Estimating the distributional effects
of mortgage interest tax relief in Europe

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Abstract

This paper attempts to contribute to the analysis of mortgage interest tax relief from the perspective of the economics of social policy. It begins with a brief discussion of *fiscal welfare*, highlighting key contributions within this particular intellectual tradition. It then contrasts this largely critical approach to the standard, more neutral, treatment of mortgage interest tax relief in the housing literature. Finally, the paper draws on both approaches to present on-going research on the distributional effects of mortgage interest tax relief in Europe.

Keywords: tax relief, inequality, microsimulation.

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1. Introduction

In the eyes of many researchers (not to speak of lay people), the tax treatment of mortgage interest payments must appear to be of marginal importance. In many ways, e.g. in terms of resources involved, this is true – except, of course, in the Netherlands and a few other countries where mortgage interest tax relief is available on generous terms. What makes it interesting, at least to this author, is its contested nature: its actual effects seem at odds with intended ones, as well as with standard arguments of efficiency and equity. And yet, with few (significant) exceptions, mortgage interest tax relief is present throughout Europe, as it is in the rest of the developed world.

This short paper attempts to contribute to the analysis of mortgage interest tax relief from the perspective of the economics of social policy. It begins with a brief discussion of "fiscal welfare", highlighting key contributions within this particular intellectual tradition. It then contrasts this largely critical approach to the standard, more neutral, treatment of mortgage interest tax relief in the housing literature. Finally, the paper draws on both approaches to present on-going research on the distributional effects of mortgage interest tax relief in Europe.

2. Mortgage interest tax relief as fiscal welfare

Over half century ago, Richard Titmuss (1955), the LSE professor of social administration, drew attention to the fact that conventional social welfare, much criticized then as now as a waste of public resources, in fact coexisted alongside other forms of welfare, reserved for the more affluent.

In particular, Titmuss discussed the adverse distributional effects of "fiscal welfare", or tax concessions for the purchase of occupational, private or voluntary welfare. As he noted:

> "Since the introduction of progressive taxation in 1907 there has been a remarkable development of social policy operating through the medium of the fiscal system." (Titmuss, 1955, p.65)

Many years later, Julian Le Grand (1997), the current holder of the Richard Titmuss Chair at LSE, discussed "fiscal welfare" in the form of tax relief and summarized the issues involved as follows:

> "Tax relief is both regressive and a blunt instrument: it favours higher rate taxpayers, it does not benefit those who do not pay tax, it encourages lots of tax-avoidance schemes that have little to do with the essential tasks of social security, and its cost is difficult to control." (Le Grand, 1997, p.166)

Mortgage interest tax relief, described by Howard Glennerster (professor of social policy at LSE) as "the largest pro-rich tax advantage of all tax reliefs" (2003, p.164), appears to exemplify these traits.

In the meantime, the economist Nicholas Barr (another LSE professor), in the first edition of *The economics of the welfare state*, called for "the phased

withdrawal of tax reliefs for owner occupiers, price subsidies to local authority tenants and the implied price subsidy of rent control". He also proposed a system of "publicly provided loans or loan guarantees for individuals who have difficulty in obtaining an adequate mortgage in the private sector", and suggested that "over time *price* subsidies should be replaced by *income* subsidies in all sectors of the housing market" (Barr, 1987, p.410).

In later editions of the same book, published after the privatisation of thousands of council flats and the complete abolition of mortgage interest tax relief in Britain, there was no housing chapter. As its author explained:

> *"Over the intervening years, that shift in policy has largely taken place, so that housing is now largely allocated by the market. That is the right strategic direction, since inadequate housing is far less a market-allocation problem than an income distribution problem; what prevents people making efficient choices is not a shortage of information but a shortage of income. From an economic perspective, the main housing problem is how to make it possible for people on low incomes to afford decent accommodation and, for that reason, assistance with housing costs is discussed as part of poverty relief. Other – substantial – problems with housing raise issues about which economics does not have a lot to say."* (Barr, 2004, p.222)

So far so unproblematic. Nevertheless, in an early attempt to estimate the distributional effects of housing subsidies, John Hills (also at the LSE) noted some of the complications:

> *"It is one thing to measure differences between the actual and idealised treatment of housing for a particular individual or group, but quite another to argue that they really 'benefit' or 'lose' as a result of these differences. If supply is inelastic, the result of tax concessions to owner-occupiers will be, at least to some extent, to raise house prices beyond the level they would otherwise have been. New purchasers may receive the tax concessions, but they need to pay the inflated purchase costs and may (in the extreme) be no better off than they would have been if the tax concession had never existed in the first place (they would nonetheless lose if the concessions were withdrawn)."* (Hills, 1991, p.331)

Hills used a tax-benefit model to estimate the direct first-round effects of tax advantages to owner-occupiers (1991, p.344 ff), and found that in terms of distributional impact:

> *"Owner-occupiers' tax advantages … [were] rather low for the lowest income groups (non-taxpayers), rising slowly with income for most of the income distribution, but rising sharply for the highest income groups (with higher tax rates and more valuable properties)."* (Hills, 1991, p.346)

Hills' work was remarkable for its comprehensiveness. He looked at all housing subsidies, irrespective of whether they concerned owner-occupiers or local authority tenants. With respect to tenants, he examined housing benefits as well as rent subisidies; with respect to owner-occupiers, he took care to analyse mortgage

interest tax relief together with non-taxation of imputed rents (and actually found the former slightly less valuable than the latter). This stemmed from a greater familiarity with the subtleties of housing finance – to which we now turn.

3. Mortgage interest tax relief as an instrument of housing policy

What the above shows is that a full analysis of mortgage interest tax relief cannot ignore wider considerations of housing policy and housing taxation. Not surprisingly, this idea is more fully developed in the housing literature itself.

Housing taxation

As Haffner (2002), among others, has explained, the tax system may treat the owner-occupied dwelling either as a consumption good or as an investment good. In the latter case, logical consistency requires that imputed rent is taxed as income and mortgage interest payments are tax deductible. In the former case, there ought to be no taxation of imputed rent and, by the same token, no mortgage interest tax relief.

Do real tax systems conform to type? The information compiled in *Housing Statistics in the European Union 2005/2006* suggests that, in several countries where imputed rent taxation is present the deductibility of mortgage interest payments from taxable income is also allowed – while, conversely, the absence of mortgage interest tax relief often accompanies that of imputed rent taxation. According to this source, Austria, France, Germany, Spain and the United Kingdom have adopted the consumption good approach. In contrast, Belgium, Denmark, Greece, Italy, Lithuania, Luxembourg and the Netherlands appear to apply the investment good approach.

Nevertheless, many countries deviate from that rule. In Latvia and the Slovak Republic, no mortgage interest tax relief is combined with taxation of imputed rent. On the other hand, in the Czech Republic, Finland, Ireland, Malta, Poland, Portugal and Sweden, where imputed rent is not taxed, mortgage interest tax relief is still available. In fact, according to other accounts, membership of this category may be even more numerous than that: in Austria mortgage interest payments tax is deductible up to a limit that diminishes as income rises, in Denmark imputed rent taxation was replaced by a property tax in 2000, in France mortgage interest tax relief was partly restored in 2007, while in Spain the tax deductibility of mortgage interest payments is partly available.

This observation raises several issues, the least original of which is that official statistics may actually contain errors. Crucially, tax policy as applied in practice is often inconsistent with the consumption/investment good dichotomy. Policy makers may disregard principles of housing taxation for good reasons, or simply because they are biased in favour of owner occupation.

Moreover, actual tax rules are complex, and details matter. The size and distribution of tax advantages to owner-occupiers differ greatly between the polar cases of Austria (where, as mentioned above, the generosity of mortgage interest tax relief is inversely related to annual income) and the Netherlands (where mortgage interest payments are fully deductible from taxable income, at the marginal rate of income tax).

In any case, the point that there is more to housing taxation than simply mortgage interest tax relief was recently reiterated by Saarima (2010):

> *"The nature of mortgage interest deduction is often misunderstood. The fundamental tax advantage that homeowners receive in Finland and in many western countries is not the deductibility of mortgage interest but the non-taxation of imputed rental income and capital gains. The removal of mortgage interest deduction would not eliminate the fundamental tax advantage but would tilt the advantage in favour of those wealthy and high-income households who are less dependent on debt financing in home acquisition. The deductibility of mortgage interest can be seen as a way to extend the tax advantage to those who must rely on mortgage financing in order to purchase a home."* (Saarima, 2010, p.20)

In other words, mortgage interest tax relief is not the villain of the piece – at least not the only one, or not as much as others. Even though it may at first sight appear to favour the better off, what in fact does is to extend access to owner-occupied housing beyond the restricted ranks of the truly wealthy. The question is: does it?

Capitalisation

The answer depends on the degree of capitalisation, i.e. the extent to which tax advantages are already reflected in house prices. Under full capitalisation, changes in mortgage interest tax relief are exactly matched by changes in house prices. Improving the generosity of tax relief causes mortgage demand to increase, leading to increases in housing demand, causing house prices to rise. Conversely, reducing (or abolishing) mortgage interest tax relief would simply cause house prices to fall; at an extreme, the reduction in the real wealth of owner-occupiers could give rise to the phenomenon known as "negative equity trap" – which is what happens when the value of a mortgaged dwelling falls below the level of outstanding mortgage debt. In other words, under full capitalisation mortgage interest tax relief has none of its intended effects: it makes housing no more affordable to new buyers, it merely amounts to a pure transfer from the public purse to current owners of houses on sale.

Economic theory suggests that for full capitalisation to occur the supply of housing would have to be entirely inelastic. Empirical evidence on this is rather mixed.

On the one hand, some studies have indicated that the degree of capitalisation may be very high. Berger et al. (2000) analysed Swedish data on 300,000 house sales from 1981 to 1993; their conclusion was that interest subsidies are fully capitalised into house prices. Brounen and Neuteboom (2008) estimated that almost 75% of the fiscal subsidy associated with mortgage interest tax relief in the Netherlands is reflected in house prices. Most recently, Saarima (2010) analysed the effects of the 1993 Finnish tax on the demand for mortgage debt; she found that high-income households, with high marginal tax rates, responded to the reduced tax incentives by clearly reducing their mortgage borrowing compared to the control group. She also cited evidence from other Nordic countries where a similar effect was estimated.

On the other hand, other studies have found that the relevant effect is limited. Jappelli and Pistaferri (2007) analysed changes in the tax treatment of mortgage interest payments in Italy in 1992-94; they concluded that tax considerations did not affect the demand for mortgage debt, either at the extensive margin (i.e. the

decision to take out a mortgage), or at the intensive margin (i.e. the size of the mortgage taken out). Bourassa and Grigsby (2000) cited estimates that put the rate of capitalisation in the USA at around 14%; on the basis of that finding, they argued that if mortgage interest payments were no longer deductible, the effect on house prices can be expected to be just as modest. Boelhouwer et al. (2004) reviewed developments in a number of European countries; they found that changes in taxation in the Netherlands, Belgium, Norway, Germany, France and the UK had no effect on house prices. Tax changes did seem to correlate with falling house prices in Sweden and Denmark, but the extent to which the two developments were causally linked is debatable, since the changes in taxation took effect as the economy plunged into a recession. In view of that, they argued that what really matters is that changes in housing taxation are gradually implemented and judiciously timed, and concluded that:

> *"The fear that deterioration of the deductibility of mortgage interest payments will lead to sharp drops in the house prices might well be exaggerated."* (Boelhouwer et al., 2004, p.431)

How can these findings be reconciled? Part of the difficulty in establishing the effect of tax changes on house prices is that other factors are at work at the same time (e.g. changes in actual or expected incomes). Alternatively, or as a result of such factors, it may simply be that the relation itself varies with time and between countries. For example, Swank et al. (2002) estimated price elasticities of new housing supply in six countries; they found that these were lower in the Netherlands (0.30), the UK (0.45) and Denmark (0.66), and higher in France (1.09), the US (1.30) and Germany (2.40). High elasticities of supply suggest that the main effect of tax advantages is to increase housing consumption in quantitative terms. Conversely, price elasticities of supply close to zero imply that the degree of capitalisation tends to 100%, as a result of which tax advantages fail to render owner-occupied housing more affordable.

Volatility of housing markets

This raises a related point. How wise is encouraging the demand for mortgages anyway? As Neuteboom (2004) has argued:

> *"In recent years, numerous agencies, including the European Central Bank […], have warned of the risks of excessive mortgage takeup, not only for owner-occupiers but also for the financial sector, and the possible destabilization of the economy as a whole."* (Neuteboom, 2004, p.184)

In fact, empirical research, reviewed in Wolswijk (2006), has shown that the variability in house prices is greatest where tax subsidies are largest. At the extreme, tax concessions contribute to the creation of "mortgage bubbles", leading to house price bubbles. By implication, abolishing or at least restricting the preferential tax treatment of housing loans might help stabilize the housing market. In his words:

> *"Structural reductions in mortgage interest tax relief, lowering mortgage demand at given interest rates, could have a beneficial impact on housing market volatility."* (Wolswijk, 2006, p.143)

This takes us back to our point of departure. Regardless of whether mortgage interest tax relief is desirable or even effective as an instrument of housing policy, how can we estimate its distributional effects?

4. Estimating the distributional effects of mortgage interest tax relief in Europe

The fact that on *a priori* grounds the distributional effect of mortgage interest tax relief is expected to be regressive might seem to make the closer investigation of this effect an interesting research question with significant policy implications. On the contrary, the topic has been largely ignored outside Britain (Clark and Leicester, 2004; Hills, 1991), with few exceptions (see Callan et al., 2006, for Ireland, and Baldini, 2008, for Italy; see also Poterba and Sinai, 2008, for the USA). This paper reports on on-going research hoping to fill part of this gap.

A European tax-benefit model

The estimation of first-round distributional effects of mortgage interest tax relief relies on EUROMOD, a comparative cross-country tax-benefit model. The model simulates a variety of taxes and benefits in the EU: income taxes, social insurance contributions, housing allowances, unemployed benefits, family benefits, social assistance benefits and some social insurance benefits. EUROMOD covers so far 19 member states.

At the time being, EUROMOD applies policy rules to the original micro-data drawn from a variety of sources, including national household budget surveys and income distribution surveys. Where necessary, income data are updated using appropriate adjustment factors by country and by income source. The policy rules simulated here refer to the year 2003, except for Denmark, Sweden, Ireland and Italy (2001).

Household income is equivalised; that is, differences in household size and composition are dealt with by applying the modified OECD equivalence scale, assigning a value of 1.0 to the first adult, of 0.3 to children below 14, and of 0.5 to additional household members. In line with standard practice, income is assumed to be shared equally among household members. For more information on Euromod see Sutherland (2007), or visit the website of Microsimulation Unit, University of Essex (http://www.iser.essex.ac.uk/msu).

The main advantages of relying on EUROMOD for the purpose of this research are twofold. On the one hand, the effect of income tax (and associated tax reliefs) would be impossible to read off the original data in the absence of a tax-benefit model. On the other hand, when the research concerns cross-country comparisons, as here, a harmonised tax-benefit model specifically constructed to ensure comparability can be expected to be more reliable than a collection of almost inevitably heterogeneous national tax-benefit models.

There are disadvantages, however. EUROMOD is a static model, based upon purely arithmetical calculations. For this reason, when simulating the effects of policy changes, the model is unable to take behavioural responses into account. Behavioural responses may be related to consumption, labour supply or, more to the point given the focus of this paper, investment and savings.

Furthermore, the application of policy rules to a given population implies that these rules are fully adhered to. Of course, this is not true in the real world. It is

known that not all individuals pay the taxes they are liable to; in fact, tax evasion constitutes a serious issue in several countries (see Matsaganis et al., 2009). Again, no adjustment is made to the data, as if the incomes reported in the surveys on which the model relies were exactly the same as the incomes declared to the authorities for the purposes of assessing both liability to income tax and eligibility to income-related benefits. The implications of these assumptions are discussed later on in the paper.

Previous work

An early study (Matsaganis and Flevotomou, 2007a) compared the size and distribution of mortgage interest tax relief to that of housing benefits in five EU countries: Greece, Italy, the Netherlands, Finland and Sweden. We found that while housing benefits were reasonably well targeted to low income housholds, mortgage interest tax relief was disproportionally captured by higher income groups. In aggregate terms, tax expenditure on the latter far exceeded public spending on the former.

A second study (Matsaganis and Flevotomou, 2007b) evaluated the distributional effects of a hypothetical reform, replacing both mortgage interest tax relief and housing benefits by a universal tenure-neutral budget-neutral housing transfer. We contrasted Sweden, where the regressive effect of current policies was relatively modest, to the Netherlands, where it was more extreme. Our finding emphasised the importance of the structure and design of mortgage interest tax relief for distributional outcomes.

A third study focused on mortgage interest tax relief alone, but extended the analysis to ten West European countries, i.e. the EU-15 minus France, Germany and Britain (where tax relief is no longer available), as well as Austria and Belgium (where data quality was poor). The main findings of that study are presented below.

Our estimation of the distribution of tax foregone due to mortgage interest tax relief is shown in Table 1. It is immediately clear that the first-round effects of mortgage interest tax relief are favourable to higher income groups. Specifically, out of €100 of tax foregone, between €33 (Sweden) and €57 (Greece) go to the richest 20% of households. By contrast, nowhere does the corresponding share of the poorest fifth of households exceed 5%, except by a little (5.5%) in Sweden.

[TABLE 1]

Similarly, Table 2 shows the income share of mortgage interest tax relief by quintile. In other words, the denominator this time is each quintile's total disposable income, rather than total tax foregone due to mortgage interest tax relief as before.

As far as the bottom quintile is concerned, the contribution of mortgage interest tax relief to disposable incomes is negligible everywhere except in the Netherlands (1.3%), Denmark and Sweden (both 1.6%). Conversely, the corresponding figures for the top quintile nudge towards 0.7% (Finland) or 0.8% (Spain), and go up to 4.3% (the Netherlands) and 5.4% (Denmark). In general, income shares rise monotonically with income, either all the way to the top of the income distribution, as in the cases of the Netherlands and Denmark, or only up to quintile 4, as in Finland, Spain and Sweden.

Overall, the relative weight of mortgage interest tax relief is 4.0% of total household disposable income in Denmark, 3.5% in the Netherlands, 2.6% in Sweden, 0.8% in Spain and Finland, and less than 0.5% in all other countries.

[TABLE 2]

The distribution of tax foregone by income quintile, both as a proportion of total tax expenditure on mortgage interest tax relief and as a proportion of each quintile's income, shown above in Tables 1 and 2 respectively, gives a strong first impression of the distributional impact of mortgage interest tax relief. A more formal assessment based on standard indices of tax progressivity and income inequality reinforces this impression. In this work, we relied on three indices of tax progressivity (Kakwani, Reynolds-Smolensky and Suits), as well as the Gini inequality index.

More specifically, the Kakwani index of liability progression, an index of tax redistribution progressivity, is defined as the difference between the concentration curve of mortgage tax relief and the Lorenz curve of current disposable incomes less mortgage tax relief. The Reynolds-Smolensky index of residual progression an index of income redistribution progressivity and vertical equity, is defined as the difference between the concentration curve of current disposable incomes (that is, including mortgage tax relief) and the Lorenz curve of current disposable incomes less mortgage tax relief. Finally, the Suits index is simply defined as $S = 1 – (L / K)$, where K denotes the area below the 45^0 diagonal and L the area below the Lorenz curve of the tax burden. The values of all three range from +1 (extreme progressivity) to –1 (extreme regressivity), with 0 indicating a strictly proportional effect (Duclos & Araar, 2006; Lambert, 1993). The results are shown in Table 3.

[TABLE 3]

Clearly, the redistributive effect of abolishing mortgage interest tax relief would be to make the tax systems of all ten countries more progressive. Specifically, the values of the Reynolds-Smolensky index suggest that this effect would be strongest in Denmark, the Netherlands and, to some extent, in Sweden. By contrast, the values of the Kakwani index indicate that departures from proportionality caused by mortgage interest tax relief are greatest in Luxembourg and Greece. Finally, the values of the Suit index show that abolishing the tax relief in question would most enhance tax progressivity in Luxembourg and Greece again, followed by Denmark and the Netherlands. These findings confirm that among the three countries where the relative weight of mortgage interest tax relief is greatest, its distributional impact is most regressive in Denmark and the Netherlands, and least regressive in Sweden.

This is in line with our findings concerning inequality. Comparing the values of the Gini coefficient with and without mortgage interest tax relief demonstrates that its abolition would reduce income inequality appreciably in the Netherlands and Denmark, slightly in Sweden, and marginally in the other seven countries.

5. Further research

The main issues facing our future research on the distributional effects of mortgage interest tax relief in Europe concern the treatment of imputed rent taxation and extending the coverage of the European tax-benefit model EUROMOD.

The treatment of imputed rent taxation

What the preceding discussion suggests is that mortgage interest tax relief should not be analysed in isolation: a fuller treatment requires that, at the very least, taxation of imputed rents is also taken in consideration.

Nevertheless, this has not been possible so far. Data on imputed rents are not readily available in any of the existing datasets. Recent efforts to report information on imputed rents as part of EU-SILC have run into considerable problems of consistency of definitions and comparability across countries.

In view of that, the size and distribution of imputed rents can only be estimated in the context of research specifically conducted for that purpose. For example, Frick et al. (2007) recently produced estimates of the value of imputed rent as income in kind in seven European countries.

In any case, from the point of view of this research, actual rules of imputed rent taxation typically use notional property values varying greatly across locations. Because of this, analysing distributional effects of imputed rent taxation often defies microsimulation, since it requires more information than is currently available.

Extending the coverage of EUROMOD

While EUROMOD currently covers 19 EU countries, under *EUROMOD update* (http://www.iser.essex.ac.uk/research/euromod/developing-euromodeuromodupdate), a development project funded by the European Commission (Directorate General Employment, Social Affairs, and Equal Opportunities), coverage is being gradually extended to all 27 member states. Under this project, EUROMOD will run on data from the European Union Survey of Income and Living Conditions (EU-SILC). This work is expected to be completed by January 2012.

Table 1. Distribution of tax expenditure on mortgage interest tax relief

	Quintile 1 (poorest)	Quintile 2	Quintile 3	Quintile 4	Quintile 5 (richest)	All
Denmark	4.1	9.4	17.0	24.8	44.6	100
Finland	3.8	11.3	20.0	28.6	36.3	100
Greece	0.0	2.5	11.9	28.5	57.1	100
Ireland	1.2	9.2	18.2	26.7	44.6	100
Italy	0.6	3.9	21.5	30.9	43.0	100
Luxembourg	1.6	4.0	12.5	39.8	42.2	100
Netherlands	3.6	10.8	17.2	25.9	42.5	100
Portugal	0.2	4.8	17.2	29.7	48.1	100
Spain	1.4	11.8	20.6	28.5	37.8	100
Sweden	5.5	12.8	20.3	28.1	33.3	100

Notes: Tax expenditure on mortgage interest tax relief by quintile as proportion of total expenditure on mortgage interest tax relief. The unit of analysis is individuals ranked by non-decreasing net household disposable income. Expenditure on mortgage interest tax relief and disposable income are adjusted for household size using the modified OECD equivalence scale. Reference year is 2003 (2001 for Denmark, Ireland, Italy and Sweden).

Source: Own calculations using EUROMOD.

Table 2. Income share of mortgage interest tax relief

	Quintile 1 (poorest)	Quintile 2	Quintile 3	Quintile 4	Quintile 5 (richest)	All
Denmark	1.6	2.5	3.7	4.4	5.4	4.0
Finland	0.3	0.6	0.8	1.0	0.7	0.8
Greece	0.0	0.0	0.1	0.2	0.3	0.2
Ireland	0.0	0.1	0.1	0.1	0.1	0.1
Italy	0.0	0.1	0.2	0.3	0.2	0.2
Luxembourg	0.0	0.0	0.1	0.2	0.1	0.1
Netherlands	1.3	2.6	3.3	3.9	4.3	3.5
Portugal	0.0	0.2	0.5	0.6	0.5	0.4
Spain	0.1	0.7	1.0	1.0	0.8	0.8
Sweden	1.6	2.2	2.8	3.2	2.5	2.6

Notes: Tax expenditure on mortgage interest tax relief as proportion of net household disposable income by quintile. The unit of analysis is individuals ranked by non-decreasing net household disposable income. Expenditure on mortgage interest tax relief and disposable income are adjusted for household size using the modified OECD equivalence scale. Reference year is 2003 (2001 for Denmark, Ireland, Italy and Sweden).

Source: Own calculations using EUROMOD.

Table 3. Distributional impact of mortgage interest tax relief

	Progressivity			Inequality		
	Kakwani	Reynolds-Smolensky	Suits	Gini (baseline)	Gini (reform)	Change (%)
Denmark	0.133	0.0056	0.182	0.232	0.225	-2.85
Finland	0.071	0.0005	0.044	0.269	0.268	-0.16
Greece	0.230	0.0004	0.254	0.323	0.323	-0.15
Ireland	0.093	0.0001	0.091	0.321	0.321	-0.04
Italy	0.144	0.0003	0.112	0.319	0.318	-0.08
Luxembourg	0.233	0.0002	0.195	0.243	0.243	-0.09
Netherlands	0.102	0.0037	0.147	0.247	0.243	-1.84
Portugal	0.168	0.0007	0.095	0.361	0.360	-0.16
Spain	0.063	0.0005	0.034	0.311	0.311	-0.11
Sweden	0.051	0.0013	0.034	0.251	0.250	-0.26

Notes: The Kakwani, Reynolds-Smolensky and Suits indices measure the effect the abolition of mortgage interest tax relief would have on income tax progressivity (*ceteris paribus*). 'Gini baseline' refers to the current income distribution, while 'Gini reform' refers to the income distribution resulting from the abolition of mortgage interest tax relief (again, *ceteris paribus*) . Reference year is 2003 (2001 for Denmark, Ireland, Italy and Sweden).

Source: Own calculations using EUROMOD.

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