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The fiscal and distributional impact of possible tax reforms in the Netherlands

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The fiscal and distributional impact of possible tax reforms in the Netherlands

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December 2012

The fiscal and distributional impact of possible tax reforms in the Netherlands[1]

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Abstract

This paper uses the tax-benefit microsimulation model EUROMOD to assess how three types of tax reform would affect the state budget and the income distribution in the Netherlands. After briefly introducing the Dutch tax system and the case for and against these reforms, we investigate the effects of (1) introducing a flat income tax rate, (2) reducing the mortgage interest deduction and (3) shifting the state pension contribution to income tax, and of combining these reforms.
Notably, the analysis does not include possible effects of these reforms on, e.g., the labour market and/or the housing market, but assesses the ceteris paribus effects of the reforms on the state budget and on poverty and inequality.
Depending on the choice of the various parameters of the reforms both the budgetary and the distributional effects may vary widely. We show that the budget deficit may increase or decrease in combination with both increases and decreases in inequality and poverty. So, an optimal tax reform could be chosen depending on the preferences with respect to the budget and the income distribution.

JEL Classification: D31: H24; I32
Keywords: Netherlands; income tax; microsimulation; income distribution

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[1] The results presented here are based on EUROMOD version 5.1. EUROMOD is continually being improved and updated and the results presented here represent the best available at the time of writing. Any remaining errors, results produced, interpretations or views presented are the author's responsibility. This paper uses data from the EU-SILC 2008 provided by Eurostat The author is indebted to all past and current members of the EUROMOD consortium for the construction and development of EUROMOD.

1. Introduction

When proposing reforms to the tax system, it is useful to present evidence on the impact of the reforms in question instead of assumptions about their potential impact. One of the primary features of the microsimulation model EUROMOD (Sutherland, 2007) is that it can be used to assess the impact of proposed tax reforms. In this paper we present results of using EUROMOD to evaluate the effects of three possible revisions to the tax system in the Netherlands, as well as combinations of these revisions.

The first and most far reaching reform of the tax system concerns the introduction of a flat tax schedule instead of the progressive tax schedule currently in use. Without making much headway, proposals to introduce a flat tax schedule are made every once in a while. Proponents argue that a flat tax schedule would lead to a fairer distribution of the tax burden and would have a positive impact on the economy by increasing the supply of labour. On the other hand, the unavoidable redistribution of income from poorer to richer households has so far been a sufficient argument to stop policy makers getting too serious about a possible flat tax schedule.

A second and much more likely reform concerns the reduction of the tax deductibility of mortgage interest payments. The almost unlimited deductibility of mortgage interest payments is considered one of the primary causes of the boom in housing prices as well as the increase of the total mortgage debt of households to a possibly unsustainable level of more than 100% of GDP. Uncertainty about the future of the deductibility has been a contributing factor in the recent decline in housing prices and a clear decision about the way in which the deductibility will be reduced is deemed necessary for a rebound of the housing market.

The third reform considered in this paper increases the contribution of the elderly toward the flat rate state pension. So far, the elderly are exempt from paying state pension contributions. However, an increasing share of the costs of the state pension is financed out of the general tax receipts. It is useful to know the effect of increasing the contribution of the elderly on the state budget, and on the income distribution of the elderly.

EUROMOD provides a straightforward way to evaluate the impact of versions of all three reforms mentioned above as well as of possible combinations of these reforms. After introducing the Dutch tax system in section 2, we will discuss the details of the reforms in section 3. Section 4 then presents the results. Next to the budgetary effects, we consider the impact on selected indicators of poverty and inequality. Finally, focusing on budget neutral versions of the reforms, we check how many households can be counted as gaining and losing from the reforms as well as gaining and losing considerably (more than 5%).

In the concluding section, we summarize the most important results and discuss the limitations of the exercise, comparing it with actual and planned reforms to the tax system covering aspects of the system as studied in this paper.

2. Context: The Dutch tax system

As summarized in the EUROMOD country report on the Netherlands (de Vos and De Agostini, 2012), the Dutch tax system is to a large extent a national tax system. Moreover, it is largely individualized, although the income of the spouse may affect the amount of tax credits received. A number of social insurance contributions ('peoples insurances') is integrated in the income tax schedule. The resulting tax schedule of 2010 including these insurances is presented in table 1.

Table 1. Income tax schedule including peoples' insurance contributions (2010)

TAXABLE INCOME FROM	TO	TAX RATE (65-)	TAX RATE (65+)
0	18,218	33.45	15.55
18,218	32,738	41.95	24.05
32,738	54,367	42	42
54,367	…	52	52

For persons younger than 65, the schedule essentially boils down to three tax brackets; however, the elderly do not pay the state pension contribution of 17.9% of taxable income up to 32,738 euro/year, and end up with four tax brackets. Capital income is taxed separately at a rate of 30% of the presumed rate of return of 4% on assets.

A number of tax credits reduce the tax burden. Next to the general tax credit of 1987 euro (65+: 925 euro) the most common tax credits are the work credit received by persons reporting income from work, the tax credit for single parents and the tax credit for the elderly.

In addition to tax credits, the tax burden may be reduced by a number of amounts that may be deducted from taxable income. These deductions include a self-employment deduction received by persons defined as self-employed, the deduction of gifts to charity, and the deduction of certain travelling allowances. The most important deduction concerns mortgage interest payments which are fully deductible (for a period of up to 30 years).

3. Reforms

3.1 Introduction of a flat tax schedule

As discussed in the previous section, the tax schedule in the Netherlands is progressive, with a tax rate of 33.45% in the lowest income bracket, increasing to 52% in the highest tax bracket. Although the highest tax rate of 52% is considerably lower than before 1990 when the maximum tax rate was 72%, every now and then the idea that the maximum tax rate is too high and that for a number of reasons the Dutch population would be better off with one flat tax schedule gains popularity within a small segment of public opinion. Most recently (2012), proposals to introduce a flat tax rate were included in the election programs of two political parties, obtaining about 10% of the votes in the elections held on September 12.

Arguments in favour of the introduction of a flat tax rate according to the election program of the Christian-Democratic party (CDA) are that it simplifies the tax system and that it stops the different treatment of incomes within families. Moreover, it is supposed to stimulate economic growth and jobs. Notably, introduction of the flat tax should not have substantial negative effects for lower and middle incomes (CDA, 2012). However, as argued by Jacobs (2012), the latter condition may imply that the impact of a flat tax on labour supply may be negative, because in fact, the marginal tax rate will have to be higher rather than lower for a substantial part of the working population. Furthermore, income inequality will definitely increase and social welfare is likely to decrease[2].

All in all, the probability that a flat tax schedule will be introduced soon in the Netherlands may be considered to be quite low.

Using EUROMOD, we will consider the effects of setting the flat tax rate at 35, 36, 37, 38, 39 and 40%, combined with changing the general tax credit (varying it between 0.0 and 1.3 times the original tax credit). All other tax credits are not affected, and the difference between persons aged 64 or younger and the elderly who do not pay the state pension contribution as evident from Table 1 is kept intact.

3.2 Reduction of the mortgage interest deduction

Households are allowed to deduct their mortgage interest payments fully from their taxable income for a period of 30 years. As a result mortgage constructions have been devised which keep the mortgage debt constant for 30 years so that the deduction from taxable income is

[2] Notably, to mitigate the distributional effects, CDA proposes an additional ‘solidarity levy’ for the highest incomes, which somehow would seem to defeat the purpose of a flat tax rate, and is not taken into consideration in this paper.

maximal. This is one of the causes that the household debt to income ratio in the Netherlands is 2.495, one of the highest among the Member States of the EU (Eurostat, 2012).

For a long time, the mortgage interest deduction ("Hypotheekrenteaftrek" or H-word) was virtually sacrosanct, in fact politicians referring to the H-word were certain to be vilified in public opinion. However, the financial crisis has put the sustainability of the mortgage interest deduction in question, and the resulting uncertainty is one of the major causes of the downward trend in housing prices and housing sales in recent years. One other factor is that banks have become more reluctant to award high amounts of mortgages to households, in particular to those starting on the housing market. As a result of all this, politicians are now calling for measures to end the uncertainty and to decide on the mortgage interest rate deduction "once and for all", although parties disagree on the specific decisions to be taken.

In this paper we will consider the effects of reducing the mortgage interest rate deduction by 25, 50, 75 and 100%, combined with increasing the general tax credit with 0 to 50%. Notably, we will be reducing the net mortgage interest deduction, i.e. the mortgage interest payments net of the imputed rent that home owners with a mortgage interest deduction have to add to their taxable income. As a result, when reducing the deduction by 100% we also abolish the taxation on imputed rent.

We do not differentiate between home owners with a new mortgage and existing cases, nor will we try to implement conditions on the mortgages of which the interest payments are eligible for deduction. In reality, measures may be focused on new mortgages, and conditions for the eligibility of interest deduction may include the way in which the mortgage will be paid off.

3.3 Increase the state pension contribution of the elderly

Another major concern with respect to the government budget are the increasing costs of the state pension, mainly as a result of the demographic trend of an ever increasing share of elderly in the population. Although the costs of the state pension as a percentage of GDP are below the EU average, as a result of the fact that it is a flat rate benefit (Eurostat, 2012a), there still is an urgent call for measures to try to curb these costs. One obvious cost reducing measure would be to raise the state pension age of 65, which is outside the scope of this paper, but which was agreed upon by parliament surprisingly quickly after the fall of the previous government (Rutte I). A different approach to ensure that the state pension costs can be met in future is to broaden the so-called contribution base by essentially increasing the number of persons contributing towards it.

So far, the state pension is largely paid for by persons younger than 65 who pay a state pension contribution rate of 17.9% of their taxable income up to 32,738 euro/year (as part of the so-called peoples' insurance contributions, cf. section 2). The contribution rate is capped by law and as a result the funds raised by this contribution are insufficient to fully cover the costs. The deficits are financed out of the general state budget, and hence implicitly paid for by all tax payers, including persons aged 65 and older.

For years, there have been calls to have ‘rich’ elderly contribute more to the costs of the state pension, and one way to do so would be to introduce a state pension contribution for the elderly, or simply by ending the different treatment of the income of the elderly in the tax schedule. During the 1990s politicians who made suggestions in this direction lost elections but the pressure of the financial crisis has caused what was previously unthinkable to be possible, so, starting from 2011, tiny steps have already been taken to increase the contribution of the elderly.

In this paper we consider the effects of equalizing the state pension contribution of persons aged 65 or over to that of younger persons (i.e. 17.9%), simultaneously equalizing the general tax credit of both groups. We will combine this with increasing the general tax credit with 0 to 20% and by decreasing the lowest tax rate by 0 to 3 percentage points.

3.4 Combining the three reforms

It can be argued that reducing the mortgage interest deduction will be easier with a flat tax rate or that it makes sense to have the high income groups who would be the main beneficiaries of the flat tax rate pay for it by removing their mortgage interest deduction. Likewise, it can be argued that a flat rate tax system would not really be flat rate if the elderly pay a different rate. We will therefore also look at the effects of combining all three measures proposed in the previous sections.

We will consider the effects of having a flat tax rate of 37 and 38%, combined with a complete removal of the mortgage interest rate deduction as well as a removal of the different treatment of the elderly in the tax schedule. In addition we will raise the general tax credit by 0 to 50%. We will also look at some scenarios in which the general tax credit of the elderly is doubled, in order to mitigate the adverse effects of the combined reforms on the elderly in the lower to middle income groups.

4. Results

4.1 Budgetary impact

4.1.1.1 Flat tax

In Table 2 and Figure 1 we show the budgetary impact of various combinations of the flat tax rate and the general tax credit. It can be seen that for tax rates of 38% and lower, keeping the general tax credit constant will reduce the tax revenues below the baseline of 94.67 bln euros. Therefore, to raise sufficient tax revenues, the tax credit will have to be lowered. This will have additional adverse effects on the lower income groups, who already suffer from increased marginal tax rates as a result of the flat rate tax schedule. With higher flat rates it is possible to raise more revenues but for a large number of tax payers a marginal tax rate of 40% would not be very much lower than the current rate of 42%. Hence, it is doubtful that such a tax rate would have the effect on the labour supply that proponents of the flat tax rate predict.

Figure 1. Income tax and peoples' insurance revenues (10^9 euro) differentiating the flat tax rate and the general tax credit

4.1.1.2 Reduced mortgage interest deduction

As can be seen from Figure 2 and Table 3, reducing the mortgage interest deduction to zero could raise the tax revenues by about 8% (assuming the taxation of imputed rent would be reduced to zero as well). This would provide room to e.g., increase the general tax credit by 40%. Alternatively, the proceeds could be used to reduce the budget deficit or to finance (part

of) the costs of introducing a flat tax rate. Obviously, the substantial increase of the tax revenues will have to be paid for by the home owners with a mortgage, some of whom may suffer a considerable drop in disposable income. To the extent that this leads to home owners with payment problems and, in extreme cases, forced sale of the house demanded by the mortgage company, the housing market may take a considerable blow. The example of Sweden, where the mortgage interest deduction was sharply reduced in 1991 shows that such a scenario is not unrealistic.

Figure 2. Income tax and peoples' insurance revenues (10^9 euro) differentiating the mortgage interest deduction and the general tax credit

4.1.1.3 State pension contribution paid by the elderly

When the elderly would be required to pay the same state pension contribution as everybody else, tax revenues would increase by about 3%, as can be inferred from Table 4 and Figure 3. The proceeds could be used to pay for part of the costs of the state pension or, alternatively, to increase the general tax credit by about 15% or lowering the lowest tax rate by 2 percentage points. Notably, it is clear that the elderly would be the main victims of such a measure, and increasing their effective tax burden by such a substantial amount cannot be expected to get a lot of political support, whether or not it is compensated by increased tax credits or decreased tax rates for all.

Figure 3. Income tax and peoples' insurance revenues (10^9 euro) introducing state pension contribution for elderly, differentiating the lowest tax rate and the general tax credit

4.1.1.4 Three reforms combined

In Table 5 as well as Figure 4 and Figure 5 we present the tax revenues resulting when combining versions of all the three reforms discussed above. We implement flat tax rates of 37 and 38%, reduce the mortgage interest deduction to zero and introduce the state pension contribution for the elderly. These policy measures are combined with various levels of the general tax credit: we increase the general tax credit with 0 to 50%, we increase the tax credit of the elderly only with 50 to 100% and we increase the general tax credit by 10 and 20% after doubling it for the elderly.

The combined approach would yield almost 10% additional tax revenues when the tax credit would be left unchanged with a flat tax rate of 38%, and about 6% with a flat rate of 37%. Alternatively, the general tax credit could be raised with 40% or almost 30%, respectively, for government to end up with tax revenues close to the baseline.

Because most elderly would suffer from such a reform we also look at the results of increasing the tax credit of the elderly only: it could be doubled and still government revenue would be more than 5% higher than the baseline with a flat tax rate of 38% (37%: almost 2%). The reforms would be approximately budget neutral a with general tax rate increased by 20% (after doubling it for the elderly) at the flat tax rate of 38% (37%: 10%).

Figure 4. Income tax and peoples' insurance revenues (10^9 euro) combining all three reforms, differentiating the flat tax rate and the general tax credit[3]

Figure 5. Income tax and peoples' insurance revenues (10^9 euro) combining all three reforms, differentiating the flat tax rate and the general tax credit (with additional increase of the tax credit of the elderly)[4]

[3] ax, by, c: combining (a) a flat tax rate of x%; (b) reducing the mortgage interest deduction to y%; (c) introducing the state pension contribution for the elderly

[4] ax, by, c: see footnote 3 above

All in all, in terms of the government budget, the reforms discussed here appear to offer sufficient opportunity to government for increasing government revenues, as may be required to get the budget deficit below the level agreed upon within the EU, or to increase the general tax credit so that adverse effects on the lower income groups can be compensated. Whether the reforms have politically acceptable outcomes in terms of their distributional impact, and in particular with respect to the households who gain and lose from the reforms is another matter which will be taken up in the next sections.

4.2 Distributional impact

4.2.1.1 Poverty

Table 6 to Table 9 present the poverty rates resulting from the various reforms, using the poverty cut-off drawn at 60% of median income (equivalized using the modified OECD equivalence scale). The general conclusion is that the poverty rate is not very sensitive to the reforms in question. The various flat tax rates in combination with variations in the general tax credit result in poverty rates between 10.2 and 11.8% (Table 6), in comparison to the baseline of 10.6%. In general, the poverty rate is lower, the higher the tax credit and the higher the flat tax rate. Reducing the mortgage interest deduction results in a reduction of the poverty rate. The lowest poverty rate (9.5%) is reached when the mortgage interest deduction is completely abolished (Table 7). Introducing the state pension contribution for the elderly also reduces the poverty rate. Here, 9.7% is the lowest poverty rate reached by the reforms under investigation (Table 8). Finally, the various combinations of the three reforms result in poverty rates between 9.2% and 10.1% (Table 9). In the latter case, most of the combinations result in a reduction of the median in comparison to the baseline. Apparently, on balance, the poverty line decreases faster than the income of the poor. This will be confirmed in section **Error! Reference source not found.** where we look at the number of winners and losers by decile.

All in all, except for the case of the flat tax only, the reforms appear to result in a decrease of the poverty rate. Notably though, in specific groups, the poverty rate may show an increase. For example, the poverty rate among the elderly increases as a result of the introduction of the state pension contribution for the elderly. However, in most scenarios discussed in this paper, the poverty line among the elderly remains below the average for the total population.

4.2.1.2 Inequality

For the effect of the reforms on inequality we focus on two inequality indicators: the Gini coefficient and the quintile ratio, i.e. the ratio of average income in the highest quintile and the average income in the lowest quintile. Table 10 to Table 13 give the Gini coefficients and Table 14 to Table 17 give the quintile ratio. In fact both indicators give rise to similar conclusions: introducing a flat tax rate increases income inequality, also when combined with reducing the mortgage interest deduction and introducing the state pension contribution for the elderly. Inequality is higher the lower the tax rate and the lower the general tax credit.

So, while the poverty rate may decline, inequality rises. Obviously, this is because the poverty definition compares the lower income groups with the median and the distribution of income above the median does not affect the poverty rate. On the other hand, introducing a flat tax rate has a considerable impact on the higher income groups.

In other words, while introducing a combination of the three reforms might be politically acceptable when focusing on the effects on poverty, the consequences for income inequality in general will make this much more problematic.

4.3 Winners and losers

When studying the consequences of tax reforms, presenting the national indicators of poverty and inequality does not suffice. In particular when assessing the political feasibility of reforms, one also needs to know the consequences for individual and/or specific groups of households. The information that certain specific groups are bound to suffer disproportionately as a consequence of some reform would be highly relevant. Especially in a country like the Netherlands this would severely limit the chances that such a reform would be passed as law without changing it to mitigate these consequences.

In this section we divide the population into deciles of equivalized disposable income and look how the reforms affect disposable income in the various deciles. In this case we limit ourselves to the versions of the reforms that are (closest to) budget neutral. For example, with a flat tax rate of 40%, we increase the general tax credit by 20%, and with a flat tax rate of 35%, we decrease the general tax credit by 60%. Likewise, with a reduction of the mortgage interest rate deduction by 50%, we increase the general tax credit by 20%, and with completely abolishing the mortgage interest deduction we increase the general tax credit by 40%. The introduction of the state pension contribution for the elderly is combined with an increase in the general tax credit by 20% or with a decrease in the lowest tax rate by 2 percent points. Finally, we combine the flat tax rate of 38%, abolishing the mortgage interest deduction and introducing the state pension contribution for the elderly with an increase of the general tax credit by 40% or with an increase by 20% for the non-elderly and 140% for the elderly, and in addition we look at similar budget neutral combinations with a flat tax rate of 37%.

Table 18 presents the percentages of persons whose disposable income increases (winners) and of those whose income decreases (losers) as a result of introducing various flat tax rates in combination with changing the general tax credit, subdivided by decile of the original (baseline) distribution of (equivalized) disposable income. The table also presents the percentages of those whose disposable income increases with more than 5% and those who lose more than 5% of their income. The percentages of losers are also reflected in Figure 6 and Figure 7. Table and figures only leave room for one conclusion: introduction of a flat income tax rate results in a major redistribution from the lower half of the income distribution to the highest deciles. In all scenarios a large majority suffers a decrease in disposable income, and in particular the scenarios with the lowest tax rate give rise to high percentages suffering

an income loss of more than 5% in the deciles 2-4. In view of these results, it seems highly unlikely that proposals for tax reforms along these lines will ever obtain a political majority.

Figure 6. Percentages of losers after the introduction of a flat income tax rate, by decile

Figure 7. Percentages losing more than 5% of income after the introduction of a flat income tax rate, by decile

Reducing the mortgage interest deduction results in a quite different distribution of winners and losers (Table 19, Figure 8 and Figure 9). In this case, the percentage of losers increases with income, as could be expected because home ownership, the average size of the mortgage interest deduction, and the tax rate increase with income. When the deduction would be abolished completely, the percentages suffering an income loss of more than 5% would be about 10%. Most of them would be found in the highest income deciles. Notably, in

comparison to the effects of the flat tax rate, these percentages are relatively modest. Still, even minor reductions of the mortgage interest deduction meet with a high extent of resistance in society, especially when they concern current mortgages.

Figure 8. Percentages of losers after reducing the mortgage interest deduction, by decile

Figure 9. Percentages losing more than 5% of income after reducing the mortgage interest deduction, by decile

The overall percentages affected by the introduction of the state pension contribution for the elderly are also fairly small (Table 20, Figure 10 and Figure 11). However, the percentages losing more than 5% of their disposable income increases to more than 40% among the elderly, and as a result, this would again meet with fierce resistance in society.

Figure 10. Percentages of losers after introducing the state pension contribution for the elderly

Figure 11. Percentages losing more than 5% after introducing the state pension contribution for the elderly

Finally, if we look at some budget-neutral combinations of the three reforms (Table 21, Figure 12 and Figure 13) we find that the combinations without specific increases of the tax credit for the elderly have the largest effects in the third and fourth decile. In particular, a large majority of the elderly would suffer a decrease in disposable income of more than 5%. If we double the tax credit for the elderly, the share of the population suffering an income loss of more than 5% would be highest in the deciles 5 thru 8: about 25%. On the other hand, the winners would still be concentrated in the highest deciles, with more than one third of the 10th decile winning more than 5% of income in all four scenarios.

Figure 12. Percentages of losers after combining three reforms, differentiating the flat tax rate and the general tax credit

Figure 13. Percentages losing more than 5% after combining the three reforms, differentiating the flat tax rate and the general tax credit

5. Discussion and conclusion

The exercise carried out in this paper has a number of limitations. First and foremost, EUROMOD is used for the budget year 2010 on the basis of EU-SILC data concerning the income year 2007, with income information updated using national average updating factors. All in all, the baseline results show some differences with the actual figures from 2010 (see de Vos and De Agostini, 2012). Another important limitation is that since EUROMOD is used to implement reforms in the tax-benefit system, any effect these changes might have on the outcomes in terms of, e.g., economic growth and employment and unemployment is not taken into account. If the introduction of the flat tax rate affects the labour supply[5] or if reducing the mortgage interest deduction affects the housing market, these effects do not show up in EUROMOD and, as such, are outside the scope of this paper. In addition, it should be mentioned that the reforms implemented in this paper involve major changes, and should not be considered as realistic in the Dutch context. Obviously, the introduction of a flat rate is of necessity a major change, and, as mentioned earlier, it is rather unlikely to get the popular vote within the foreseeable future. With respect to the mortgage interest deduction, the complete abolishment also seems a question of decades rather than years. Policy measures to be introduced in 2013 currently only affect the way in which new mortgages are paid off. And as far as the introduction of the state pension contribution for the elderly is concerned, no government in its right mind would introduce this in one sweeping gesture from one tax year to the next. In fact, the way in which the state pension contribution is implicitly introduced involves a very gradual increase in the tax burden of persons who turned 65 after 2010 only. In that way, pensioners will not be confronted with a sudden drop in their incomes as a result of introducing the state pension contribution for the elderly.

In other words, the results in this paper give some indication of the budgetary and distributional consequences of the measures proposed here, but should not in any way be considered as realistic or likely scenarios for the near future. Nevertheless, some conclusions may safely be drawn. With respect to the flat tax rate, we find that without additional measures, we would need a fairly high flat tax rate to end up with a budget neutral reform. This implies that the lower income groups are bound to be confronted with a marginal tax rate higher than the current one, with all its undesired consequences. One additional measure could be the abolishment of the mortgage interest deduction, which in itself would mainly affect the higher income groups who profit the most from the flat tax rate. Another additional measure would be the introduction of the state pension contribution for the elderly, but this would have serious negative implications for the elderly, also in the lower half of the distribution, which could be mitigated if accompanied by increases in the general tax credit of the elderly. In all scenarios, the introduction of a flat tax rate implies gains for the highest income groups and losses in other parts of the income distribution.

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[5] CPB (2011) looks at the effects of a comparable set of measures as proposed in this paper, and expects employment to grow by 3.3% and labour supply by 3%. The mechanism underlying the growth of employment and the way in which this increased demand for labor will meet the increased supply of labor, mainly in terms of an increased number of hours in the higher income groups, is not quite clear, though. Obviously, effects of this magnitude would have additional budgetary and distributional consequences.

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Appendix: Tables

Table 2. Income tax and peoples' insurance revenues (10^9 euro) differentiating the flat tax rate and the general tax credit (tc)

	Flat tax rate					
Tax credit	40%	39%	38%	37%	36%	35%
tc * 0.0	119.57	116.25	112.91	109.58	106.24	102.90
tc * 0.1	117.42	114.09	110.76	107.42	104.08	100.73
tc * 0.2	115.29	111.97	108.63	105.29	101.94	98.60
tc * 0.3	113.19	109.86	106.52	103.17	99.82	96.48
tc * 0.4	111.11	107.77	104.43	101.08	97.73	94.39
tc * 0.5	109.04	105.70	102.35	99.02	95.67	92.32
tc * 0.6	106.98	103.63	100.29	96.96	93.60	90.26
tc * 0.7	104.93	101.59	98.24	94.90	91.56	88.23
tc * 0.8	102.90	99.55	96.22	92.88	89.54	86.20
tc * 0.9	100.87	97.53	94.20	90.86	87.53	84.20
tc * 1	98.86	95.52	92.20	88.86	85.53	82.21
tc * 1.1	96.86	93.53	90.21	86.88	83.55	80.24
tc* 1.2	94.87	91.54	88.23	84.90	81.58	78.28
tc * 1.3	92.90	89.57	86.25	82.94	79.62	76.32

Table 3. Income tax and peoples' insurance revenues (10^9 euro) differentiating the mortgage interest deduction and the general tax credit (tc)

	Mortgage interest deduction				
Tax credit	100%	75%	50%	25%	0%
tc * 1	94.67	96.6	98.55	100.55	102.57
tc * 1.1	92.71	94.64	96.6	98.59	100.61
tc * 1.2	90.76	92.69	94.65	96.65	98.66
tc * 1.3	88.83	90.76	92.72	94.71	96.72
tc * 1.4	86.93	88.84	90.8	92.79	94.8
tc * 1.5	85.04	86.96	88.91	90.9	92.91

Table 4. Income tax and peoples' insurance revenues (10^9 euro) introducing state pension contribution for elderly, differentiating the lowest tax rate (ltr)and the general tax credit (tc)

	Lowest tax rate (ltr)			
Tax credit	ltr – 0	ltr - 0.01	ltr - 0.02	ltr - 0.03
tc * 1.0	97.92	96.25	94.61	92.95
tc * 1.1	95.74	94.09	92.45	90.83
tc * 1.2	93.58	91.95	90.34	88.73

Table 5. Income tax and peoples' insurance revenues (10^9 euro) combining all three reforms, differentiating the flat tax rate and the general tax credit

	Tax credits					
	tc65 * 1	tc65 * 1.1	tc65 * 1.2	tc65 * 1.3	tc65 * 1.4	tc65 * 1.5
	tc * 1	tc * 1.1	tc * 1.2	tc * 1.3	tc * 1.4	tc * 1.5
a38, b0, c	104.36	102.14	99.92	97.7	95.48	93.27
a37, b0, c	100.85	98.62	96.4	94.19	91.96	89.76
	tc65 * 1.5	tc65 * 1.6	tc65 * 1.7	tc65 *1.8	tc65 * 1.9	tc65 * 2
	tc * 1	tc * 1	tc * 1	tc * 1	tc * 1	tc * 1
a38, b0, c	102.14	101.7	101.27	100.86	100.46	100.06
a37, b0, c	98.62	98.2	97.77	97.36	96.96	96.59
	tc65 * 2	tc65 * 2.2	tc65 * 2.4			
	tc * 1	tc * 1.1	tc * 1.2			
a38, b0, c	100.06	97.56	95.17			
a37, b0, c	96.59	94.13	91.74			

Table 6. Poverty rate (60% of median) differentiating the flat tax rate and the general tax credit (tc)

	Flat tax rate					
Tax credit	40%	39%	38%	37%	36%	35%
tc * 0.0	11.0	11.2	11.0	11.2	11.5	11.8
tc * 0.1	10.7	10.9	11.0	11.1	11.4	11.7
tc * 0.2	10.5	10.8	10.9	11.1	11.4	11.8
tc * 0.3	10.6	10.8	10.9	11.2	11.5	11.7
tc * 0.4	10.6	10.8	11.1	11.4	11.6	11.7
tc * 0.5	10.4	10.7	11.1	11.2	11.5	11.7
tc * 0.6	10.3	10.7	11.0	11.2	11.5	11.7
tc * 0.7	10.4	10.8	11.0	11.3	11.4	11.5
tc * 0.8	10.5	10.8	11.0	11.1	11.3	11.6
tc * 0.9	10.5	10.8	11.0	11.1	11.4	11.5
tc * 1	10.3	10.7	10.8	11.0	11.2	11.4
tc * 1.1	10.3	10.7	10.8	11.0	11.1	11.2
tc* 1.2	10.3	10.5	10.9	11.0	11.0	11.1
tc * 1.3	10.2	10.6	10.8	10.9	11.0	11.1

Table 7. Poverty rate (60% of median) differentiating the mortgage interest deduction and the general tax credit (tc)

	Mortgage interest deduction				
Tax credit	100%	75%	50%	25%	0%
tc * 1	10.6	10.3	10.2	9.9	9.7
tc * 1.1	10.6	10.3	10.1	9.8	9.6
tc * 1.2	10.5	10.1	10.0	9.6	9.5
tc * 1.3	10.4	10.2	10.0	9.7	9.5
tc * 1.4	10.3	10.1	10.0	9.7	9.5
tc * 1.5	10.2	10.1	9.9	9.8	9.5

Table 8. Poverty rate (60% of median) introducing state pension contribution for elderly, differentiating the lowest tax rate (ltr) and the general tax credit (tc)

	Lowest tax rate (ltr)			
Tax credit	ltr – 0	ltr - 0.01	ltr - 0.02	ltr - 0.03
tc * 1.0	9.8	9.9	9.9	10.3
tc * 1.1	9.7	9.9	10.0	10.0
tc * 1.2	9.8	9.9	10.0	10.0

Table 9. Poverty rate (60% of median) combining all three reforms, differentiating the flat tax rate and the general tax credit

	Tax credits					
	tc65 * 1 tc * 1	tc65 * 1.1 tc * 1.1	tc65 * 1.2 tc * 1.2	tc65 * 1.3 tc * 1.3	tc65 * 1.4 tc * 1.4	tc65 * 1.5 tc * 1.5
a38, b0, c	9.9	9.7	9.6	9.7	9.6	9.5
a37, b0, c	10.1	10	10.1	9.8	9.8	9.6
	tc65 * 1.5 tc * 1	tc65 * 1.6 tc * 1	tc65 * 1.7 tc * 1	tc65 *1.8 tc * 1	tc65 * 1.9 tc * 1	tc65 * 2 tc * 1
a38, b0, c	9.2	9.3	9.4	9.3	9.3	9.5
a37, b0, c	9.5	9.8	9.7	9.7	9.7	9.9
	tc65 * 2 tc * 1	tc65 * 2.2 tc * 1.1	tc65 * 2.4 tc * 1.2			
a38, b0, c	9.5	9.8	9.8			
a37, b0, c	9.9	10	10.1			

Table 10. Gini coefficient differentiating the flat tax rate and the general tax credit (tc)

	Flat tax rate					
Tax credit	40%	39%	38%	37%	36%	35%
tc * 0.0	0.296	0.296	0.296	0.296	0.297	0.297
tc * 0.1	0.293	0.294	0.294	0.294	0.295	0.295
tc * 0.2	0.292	0.292	0.292	0.293	0.293	0.293
tc * 0.3	0.290	0.290	0.291	0.291	0.291	0.292
tc * 0.4	0.288	0.289	0.289	0.289	0.290	0.290
tc * 0.5	0.287	0.287	0.287	0.288	0.288	0.289
tc * 0.6	0.285	0.285	0.286	0.286	0.287	0.287
tc * 0.7	0.283	0.284	0.284	0.285	0.285	0.286
tc * 0.8	0.282	0.283	0.283	0.284	0.284	0.284
tc * 0.9	0.281	0.281	0.282	0.282	0.283	0.283
tc * 1	0.279	0.280	0.280	0.281	0.282	0.282
tc * 1.1	0.279	0.279	0.279	0.280	0.280	0.281
tc* 1.2	0.277	0.278	0.278	0.279	0.279	0.280
tc * 1.3	0.276	0.276	0.277	0.278	0.278	0.279

Table 11. Gini coefficient differentiating the mortgage interest deduction and the general tax credit (tc)

	Mortgage interest deduction				
Tax credit	100%	75%	50%	25%	0%
tc * 1	0.264	0.262	0.261	0.260	0.258
tc * 1.1	0.263	0.261	0.260	0.259	0.257
tc * 1.2	0.262	0.261	0.259	0.258	0.256
tc * 1.3	0.261	0.260	0.258	0.257	0.256
tc * 1.4	0.261	0.259	0.257	0.256	0.255
tc * 1.5	0.260	0.258	0.257	0.255	0.254

Table 12. Gini coefficient introducing state pension contribution for elderly, differentiating the lowest tax rate (ltr) and the general tax credit (tc)

	Lowest tax rate (ltr)			
Tax credit	ltr - 0	ltr - 0.01	ltr - 0.02	ltr - 0.03
tc * 1.0	0.265	0.265	0.264	0.263
tc * 1.1	0.264	0.263	0.263	0.262
tc * 1.2	0.263	0.262	0.262	0.261

Table 13. Gini coefficient combining all three reforms, differentiating the flat tax rate and the general tax credit

	Tax credits					
	tc65 * 1 tc * 1	tc65 * 1.1 tc * 1.1	tc65 * 1.2 tc * 1.2	tc65 * 1.3 tc * 1.3	tc65 * 1.4 tc * 1.4	tc65 * 1.5 tc * 1.5
a38, b0, c	0.282	0.280	0.279	0.277	0.276	0.274
a37, b0, c	0.283	0.281	0.279	0.278	0.276	0.275
	tc65 * 1.5 tc * 1	tc65 * 1.6 tc * 1	tc65 * 1.7 tc * 1	tc65 *1.8 tc * 1	tc65 * 1.9 tc * 1	tc65 * 2 tc * 1
a38, b0, c	0.278	0.277	0.277	0.276	0.276	0.275
a37, b0, c	0.279	0.278	0.278	0.277	0.277	0.276
	tc65 * 2 tc * 1	tc65 * 2.2 tc * 1.1	tc65 * 2.4 tc * 1.2			
a38, b0, c	0.275	0.274	0.273			
a37, b0, c	0.276	0.275	0.274			

Table 14. Income quintile ratio (S80/S20) differentiating the flat tax rate and the general tax credit (tc)

	Flat tax rate					
Tax credit	40%	39%	38%	37%	36%	35%
tc * 0.0	4.27	4.28	4.28	4.29	4.31	4.32
tc * 0.1	4.21	4.22	4.24	4.26	4.27	4.28
tc * 0.2	4.17	4.19	4.20	4.22	4.23	4.24
tc * 0.3	4.14	4.15	4.17	4.18	4.19	4.21
tc * 0.4	4.10	4.12	4.13	4.15	4.16	4.18
tc * 0.5	4.07	4.09	4.10	4.12	4.13	4.15
tc * 0.6	4.04	4.06	4.07	4.09	4.11	4.12
tc * 0.7	4.02	4.03	4.05	4.06	4.08	4.10
tc * 0.8	3.99	4.01	4.02	4.04	4.06	4.07
tc * 0.9	3.97	3.98	4.00	4.02	4.03	4.05
tc * 1	3.94	3.96	3.98	4.00	4.02	4.03
tc * 1.1	3.92	3.94	3.96	3.98	4.00	4.02
tc* 1.2	3.91	3.92	3.94	3.96	3.98	4.00
tc * 1.3	3.89	3.91	3.92	3.94	3.97	3.98

Table 15. Income quintile ratio (S80/S20) differentiating the mortgage interest deduction and the general tax credit (tc)

	Mortgage interest deduction				
Tax credit	100%	75%	50%	25%	0%
tc * 1	3.71	3.68	3.65	3.62	3.59
tc * 1.1	3.70	3.66	3.63	3.61	3.58
tc * 1.2	3.69	3.65	3.62	3.59	3.57
tc * 1.3	3.67	3.64	3.61	3.58	3.56
tc * 1.4	3.66	3.63	3.6	3.57	3.55
tc * 1.5	3.66	3.62	3.59	3.57	3.54

Table 16. Income quintile ratio (S80/S20) introducing state pension contribution for elderly, differentiating the lowest tax rate (ltr) and the general tax credit (tc)

	Lowest tax rate (ltr)			
Tax credit	ltr - 0	ltr - 0.01	ltr - 0.02	ltr - 0.03
tc * 1.0	3.71	3.71	3.7	3.69
tc * 1.1	3.69	3.69	3.68	3.68
tc * 1.2	3.68	3.67	3.67	3.67

Table 17. Income quintile ratio (S80/S20) combining all three reforms, differentiating the flat tax rate and the general tax credit

	Tax credits					
	tc65 * 1 tc * 1	tc65 * 1.1 tc * 1.1	tc65 * 1.2 tc * 1.2	tc65 * 1.3 tc * 1.3	tc65 * 1.4 tc * 1.4	tc65 * 1.5 tc * 1.5
a38, b0, c	3.95	3.93	3.90	3.88	3.85	3.83
a37, b0, c	3.98	3.95	3.92	3.9	3.87	3.85
	tc65 * 1.5 tc * 1	tc65 * 1.6 tc * 1	tc65 * 1.7 tc * 1	tc65 *1.8 tc * 1	tc65 * 1.9 tc * 1	tc65 * 2 tc * 1
a38, b0, c	3.89	3.88	3.87	3.86	3.86	3.86
a37, b0, c	3.91	3.90	3.89	3.89	3.88	3.88
	tc65 * 2 tc * 1	tc65 * 2.2 tc * 1.1	tc65 * 2.4 tc * 1.2			
a38, b0, c	3.86	3.84	3.82			
a37, b0, c	3.88	3.86	3.85			

Table 18. Winners and losers differentiating the flat tax rate and the general tax credit

	winners						winning more than 5%					
	40%	39%	38%	37%	36%	35%	40%	39%	38%	37%	36%	35%
decile	tc*1.2	tc*1.0	tc*0.9	tc*0.7	tc*0.6	tc*0.4	tc*1.2	tc*1.0	tc*0.9	tc*0.7	tc*0.6	tc*0.4
1	4.0	0.7	1.3	0.7	0.7	0.7	1.9	1.9	1.9	1.9	1.8	1.8
2	9.2	2.3	2.5	1.9	1.0	1.7	0.1	0.1	0.1	0.1	0.1	0.1
3	14.3	5.0	7.8	4.7	4.5	4.9	0.7	0.5	0.7	0.7	0.7	0.7
4	11.0	7.5	8.6	7.1	5.8	6.9	2.2	1.7	2.5	2.5	2.2	2.3
5	13.2	7.8	9.3	8.3	7.9	8.6	1.6	1.6	1.6	1.6	1.6	1.9
6	15.1	11.3	15.0	12.0	11.8	14.1	2.9	2.9	3.4	3.4	3.3	4.0
7	16.6	15.2	19.0	18.7	18.0	23.9	3.6	3.3	4.2	4.0	4.1	4.8
8	25.5	25.1	31.1	32.8	33.5	40.7	5.2	5.7	7.3	7.5	7.1	10.1
9	33.8	35.1	46.5	48.3	50.0	60.0	10.0	10.6	13.0	14.4	14.9	17.3
10	71.8	74.2	83.9	86.1	86.9	91.8	33.6	36.4	41.9	44.3	46.9	51.7
total	21.4	18.4	22.5	22.0	22.0	25.3	6.2	6.5	7.7	8.1	8.3	9.5
decile	losers						losing more than 5%					
1	49.2	62.3	63.4	68.1	73.8	75.2	3.6	12.3	15.1	29.6	42.9	45.8
2	77.6	88.6	89.2	90.8	91.9	91.2	14.8	26.9	28.0	47.6	62.8	64.7
3	83.9	92.2	90.9	94.6	95.0	94.7	17.3	33.9	30.1	44.2	63.1	58.2
4	86.3	91.6	90.5	92.7	94.0	92.6	16.6	23.4	15.6	30.2	47.9	41.3
5	85.2	90.8	89.2	91.1	91.7	90.9	4.3	7.9	5.4	16.0	28.6	26.8
6	84.4	87.6	84.1	87.7	87.9	85.5	0.8	3.1	2.2	10.5	21.5	19.8
7	82.4	83.7	80.3	81.0	81.4	75.1	0.2	1.5	1.4	6.7	14.3	12.2
8	74.0	74.2	67.5	66.1	65.4	58.5	0.0	0.2	0.2	1.8	6.1	5.1
9	65.9	63.8	52.3	50.5	48.6	39.1	0.0	0.0	0.0	0.1	0.6	0.6
10	28.0	25.3	14.9	13.2	12.6	8.0	0.0	0.0	0.0	0.0	0.0	0.0
total	71.7	76.0	72.2	73.6	74.2	71.1	5.8	10.9	9.8	18.7	28.8	27.5

Table 19. Winners and losers differentiating the mortgage interest deduction (mid) and the general tax credit (tc)

	winners				winning more than 5%			
decile	mid 75%	mid 50%	mid 25%	mid 0%	mid 75%	mid 50%	mid 25%	mid 0%
	tc*1.1	tc*1.2	tc*1.3	tc*1.4	tc*1.1	tc*1.2	tc*1.3	tc*1.4
1	40.2	43.7	44.6	45.9	3.4	5.8	13.9	27.7
2	73.8	75.3	76.0	75.9	0.0	0.0	9.3	28.3
3	77.8	78.3	79.1	79.0	0.0	0.0	3.9	16.9
4	73.9	74.3	74.6	74.8	0.0	0.0	0.6	8.2
5	63.2	64.5	64.8	64.8	0.0	0.0	0.3	9.0
6	59.3	59.8	60.5	60.4	0.0	0.0	0.0	3.7
7	57.6	58.3	58.2	58.1	0.0	0.0	0.0	1.4
8	45.1	45.6	45.9	46.0	0.0	0.0	0.0	0.0
9	40.7	40.9	40.7	40.7	0.0	0.0	0.0	0.0
10	30.9	31.1	31.3	31.3	0.0	0.0	0.0	0.0
total	56.2	57.2	57.6	57.7	0.3	0.6	2.8	9.5
decile	losers				losing more than 5%			
1	3.3	4.8	4.8	5.2	0.1	0.1	0.1	0.6
2	7.8	8.6	8.8	9.3	0.0	0.0	0.1	1.0
3	17.5	17.9	18.0	18.3	0.0	0.3	2.4	4.7
4	23.7	23.7	23.8	24.1	0.0	0.5	1.6	4.0
5	30.8	32.0	32.3	33.4	0.1	1.2	4.8	9.6
6	36.5	37.5	37.9	38.2	0.0	1.0	4.3	9.6
7	39.8	40.5	40.7	40.9	0.2	2.6	5.8	9.8
8	51.8	53.1	53.2	53.2	0.1	2.6	7.1	13.5
9	58.0	58.3	58.6	58.8	0.2	4.5	12.6	22.8
10	67.9	68.1	68.2	68.3	0.1	5.8	17.4	26.9
total	33.7	34.4	34.6	35.0	0.1	1.9	5.6	10.2

Table 20. Winners and losers introducing state pension contribution for elderly, differentiating the lowest tax rate (ltr) and the general tax credit (tc)

	winners			winning more than 5%		
	ltr-0	ltr-0.01	ltr-0.02	ltr-0	ltr-0.01	ltr-0.02
decile	tc*1.2	tc*1.1	tc*1.2	tc*1.2	tc*1.1	tc*1.2
1	47.3	47.3	46.7	5.8	3.4	2.8
2	81.2	79.3	77.4	0.2	0.0	0.0
3	81.8	79.5	77.4	0.2	0.1	0.0
4	75.1	74.8	74.8	0.0	0.0	0.0
5	83.0	83.0	82.9	0.0	0.0	0.0
6	86.8	86.8	86.7	0.0	0.0	0.0
7	86.5	86.4	86.4	0.0	0.0	0.0
8	89.0	89.0	88.8	0.0	0.0	0.0
9	90.9	90.9	90.9	0.0	0.0	0.0
10	90.7	90.7	90.6	0.0	0.0	0.0
total	81.2	80.8	80.3	0.6	0.4	0.3
decile	losers			losing more than 5%		
1	0.9	1.5	1.5	0.1	0.1	0.2
2	4.8	6.2	8.0	2.7	2.7	2.7
3	14.7	17.0	19.4	2.6	2.7	2.7
4	23.4	23.7	23.8	8.2	8.9	10.1
5	15.8	15.8	15.9	10.8	11.1	11.4
6	12.8	12.8	13.0	11.2	11.5	11.5
7	13.4	13.5	13.5	10.9	11.1	11.2
8	11.0	11.0	11.1	9.5	9.6	9.9
9	9.1	9.1	9.1	7.6	7.7	7.8
10	9.3	9.3	9.3	5.8	6.2	6.3
total	11.5	12.0	12.5	6.9	7.2	7.4

Table 21. Winners and losers combining all three reforms, differentiating the flat tax rate and the general tax credit

	winners				winning more than 5%			
	a38,b0,c	a37,b0,c	a38,b0,c	a37,b0,c	a38,b0,c	a37,b0,c	a38,b0,c	a37,b0,c
decile	tc*1.4	tc*1.3	1.2, 2.4	1.1, 2.2	tc*1.4	tc*1.3	1.2, 2.4	1.1, 2.2
1	38.1	36.1	23.8	17.2	10.7	7.4	4.1	3.8
2	51.3	49.0	43.4	40.4	10.5	8.9	1.1	1.2
3	48.0	48.0	49.2	46.9	8.3	10.2	3.4	2.8
4	46.8	47.4	34.8	37.0	8.2	8.8	4.0	3.8
5	46.4	47.8	34.0	35.3	6.5	7.4	2.7	3.2
6	46.5	48.7	31.7	33.5	5.6	7.2	3.1	3.7
7	47.3	51.4	31.9	36.7	8.4	10.7	5.6	6.3
8	43.6	48.8	37.1	39.2	11.4	15.0	8.1	9.9
9	46.5	51.2	43.0	46.2	14.2	18.4	10.7	12.9
10	65.0	70.5	61.6	65.5	36.5	41.1	34.1	37.0
total	47.9	49.9	39.1	39.8	12.0	13.5	7.7	8.5
decile	losers				losing more than 5%			
1	12.7	14.7	22.0	30.3	3.4	3.8	2.8	3.0
2	34.2	35.9	39.0	42.5	18.3	20.4	5.7	6.6
3	48.3	48.7	48.4	49.3	32.2	33.0	12.5	12.8
4	52.1	51.1	62.3	60.6	33.4	32.9	18.6	19.0
5	51.9	49.8	62.6	61.9	29.6	28.1	24.6	25.5
6	52.7	49.9	67.4	65.4	23.8	22.5	24.9	23.7
7	52.1	48.2	66.5	61.5	24.2	22.0	24.8	22.8
8	55.4	50.6	62.3	59.8	23.1	20.1	27.6	24.1
9	53.2	48.4	56.7	53.3	20.4	16.7	23.5	18.6
10	34.6	29.0	38.1	34.0	12.7	10.8	11.7	9.4
total	44.7	42.6	52.5	51.9	22.1	21.0	17.7	16.6