capital incomes do not provide a sufficient share of overall income to impact much on tax progression. In the top fractiles, net income clearly increases in all years, albeit to different extents. The net income growth rate usually exceeds 1 % in the annual top 0.01 % and richer subgroups. However, the net income effect at the top differs across the annual distribution, and even turns negative for the annual top 0.001 % in 2005.

The second panel of table 3 shows net income growth rates of average incomes. Income fractiles are also defined by these average incomes. The first four columns shows the effect for rolling three-year-averages. These robust income measures reveal a more stable and more regressive net income growth rate for the (three-annual) top income groups. Again, the negative net income effect for the top 0.001 % is reduced but still existing in the fourth rolling average. The last column of the second panel shows the net income growths rates for six year average income. It shows a similar pattern to the three year average incomes. For the top 0.001 % group, the negative effect of realized capital gains results in a small average net income effect. The net income of the top 0.1 % group and top 0.01 % group grow by about 1 % due to the reform, the richest tax units receive the highest relative advantage. The absolute annual gain by income fractile is shown in 5. The richest fractile gains on average more than half a million due to the reform.

PLACE TABLE 3 HERE

PLACE FIGURE A.3 HERE

The average reform effect can be decomposed by reform component. Positive net income effects are generated by the reduced effective tax rates on interest and dividend income. Negative net income effects are generated by the abolition of income specific deductions, by the increased tax rate on capital gains from corporations where tax units hold a significant percentage of the corporation capital, and by some other reform details. In addition, each tax unit has an allowance on capital income. I do not deduct this allowance, but compute the reform effect on the full interest and dividend income. The allowance effect, that results from the reduced average tax rate on the tax base that the allowance refers to, is reported separately.

PLACE FIGURE 3 HERE

Figure 3 shows the aggregated reform effect by year for all weighted tax units in the dataset. Note that the dataset is weighted according to the panel population, and not to the aggregated number of taxpayers. The aggregate is thus biased downwards. The decomposition reveals that the negative reform components have a considerable impact. While the reform effect on dividend and interest income amounts to between 1.5 and 2 billion € (2001 prices), the net effect with all reform components does not exceed 500 million € in any year but 2001. Aside from the allowance effect, the largest negative reform component is the abolition of income specific deductions, which is also stable over the six years. A more volatile negative component is the increased tax rate on capital gains. The largest effects of this component take place in 2005 and 2006.

PLACE FIGURE 4 HERE

Figure 4 shows the average net income effect by income fractile, using six year average incomes. The continuous line corresponds to the average net income effect in table 3, and is very small below the top 1 % fractile. The decomposition shows that the negative reform components, notably the abolition of deductions and the increase in capital gains tax rates, are considerably large in all top fractiles but the super rich. Without these additional components, net incomes would have grown by at least 1.5 % in all fractiles above the top 1 %.

While the vertical effect showed average effects by income fractile, the positive and negative components are expected to be distributed unequally across the tax units, as their relative size

depends on the composition of income and deductions. Figure 6 shows the distribution of individual net income effects by income fractile. The picture below the top 5 % does not change much. The net income of 90 % of the tax units in the top decile (net of the top 5 % fractile) does not change. In the higher fractiles, individual net income effects are more heterogeneous. The bulk of the top income tax units have considerable positive net income effects. The 75 % percentile tax unit in fractiles above the top 1 % gains roughly between 2 % and 4 % of its net income. The 95 % percentile tax unit gains over 17 % in the top 0.001 % fractile. Negative effects are less frequent. The 25 % percentile tax unit has always a non-negative net income effect. Some tax units, however, suffer net income losses that exceed 10 %.

6 Limitations of the Analysis

6.1 Tax Base Broadening

..to be completed..

6.2 Second Round Effects

..to be completed..

7 Conclusion

This paper analyzed the effect of the introduction of a final withholding tax on capital income on the progression of the German income tax based on a microlevel panel dataset of income tax returns between 2001 and 2006. This data is particularly representative for the top of the income distribution. It contains all taxable income types including capital income (but excluding most realized capital gains). It is thus suitable to explore the distribution of total taxable income by income source and income fractile and provide a detailed picture of the first-round effects of the introduction of a withholding tax on capital income. The tax reform leads to a pronounced reduction in tax progression for the very rich income fractiles. Net income growth rates correspond

to the composition of income. High annual shares of capital incomes induce high annual growth rates of net income in the post reform tax regime. The annual progression effect is therefore prone to shocks on income composition. Average incomes give a more stable picture of the progression effect at the top. Average incomes over three and six years reveal a rather stable and high net income growth rates for the robustly defined richest income fractiles. The net income growth generally declines with declining income. While average growth rates at the very top often exceed 1 %, they are negligible up to the top 1 %.

Decomposing the net income effect by reform component reveals that negative components play a major role and reduce the net income effect to a considerable extent. While the abolition of income source specific deductions is stable over the years, the negative effect of a higher tax rate on capital gains differs between the six analyzed years. The negative effect of deductions and capital gains is also important in all top fractiles.

The horizontal distribution of the net income effect is heterogeneous in the top fractiles, but the bulk of the tax units at the top gain due to the reform. Some tax units gain several percent of their net income, while about one quarter of the tax units suffers net income losses. Despite the unequal distribution of the net income effect, the average reform effect is strongly regressive.

This simulation computed the first round reform effect without behavioral responses and without the effect of the tax base broadening towards capital gains from stocks. These two limitations are expected to have opposing effects on tax progression. While the tax base broadening should increase progression, behavioral responses are likely to decrease progression.

Table 1: Tax rates: corporate taxes, synthetic tariff and withholding tax

year	synthetic PIT		withholding tax		Δ		t corp ^g
	top PIT rate ^a	top rate (div) ^b	wt (int) ^c	wt (div) ^d	int ^e	div ^f	
1999	53.0	-	-	-	-	-	40.0
2000	51.0	-	-	-	-	-	40.0
2001	48.5	43.2	(25.0)	(43.8)	23.5	-0.6	25.0
2002	48.5	43.2	(25.0)	(43.8)	23.5	-0.6	25.0
2003	48.5	44.3	(25.0)	(44.9)	23.5	-0.6	26.5
2004	45.0	41.9	(25.0)	(43.8)	20.0	-1.9	25.0
2005	42.0	40.8	(25.0)	(43.8)	17.0	-3.0	25.0
2006	42.0	40.8	(25.0)	(43.8)	17.0	-3.0	25.0
2007	45.0	41.9	(25.0)	(43.8)	20.0	-1.9	25.0
2008	45.0	34.1	(25.0)	(36.3)	20.0	-2.1	15.0
2009	45.0	-	25.0	36.3	-2.1	20.0	15.0

Notes: ^a top marginal rate of PIT ^b marginal rate on dividends for tax units with top marginal PIT rate. ^d tax rate on interest income with final withholding tax ^c tax rate on gross dividends with final withholding tax and corporate tax rate of respective year ^e difference between PIT rate and withholding rate on interest income (% points) ^f difference between PIT rate and withholding rate on gross dividends (% points) ^g corporate tax rate.

Source: own computation based on TPP 2001-2006, German consumer price index

Table 2: Tax simulation

I: synthetic PIT concept	
corporate tax rate	25%
tariff on overall taxable income	$T_s = T_{PIT}(I_{tax}) + 0.25 * div_{gross}$
II: withholding tax concept	
corporate tax rate	15%
tariff on overall taxable income	$T_w = T_{PIT}(I_{tax} - (\frac{1}{2} \cdot div_{cash} + interest))$ $+ 0.25 * (div_{cash} + interest + capital\ gains)$ $+ 0.15 * div_{gross}$

Notes: T_s synthetic PIT concept T_{PIT} PIT tariff I_{tax} overall taxable income div_{gross} gross dividends T_w withholding tax concept div_{cash} cash dividend (after corporate taxes) $interest$ interest income.

Table 3: net income effect (EGI) of tax reform^b
(growth rate (%) of net income)

fractile ^a	annual income fractiles					
	2001	2002	2003	2004	2005	2006
bottom 90	0.0	0.0	0.0	0.0	0.0	0.0
top 10	0.0	0.0	0.0	0.0	0.0	0.0
top 5	0.1	0.0	0.1	0.1	0.0	0.1
top 1	0.4	0.2	0.3	0.3	0.3	0.3
top 0.1	1.6	0.8	0.9	0.9	0.8	1.0
top 0.01	2.0	1.8	1.2	1.0	1.2	0.4
top 0.001	2.3	1.9	1.0	1.3	-1.1	0.5
top 0.0001	0.0	1.1	3.0	0.8	1.1	0.4

fractile ^a	average income fractiles				
	3 years				6 years
	2001-03	2002-04	2003-05	2004-06	2001-06
bottom 90 ^c	0.0	0.0	0.0	0.0	0.0
top 10	0.0	0.0	0.0	0.0	0.0
top 5	0.1	0.1	0.1	0.1	0.1
top 1	0.3	0.3	0.3	0.3	0.3
top 0.1	1.1	0.9	0.7	0.9	1.0
top 0.01	1.5	1.2	1.0	0.4	0.9
top 0.001	1.5	1.2	0.1	-0.4	0.2
top 0.0001	2.0	1.8	1.3	1.2	1.3

Notes: ^aAll fractiles refer to the gross income concept EGI. ^bTax reform as described above. All taxes include firm level taxes on gross dividends. ^cBottom 90 group excludes cases with negative incomes.

Source: own computation based on TPP 2001-2006.

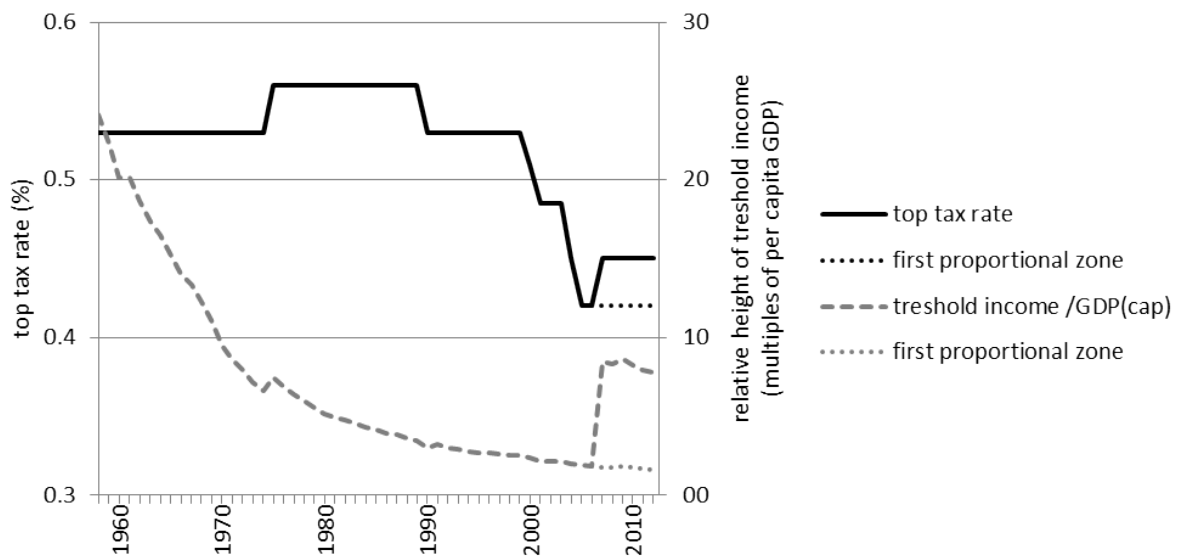


Figure 1: top tax rate and relative height of threshold income

Source: tax rates: German income tax law (ESTG); per capita GDP: Destatis, 2013.

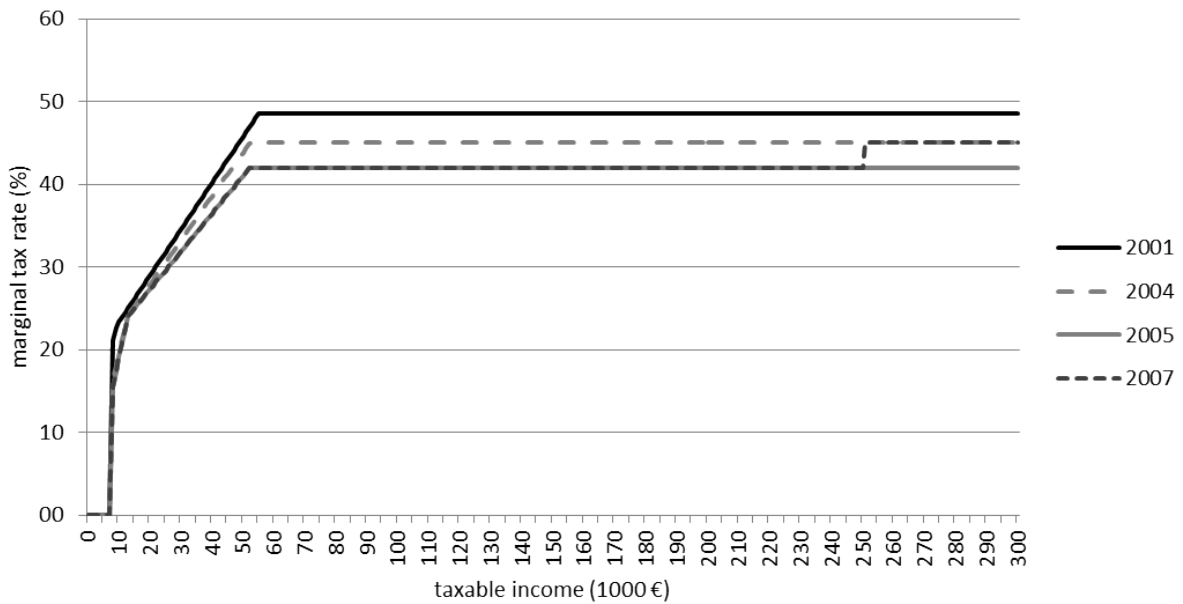


Figure 2: Marginal tax rates, 2001-2007

Source: own computation based on income tax tariffs.

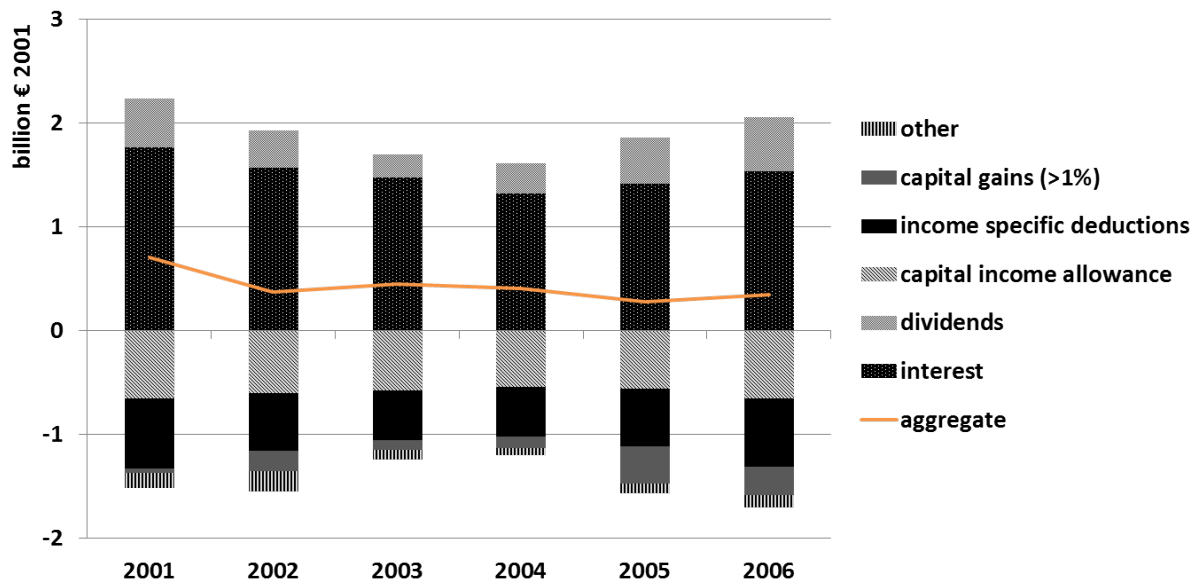


Figure 3: aggregated net income effect by reform component
(annual average, fractiles based on 6 year mean income)

Source: own computation based on TPP 2001-2006.

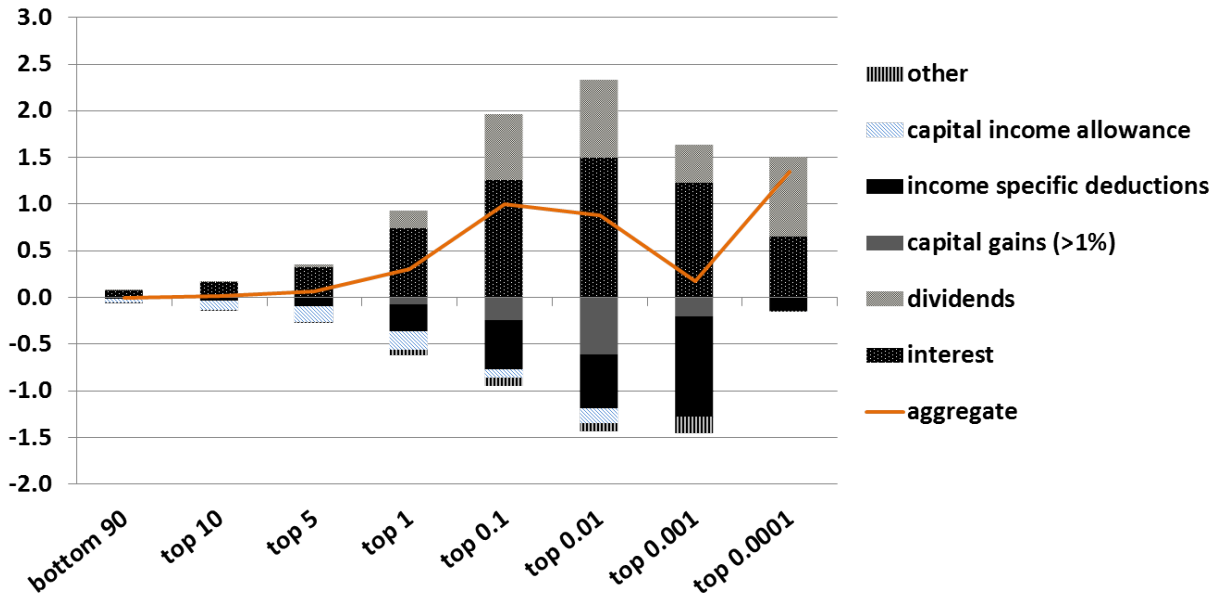


Figure 4: aggregated net income effect by reform component and income fractile
(annual average, fractiles based on 6 year mean income)

Source: own computation based on TPP 2001-2006.

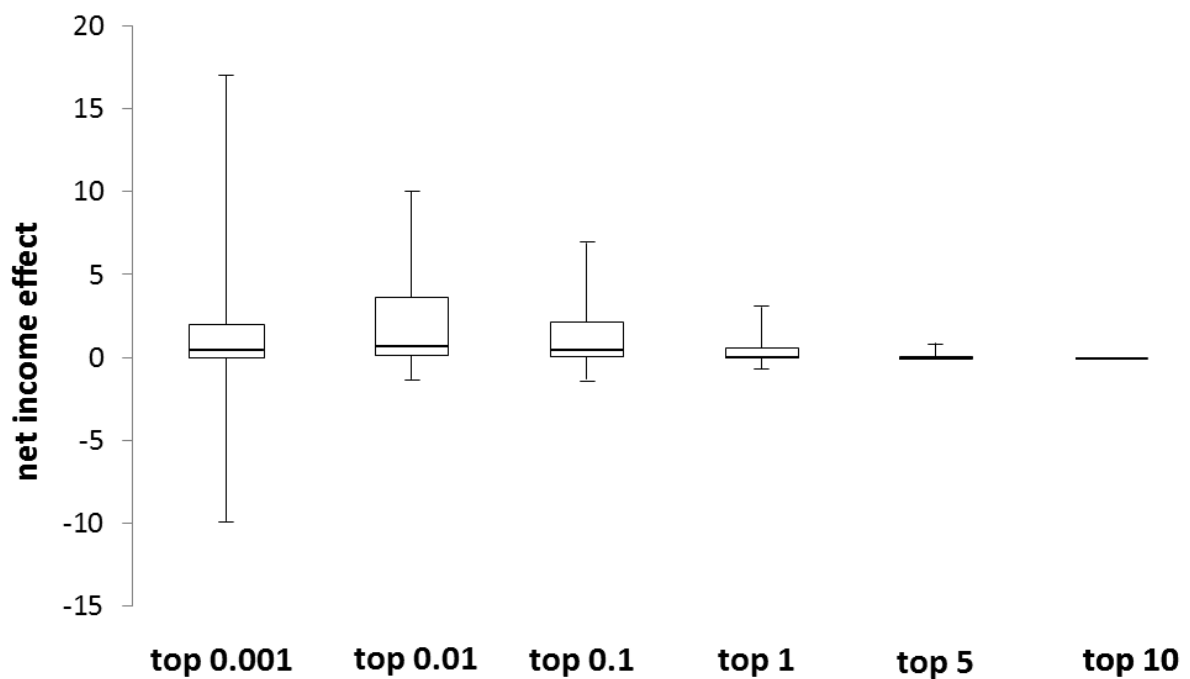


Figure 5: distribution of net income effect by income fractile
(annual average, fractiles based on 6 year mean income)

Notes: Whiskers correspond to 5 % and 95 % percentile points.

Source: own computation based on TPP 2001-2006.

References

- Atkinson, A. B., T. Piketty, and E. Saez (2011). “Top Incomes in the Long Run of History”. In: *Journal of Economic Literature* 49.1, pp. 3–71.
- Bach, S., G. Corneo, and V. Steiner (2009). “From Bottom to Top: The Entire Income Distribution in Germany, 1992-2003”. In: *Review of Income and Wealth* 55.2, pp. 303–330.
- (2013). “Effective Taxation of Top Incomes in Germany”. In: *German Economic Review* 14.2, pp. 115–137.
- Corneo, G. (2005). “The Rise and Likely Fall of the German Income Tax, 1958-2005”. In: *CESifo Economic Studies* 51, pp. 159–186.
- Dell, F. (2005). “Top Incomes in Germany and Switzerland Over the Twentieth Century”. In: *Journal of the European Economic Association* 3.2-3, pp. 412–421.
- Destatis (2009). *Bevölkerung und Erwerbstätigkeit. Stand und Entwicklung der Erwerbstätigkeit 2008 (Band 2: Deutschland)*. Mikrozensus - Fachserie 1 Reihe 4.1.1. Destatis, Wiesbaden.
- (2013). *Volkswirtschaftliche Gesamtrechnungen: Wichtige Zusammenhänge im Überblick 2012*. Destatis, Wiesbaden.
- Landais, C. (2008). *Top Incomes in France: booming inequalities?* PSE working paper.
- Piketty, T. (2001). *Les hauts revenus en France au XX^e siècle: Inégalités et redistributions, 1901-1998*. Grasset.
- Piketty, T. and E. Saez (2013). “A Theory of Optimal Capital Taxation”. In: *Econometrica*. (forthcoming).
- Piketty, T. and G. Zucman (2013). *Capital is Back: Wealth-Income Ratios in Rich Countries 1700-2010*. PSE working paper.

Appendix A Evolution of Marginal Tax Rates

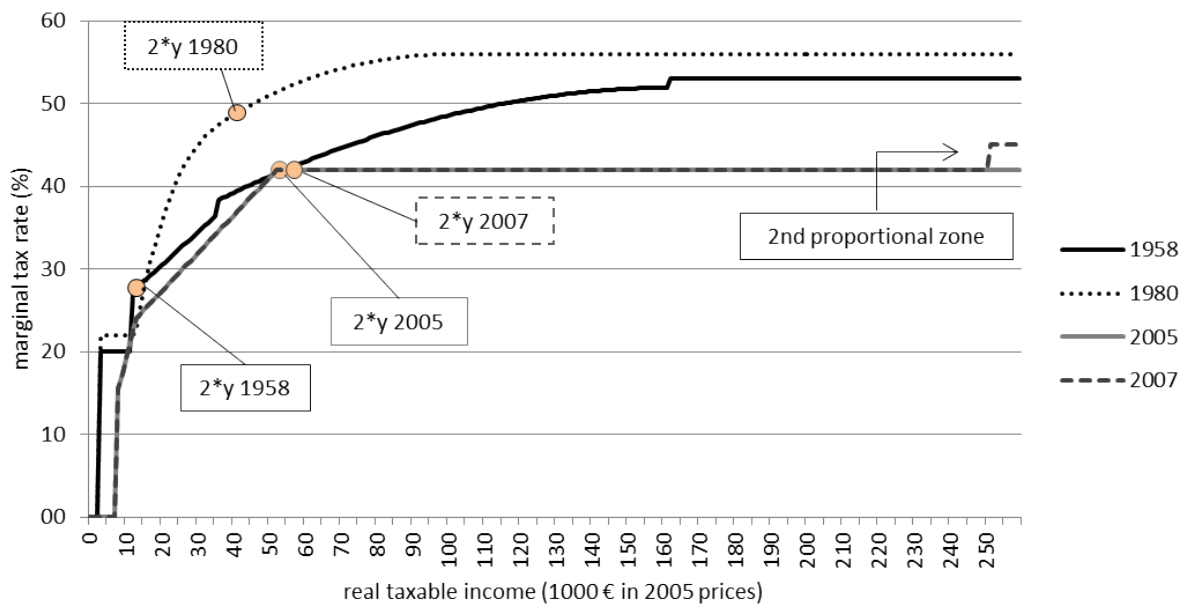


Figure A.1: Evolution of marginal tax rates on real taxable income

Notes: y denotes per capita GDP. Per capita GDP and taxable income deflated with German consumer price index (since 1991) and index of retail prices (Index der Einzelhandelspreise, 1958 to 1990).

Source: own computation based on income tax tariffs and price indexes.

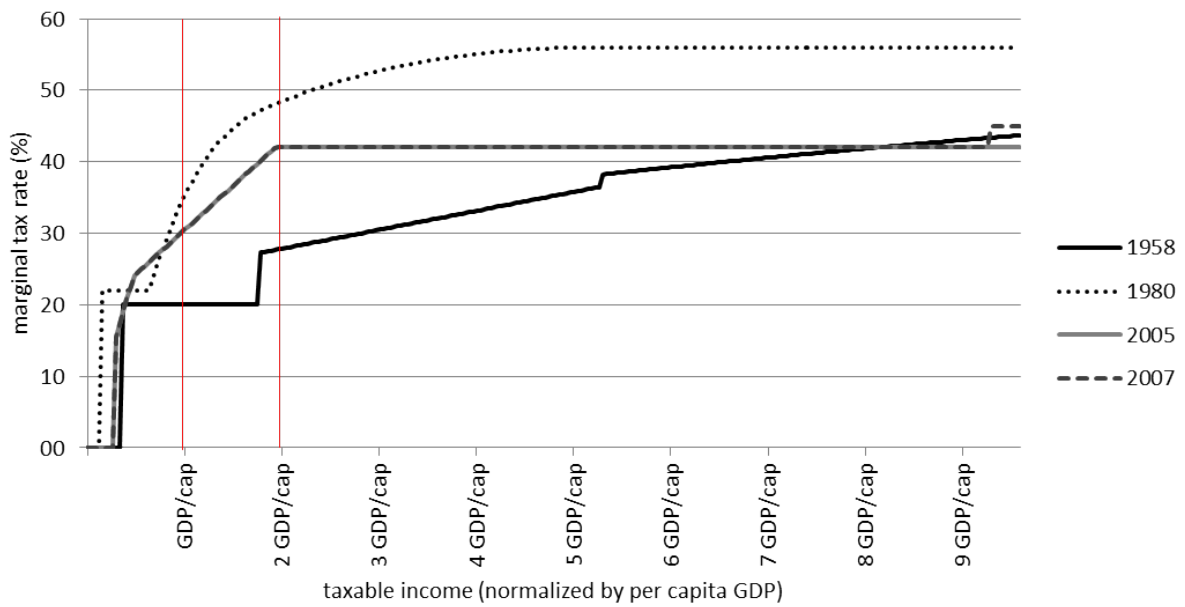


Figure A.2: Evolution of marginal tax rates on multiples of per capita GDP

Notes: “y denotes per capita GDP.

Source: own computation based on income tax tariffs and per capita GDP (Destatis, 2013).

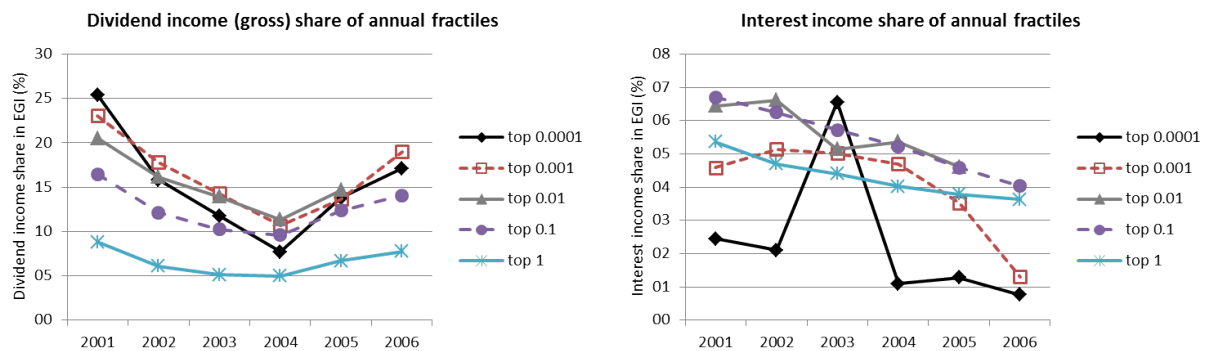


Figure A.3: Capital income shares by income fractile

Notes: Fractiles include the next higher fractile.

Source: own computation based on TPP 2001-2006.

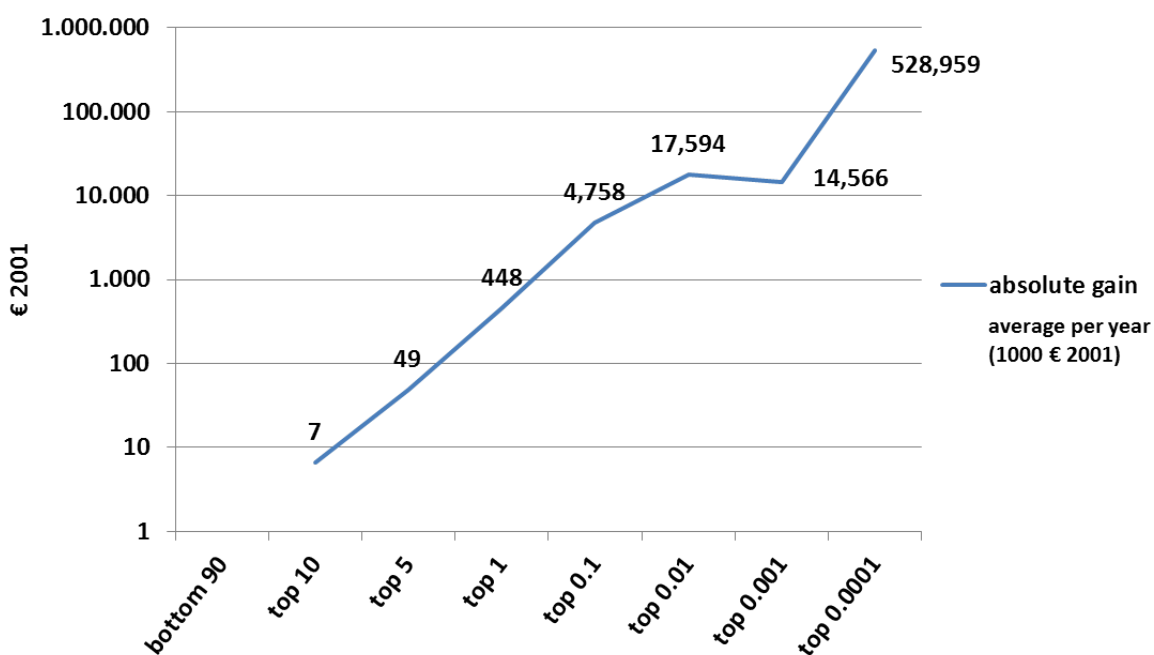


Figure A.4: absolute average gain by income fractile
 (annual average, fractiles based on 6 year mean income)

Source: own computation based on TPP 2001-2006.