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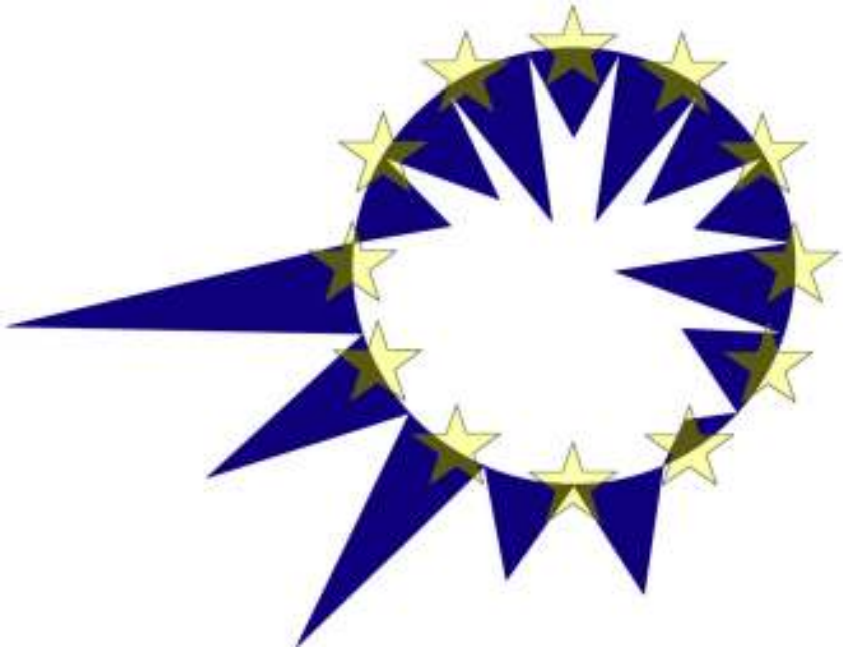

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This paper uses EUROMOD version 31A. EUROMOD is continually being improved and updated and the results shown here represent the best available at the time of writing. Any remaining errors, results produced, interpretations or views presented are the authors' responsibility. EUROMOD relies on micro-data from twelve different sources for fifteen countries. The paper uses data from the European Community Household Panel (ECHP) User Data Base made available by Eurostat; the Income Distribution Survey made available by Statistics Finland; the Survey of Household Income and Wealth (SHIW95) made available by the Bank of Italy; the Socio-Economic Panel Survey (SEP) made available by Statistics Netherlands through the mediation of the Netherlands Organisation for Scientific Research Scientific Statistical Agency; and the Income Distribution Survey made available by Statistics Sweden. The data providers do not bear any responsibility for the analysis or interpretation of the data reported here.

THE IMPACT OF MORTGAGE INTEREST TAX RELIEF IN THE NETHERLANDS, SWEDEN, FINLAND, ITALY AND GREECE*

Manos Matsaganis and Maria Flevotomou

Abstract

Fiscal welfare, i.e. the use of the tax system to achieve social policy goals, is assuming ever greater importance throughout Europe and beyond. In housing, the favourable tax treatment of mortgage interest repayments has often co-existed alongside public programmes of housing benefit or social housing. Although the distributional effects of tax expenditure are known to be regressive, the issue has remained relatively under-researched. The paper uses the European tax-benefit model EUROMOD to quantify the distributional impact of mortgage interest tax relief in five European countries: the Netherlands, Sweden, Finland, Italy and Greece. The analysis reveals that higher-income groups capture a disproportionate share of total expenditure on mortgage interest tax relief in all countries, and that this effect is most regressive in the Netherlands and least regressive in Sweden. The paper concludes with a discussion of results and their policy implications.

JEL Classification: H23 I38 R21

Keywords: tax relief, mortgage repayments, inequality, microsimulation

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1. **Introduction**

The use of the tax system to achieve social policy objectives is assuming ever greater importance in Europe and beyond. In-work benefits in the form of refundable tax credits, such as Working Tax Credit in the UK (Brewer 2003) or Earned Income Tax Credit in the US (Moffitt 2002), are now major income-support programmes in their own right.

While the new tax credits do have a significant impact on poverty and inequality, especially in Britain (Brewer et al 2006), the balance of expert opinion seems to have shifted against more conventional instruments of tax relief. The adverse distributional effects of "fiscal welfare", or tax concessions for the purchase of occupational, private or voluntary welfare, had been first discussed over half century ago by Titmuss (1955). More recently, Le Grand (1997) succinctly 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: 166).

Mortgage interest tax relief is a case in point. Presumably in response to that shift in opinion, its scope in the UK has been gradually limited: first, in 1976, the value of the mortgage that could attract tax relief was reduced to £25,000 (later raised to £30,000); then, in 1991, relief was limited to the standard tax rate; later on it was phased out; finally, "the largest pro-rich tax advantage of all tax reliefs" (Glennerster 2003:164) was fully abolished in 2000. In the meantime, its regressive effects had been demonstrated on several occasions. For example, Hills (1991) found that the tax advantage of owner-occupiers rose sharply at the highest income level, while Clark and Leicester (2004) estimated that the abolition of mortgage tax relief reduced inequality in post-tax incomes[1].

Historically, mortgage interest tax relief has coexisted alongside public programmes of housing benefit or social housing in several European countries for a long time. Where it was abolished, that occurred relatively recently: for example, in Germany (1987), in France (1997

[1] Specifically, the authors estimated at –0.2% the effect of abolishing the 1979 system of mortgage relief on the Gini index, noting that if mortgage relief had been abolished outright in 1979, higher marginal tax rates would have made the effect greater. See Clark and Leicester (2004).

for new homes, 1998 for purchase and improvement), or, as seen above, in Britain (2000). Elsewhere, for instance in the Netherlands, Denmark, Norway, Sweden and, to some extent, Belgium, mortgage interest repayments continue to be tax deductible (for a recent review, see Boelhouwer et al 2004). Mortgage interest tax relief is also present in Switzerland, Finland and Italy (Haffner 2002), as well as in Spain (Sánchez Martínez 2005) and Greece (Emmanuel 2004).

While both theory and evidence suggest that the distributional impact of tax expenditure is likely to be regressive, the issue has remained relatively under-researched. The paper attempts to fill somewhat this gap by quantifying the distributional effects of mortgage tax relief in five European countries: the Netherlands, Sweden, Finland, Italy and Greece. The countries were chosen as a representative sample of tax systems where mortgage interest tax relief is present.

It should be admitted at the outset that a full analysis of mortgage interest tax relief cannot be reduced to the issue of distributional effects. As Haffner (2002) 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 repayments are tax deductible. In the former case, there ought to be no taxation of imputed rent nor, by the same token, mortgage interest tax relief. While not all tax systems conform to type, in general the abolition of mortgage interest tax relief has historically followed that of imputed rent taxation – while, conversely, where the deductibility of mortgage interest repayments continues to be allowed, imputed rent taxation is still present. Britain, France and Germany are examples of the consumption good approach, while the Netherlands, Belgium and Norway are examples of the investment good approach. The apparent exceptions are Sweden, Denmark and Finland, where mortgage interest tax relief still exists in spite of the fact that imputed rent taxation was abolished in the early 1990s. However, at the same time all three countries provided for the introduction of a property tax for home owners, or for its increase where it had already existed (Boelhouwer et al 2004).

The above caveat suggests that mortgage interest tax relief should ideally not be analysed in isolation: a full treatment requires that other elements of capital income taxation are taken into consideration as well. Nevertheless, we feel justified to have focused on the distributional impact of mortgage interest tax relief alone by virtue of the fact that this impact is intrinsically interesting, especially from a social policy perspective, even though part of a larger picture.

However, governments have a range of housing policy instruments at their disposal, of which mortgage interest tax relief is one. On the one hand, housing may be provided publicly, free of

charge or at subsidized rent. On the other hand, housing costs in the private sector may also be partly or, exceptionally, fully met *via* housing benefits paid to tenants and, more rarely, owner occupiers, usually on a means-tested basis. A third approach, namely rent control, while once popular, seems to have fallen in disrepute in more recent decades due to its distortionary effects on the private rental market (for a lucid discussion, see Barr 1987). Again, while a full treatment requires that all these instruments are considered alongside mortgage interest tax relief, for the purposes of this paper our analysis is extended to housing benefits only. Specifically, the paper focuses on the distributive effect of housing-related income transfers, defined here as mortgage interest tax relief plus housing benefits.

The structure of the paper is as follows. The introduction sets out the issues. The next section explains data sources and methodology. Section three estimates the incidence and income share of housing-related income transfers in the five countries considered. Section four assesses the distributional impact of existing policies against the counterfactual of a tenure-neutral revenue-neutral housing transfer. The paper concludes with a discussion of results and their policy implications. Background information on the design of current housing-related income transfers in each of the five countries is provided in the Appendix.

2. **Data and methodology**

The paper relies on EUROMOD, a comparative cross-country tax-benefit model. The model simulates a variety of taxes and benefits in each of the 15 "older" (i.e. pre-2004) member states of the EU. Specifically, the policy instruments simulated are income taxes, social insurance contributions, housing benefits, unemployed benefits, family benefits, social assistance benefits and (where possible) social insurance benefits.

EUROMOD applies policy rules to the original micro-data drawn from household income surveys. A variety of sources has been used: the 1995 wave of the European Community Household Panel for Greece (1994 incomes), the 1996 Bank of Italy Household Income Survey (1995 incomes), the 2000 wave of the Statistics Netherlands Socio-Economic Panel Survey (1999 incomes), the 2001 Statistics Finland Income Distribution Survey (2001 incomes), as well as the 2001 Statistics Sweden Income Distribution Survey (2001 incomes). Where necessary, income data have been updated to 2001 using appropriate adjustment factors by country and by income source.

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 a value of 0.5 to additional household members. In line with standard practice, household income is assumed to be equally shared among household members.

The advantages of a microsimulation model such as EUROMOD are quite obvious. Benefit information is normally collected as part of surveys such as the above. Nevertheless, the benefits of interest (here housing transfers) are often difficult to identify because of aggregation. Moreover, income taxes are almost impossible to read off the original data. Finally, the data year is inevitably not the same as the policy year under examination. As a result, it is impossible to estimate the effect of policies introduced or modified after the data were collected – except through microsimulation. In view of all this, the model constitutes a powerful tool for research on reforms to social security and the fiscal system in a comparative perspective.

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

Besides, it should be noted that due to data limitations in-kind benefits are not examined here. This is an important omission: non-cash benefits (such as the public provision of free or subsidized housing) can have a very important effect on household income, if measured net of housing costs, and in fact play a major role in housing policy in many countries. This is an issue we return to later in the paper.

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. On the one hand, not all individuals claim the benefits they are entitled to. It is known that non-take up is caused by fear of stigma, incomplete information about entitlements, administrative errors and other reasons. Non-take up of means-tested benefits, in particular, can be considerable (Atkinson 1995). Yet in several European countries, non-take up of social benefits in general, and of housing benefits in particular, is rather neglected as a policy issue and relatively overlooked as a research topic (for a recent review, see Hernanz et al 2004). Similarly, there may be "leakage" of means-tested benefits to non-entitled households or individuals. For the purposes

of this paper, the impact of housing transfers is assessed as if they were all perfectly targeted, i.e. fully taken up by all legitimate claimants and received by no illegitimate ones.

On the other hand, not all individuals pay the taxes they are liable to. Tax evasion is known to constitute a serious issue, at least in some European countries (for a recent estimation, see Schneider 2004). Again, no adjustment is made to the data, as if the incomes reported in the surveys on which the model relies were 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 assuming perfect tax compliance and perfect targeting are discussed in the concluding section.

3. **Distribution of housing-related income transfers**

The relative weight of current policies varies significantly among the five countries compared here. As Table 1 shows, mortgage interest tax relief contributes 2.9% of net household income in the Netherlands and 2.6% in Sweden. In contrast, it seems to account for a negligible share of disposable income in Greece (0.1%) and Italy (0.2%). Finland lies somewhere in between (0.8% of net household income). On the other hand, housing benefits amount to 0.7% of net household income in Sweden, 0.4% in the Netherlands and 0.3% in Finland, while they appear to be virtually non-existent in the two Mediterranean countries[2].

[TABLE 1]

The incidence of total expenditure on housing-related income transfers by income quintile in each of the five countries is presented in Table 2. Revealingly, mortgage interest tax relief seems to be disproportionately captured by higher income groups. Moreover, it appears to be distributed most unequally in the two Mediterranean countries, and least unequally in the two Scandinavian ones.

More specifically, the richest quintile 5 is estimated to receive 33% of total expenditure on mortgage interest tax relief in Sweden, 36% in Finland, 43% in Italy, 49% in the Netherlands and 59% in Greece. By contrast, the poorest quintile 1 is estimated to receive only 6% of total expenditure on mortgage interest tax relief in Sweden, 4% in Finland, 2% in the Netherlands, 1% in Italy and 0% in Greece.

[2] To be precise, no information on housing benefits is available in the datasets (see Appendix).

Unlike mortgage interest tax relief, housing benefits (where they exist) are closely targeted at the poor: the proportion of total expenditure spent on the housing needs of the poorest fifth of the population is 72-73% in the two Scandinavian countries and 69% in the Netherlands. On the whole, 91% of the total amount of housing benefit in Finland is received by the bottom two income quintiles, 96% in Sweden and as much as 99% in the Netherlands.

[TABLE 2]

Table 3 shows the distribution of housing-related income transfers by quintile in terms of income share; in other words, the denominator is each quintile's total income, rather than total expenditure on mortgage interest tax relief or housing benefit as appropriate.

The contribution of mortgage interest tax relief to the incomes of the bottom quintile ranges from zero in Greece and Italy to 1.6% of net household income in Sweden. Finland and the Netherlands seem to be intermediate cases (0.3% and 0.5% of household disposable income respectively). Among those in the richest quintile, the average income share of mortgage interest tax relief is estimated at 4.1% of net household income in the Netherlands and 2.5% in Sweden, compared to 0.8% in Finland, 0.2% in Italy and 0.1% in Greece. In other words, not only do the rich receive a greater share of mortgage interest tax relief than the poor (as seen earlier in Table 2), but such relief increases higher incomes by a greater proportion than it does lower ones.

[TABLE 3]

The income share of housing benefit by quintile tells a very different story. Housing benefit provides a non-trivial proportion of the incomes of the poorest fifth of the population (2.3% of net household income in Finland, 2.9% in the Netherlands and 5.6% in Sweden). By contrast, the corresponding income shares in the middle income quintile do not exceed 0.1% of net household income, while the contribution of housing benefit higher up the income scale is close to zero.

Overall, distribution of mortgage tax relief seems to be most regressive in the Netherlands and, to some extent, in Greece. In these two countries, its value appears to rise monotonically with income – not only in absolute terms, but also relative to disposable income. On the contrary, mortgage interest tax relief appears to be least regressive in Sweden, Finland and, to some extent, in Italy. In these three countries, its relative contribution to disposable income seems to be more substantial in the upper middle of the income distribution (quintiles 3 and 4)

than it is at the top (quintile 5). In particular, the distribution of mortgage tax relief seems to be least regressive in Sweden.

The regressive effect of mortgage interest tax relief, though to some extent driven by the position of borrowers in the income distribution, is also a function of its design in each country. As explained in the Appendix, mortgage interest payments are fully deductible from income tax in the Netherlands and Greece, partly deductible (at a flat rate and up to a ceiling) from income tax in Italy, while they are deductible from capital tax in the two Scandinavian countries. Perhaps counter-intuitively, the regressive effect of mortgage interest tax relief in Sweden and Finland may be softened by the less progressive schedule of capital tax compared to income tax.

4. **Counterfactual assessment of distributional impact**

The joint distributional impact of housing-related income transfers (i.e. mortgage interest tax relief and housing benefits taken together) can also be assessed against some counterfactual transfer, assumed to correspond to some ideal standard or benchmark. In the housing policy literature, "tenure neutrality" is often put forward as such an ideal (e.g. Barr 1987, Haffner 2003). The classic formulation of tenure neutrality as the guiding principle of public policy can be found in Kemeny (1981):

> "Housing policy should be 'tenure-neutral': that is, the role of governments in housing should be to maximize effective consumer choice by encouraging the development of a wide range of tenures of comparable cost. […] [Tenure neutrality is] based on the principle that governments should balance subsidies between tenures and maximize comparability between the social-legal status of households in different tenures." (Kemeny 1981:146).

How far do actual housing-related income transfers in the five countries depart from tenure neutrality? How would they fare if compared against a tenure-neutral benchmark?

A conceptual issue needs to be resolved before these questions can be answered, as we attempt to do in this section. How should the tenure-neutral benchmark be defined? Ways to operationalise the principle of tenure neutrality for practical purposes are extensively discussed in the housing literature. Lundqvist (1986) elaborated on Kemeny's definition to propose that:

> "A neutral policy would [structure] systems of housing finance, and terms of repayment, […] in such a way as to neutralize the impact of ability to pay on household choice of tenure. Whether they concern income, property, or capital gain, tax regulations could be structured so that the final economic outcome of housing would be the same regardless of tenure." (Lundqvist 1986: 16).

For his part, Barr (1987) proposed a system of "publicly provided loans or loan guarantees for individuals who have difficulty in obtaining an adequate mortgage in the private sector", combined with "the phased withdrawal of tax reliefs for owner occupiers, price subsidies to local authority tenants and the implied price subsidy of rent control". Furthermore, to pursue vertical equity he advocated the use of income transfers, related to household size. He suggested that his system "would either be cheaper because individuals who were not poor would no longer receive subsidies; or if it were not cheaper, but revenue-neutral, would be more cost-effective", because benefits would be better targeted. Barr discussed tenure neutrality in favourable terms, and appeared to imply that his proposal would go at least some way towards achieving it[3].

In her essay on tenure neutrality, Haffner (2003) noted that "the financial or economic concepts which come out of the definitions of tenure neutrality are manifold: expenditure (cash flows, ability to pay), economic costs, (tax) subsidies and last but not least government expenditure". She argued that "the user cost of housing would be the only concept with which tenure neutrality truly can be measured". Haffner concluded, much as Barr had done, that the

[3] Barr reiterated his proposed "system for a brand new country" in the conclusion of his chapter on housing:

> "I am not arguing for the abolition of subsidies to local authority housing, nor simply for the abolition of rent control, nor even for the abolition of all housing subsidies. What is being suggested, quite simply, is that over time *price* subsidies should be replaced by *income* subsidies in all sectors of the housing market." (Barr 1987: 410).

Interestingly, the chapter on housing disappeared from subsequent editions of his book. In the latest (4th) edition, Barr returned briefly to the subject:

> "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: 222).

consistent pursue of tenure neutrality would be likely to come up against significant obstacles of a political nature – a point to which we return later on[4].

In the light of this discussion, we designed our counterfactual tenure-neutral benchmark, against which to assess the distributional impact of current housing-related income transfers, as follows:

(a) The housing transfer simulated here would be tenure-neutral; that is, it would be available on equal terms irrespective of housing tenure.

(b) The new policy is assumed to replace currently existing housing-related income transfers (i.e. mortgage interest tax relief and housing benefits).

(c) In terms of eligibility, the housing transfer would be universal; that is, it would be paid to all households, regardless of whether, when or how they have purchased their dwelling. It would also be available irrespective of income.

(d) The value of the housing transfer would vary with household size; the equivalence scale applied would be the modified OECD one, i.e. the transfer would pay 1.5 base amounts to childless couples, 1.8 to couples with one child, 2.1 base amounts to couples with two children and so on.

(e) The value of the base amount would be determined so as to ensure revenue neutrality; in other words, the housing transfer would exactly match existing housing-related income transfers in terms of fiscal cost.

The resulting level of the counterfactual tenure-neutral revenue-neutral benchmark in each of the five countries is seen in Table 4 below. Clearly, revenue neutrality implies that the universal housing transfer would be most generous where current expenditure on housing-

[4] In her discussion of various definitions of tenure neutrality, Haffner had noted that "the term neutral quickly approaches the term equal", thereby tenure neutrality = equity. Thalmann (2005) challenged this view and argued against such conceptions of tenure neutrality:

> "[Haffner's and Lundqvist's] requirements go too far. They attempt to make all players equally strong where levelling the playing field and letting the best win is more conducive to efficiency. Instead, we shall define a tenure neutral tax and subsidies system as one that preserves the ordering of user costs – that tenure which is cheaper before tax is still cheaper after tax. Under certain conditions, a stronger neutrality condition might be warranted – a tax system is strongly neutral if it preserves the absolute difference in user costs. When neutrality is carefully defined, it appears that it is not equivalent to equity: an inequitable tax system might well be neutral, by favouring that tenure which is already cheaper. An equitable tax system might not be neutral, if tenure choice depends on the absolute difference in user costs and taxes narrow that difference." (Thalmann 2005: 2-3).

In this paper, our interpretation of the meaning of tenure neutrality is closer to Barr's than it is to Thalmann's.

related income transfers is highest. In view of that, our universal housing transfer would be entirely negligible in Greece, very small in Italy, modest in Finland, and it would make a real contribution to household income in the Netherlands and Sweden. For convenience, transfer values are presented in proportion to average male full-time earnings as well as in euro terms.

[TABLE 4]

Using the European tax-benefit model EUROMOD, briefly described earlier, enables the researcher to simulate the abolition of both mortgage interest tax relief and housing benefits, the simultaneous introduction of a tenure-neutral revenue-neutral universal housing transfer, and distributional effects of the policy reform simulated.

If existing housing-related income transfers were equitable to start with, moving to a universal housing transfer would create no gains and losses, no winners and losers. Instead, as shown in Table 5, such a reform would unambiguously redistribute resources from rich to poor.

[TABLE 5]

In terms of net gains or losses, the policy change simulated would bring about a considerable improvement in the lowest quintile, gradually diminishing in terms of income share as one goes up the income ladder, eventually to become negative for high-income groups. The pattern is almost uniform, observed in all income quintiles in all five countries – with one exception: the lowest income quintile in Finland, where a significant number of those at the bottom of the income distribution are better off under the *status quo*, collectively gaining more from current policies than other low-income persons would from the universal housing transfer.

The distribution of winners and losers is presented in the lower panel of Table 5. Winners would be the majority of population in all five countries, their proportion varying from 61-62% in Sweden and the Netherlands, 69% in Finland, up to 92-93% in Italy and Greece. The proportion of losers would rise with income everywhere, though only in the Netherlands and Sweden would they outnumber winners among higher income groups; to be precise, in deciles 8-10 and 7-9 respectively (not shown here).

The redistributive effect of the reform simulated here is formally assessed using the Kakwani index of liability progression and the Reynolds-Smolensky index of residual progression (Lambert 1993). The Kakwani index measures disproportionality, defined as the difference between the pre-reform Lorenz curve and the concentration curve of net transfers under the reform. The Reynolds-Smolensky index of redistribution, defined as the shift from high to

low incomes, compares the Lorenz curve of pre-reform incomes with the concentration curve of post-reform incomes. Alongside these two indices, Table 6 also shows the values of the Gini coefficient before and after the reform.

[TABLE 6]

As seen in Table 6, the redistributive effect of replacing current policies by a universal housing transfer would be unambiguously progressive in all five countries. Specifically, the absolute values of the Reynolds-Smolensky index suggest that this effect would be strongest in the Netherlands and weakest in Greece. By contrast, the absolute values of the Kakwani index, which also accounts for the relative size of the resources redistributed as a result of the reform, show that departures from proportionality would be greatest in Greece and in Italy. Finally, comparing the values of the Gini coefficient demonstrates that the simulated reform would reduce income inequality appreciably in the Netherlands (4.1%), slightly in Sweden (1.8%), and marginally in the other three countries (0.1% to 0.3%).

5. **Conclusions and policy implications**

The preceding analysis shows that the distributional effect of mortgage interest tax relief is seriously regressive. In all five countries considered, the relevant public (tax) expenditure is disproportionately captured by higher income groups. Replacing mortgage interest tax relief (and, at the same time, housing benefits) by a tenure-neutral revenue-neutral universal housing transfer would amount to a significant redistribution of resources from rich to poor.

So much is unambiguous. But does it imply that policy makers should proceed at once to the abolition of mortgage interest tax relief? As explained below, taking the step from the results of our experiment to a clear-cut policy recommendation is not straightforward.

First of all, any policy change involving gains for some and losses for others is bound to come up against resistance by those standing to lose – especially when potential losers tend to be rich and powerful, and potential winners poor and weak, as would be the case with the policy change examined here. As seen earlier, this rather fundamental point was not lost on proponents of housing policy reform such as Barr (1987) and Haffner (2003).

Political concerns apart, when the option of reducing (let alone abolishing) mortgage interest tax relief is assessed, considerations of a different nature also seem to counsel prudence. To start with, there is the issue of the effects on housing prices. If, the argument goes, mortgage

tax relief were abolished, house prices would fall, causing a reduction in the real wealth of owner occupiers and, at an extreme, the phenomenon known as "negative equity trap", arising when the value of a mortgaged dwelling falls below the level of outstanding mortgage debt.

The validity or otherwise of this argument hinges on the question of capitalisation, that is the extent to which tax advantages are already incorporated in house prices. For instance, having cited calculations that put the rate of capitalisation in the USA at around 14%, Bourassa and Grigsby (2000) argued that if mortgage interest payments were no longer deductible, the effect on house prices can be expected to be just as modest. After all, economic theory suggests that the supply of housing would have to be entirely inelastic (i.e. unresponsive to changes in house prices) for full capitalisation to occur.

The question of capitalisation raises important distributional issues as well. If, at least to some extent, tax relief is already reflected in house prices, then it must follow that the main beneficiaries, far from being the borrowers themselves, are those who have gained from rising house prices (i.e. property developers, land owners, estate agents and so on, as well as those who bought their homes when prices were lower)[5]. In this light, the abolition of mortgage interest tax relief might be less equitable than would appear at first sight.

In the final analysis, the size of this effect is clearly an empirical matter. Boelhouwer et al (2004) recently reviewed the issues and compared developments in several European countries. They found that in Belgium, France, Germany, the Netherlands, Norway and the UK changes in taxation did not affect house prices. In contrast, in Denmark and Sweden there seemed to be a correlation between tax changes and falling house prices, 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 the light of these, Boelhouwer et al argued 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", and concluded that the method and timing of tax changes are of vital importance.

Another set of considerations concerns the design of the "ideal" housing transfer. Again, it should be emphasised that our tenure-neutral revenue-neutral universal housing transfer is a

[5] Emmanuel (2004) cites reports that the average price of marketed dwellings in Athens, partly caused by falling interest rates in the run-up to EMU, increased by 32.5% in real terms in 1994-1999 and by another 24.5% in 1999-2001. He argues that these increases in house prices ("phenomenal by Greek standards") essentially amounted to "a transfer of resources to land and property owners". Incidentally, in order fully to capture the effects of the housing boom of the 1990s it is essential to use recent data, which is not the case with the Greek and Italian data used here. To remedy this, we intend to repeat the analysis as soon as more recent databases are incorporated in the tax-benefit model EUROMOD.

benchmark, artificially constructed for illustrative purposes, not a policy recommendation. As a matter of fact, most would argue that housing assistance ought to be closely linked to a household's material circumstances (i.e. its resources as well as its housing costs), rather than to household size alone. That such a design is likely to be more sensible is not at issue. The crucial point here is that the effect of replacing current policies (mortgage interest tax relief *plus* housing benefits) would be more progressive still had our tenure-neutral benchmark been income-tested as hypothesized by Barr (1987) rather than universal as in this paper[6].

As mentioned earlier, our microsimulation analysis relies on the assumption of no targeting errors. In real life, the take up of housing benefits by legitimate claimants may be incomplete, while "leakage" of benefit to non-legitimate ones may also be present. Income-tested benefits are known to be subject to errors in targeting to a much greater extent than universal ones (Atkinson 1995, Hernanz et al 2004). In view of that, taking into account targeting errors is likely to improve further the redistributive performance of our universal transfer vis-à-vis current housing-related income transfers.

The effect of tax evasion on the validity of our findings is more uncertain. Under-reporting income reduces not only the tax bill but often also the amount of tax relief. Correcting for tax evasion would reduce current expenditure on mortgage tax relief and mitigate somewhat its regressive impact as estimated here. By the same token, it would also reduce the revenue released by its abolition and made available to finance our revenue-neutral housing transfer.

As explained earlier, the analysis presented here is restricted to income transfers. Ignoring benefits in kind and their distributional effect is common practice in current research on distributional issues. This may be partly driven by convenience, even though the conceptual and computational issues involved in accounting for the distributional impact of benefits in kind are also complex. Whatever the reason, the omission is regrettable, since the public provision of free or subsidised housing remains an important aspect of housing policy in several European countries.

The final point concerns the methodology of microsimulation itself. The comparison of current housing policies against a tenure-neutral benchmark is a largely counterfactual policy question. In theory, the researcher can use data from a housing budget survey, identify income components that derive from housing-related income transfers, remove them, add the

[6] Barr (1987) acknowledged that his housing transfer would run up against the familiar problems of income-tested benefits: adverse labour supply effects, targeting errors and so on. For a recent review of policy dilemmas, see Turner and Elsinga (2005).

counterfactual housing transfer in their place, and attempt a direct comparison of the resulting distribution of income with the original one. In practice, interactions between a household's income, the tax system and social benefit eligibility rules are so complex that such a question would be impossible to answer without recourse to a tax-benefit model like EUROMOD. While microsimulation models are certainly not immune from limitations of their own, some of which were discussed here[7], their ability to estimate the impact of counterfactual policy questions remains their unique advantage.

[7] Note that work to tackle three of the disadvantages described here (tax evasion, target inefficiency, benefits in kind) is currently on-going under the AIM-AP research project, in which both authors are involved.

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Appendix

Policy rules in 2001 in the five countries as simulated in EUROMOD[8]

Netherlands

Mortgage interest tax relief. Mortgage interest payments for all owned dwellings are fully tax deductible from 2001.

Housing benefit. Tenant households with high (but not too high) rents given their income are entitled to rent subsidy. The income basis is the taxable income for the year 1999. There is also an asset test (no rent subsidy if household assets on 1 January 2000 above certain amounts). Computation of rent subsidy (amounts per month): If the actual rent is between €162.00 and €521.39 per month, the norm rent depends on the age and the number of persons in the household and the taxable income. No subsidy if income higher than highest amounts in table or if actual rent above €521.39 or below €162.00. There are four regimes depending on age and number of persons in the household: One-person household. Multi-person household. One-person elderly household. Multi-person elderly household. Asset test (no rent subsidy if household assets on 1 January 2000 greater than or equal to these amounts): One-person household: €18,378.55. Multi-person household: €27,091.13. One-person elderly household: €31,424.73. Multi-person elderly household: €43,517.98. Asset disregard: For children below 23 up to €907.56 of their assets are not taken into account. Income disregard: For children below 23 up to €4,084.02 of their income is not taken into account. Supplement: Households entitled to rent subsidy receive a supplement depending on the household composition (amounts per month): €1.82 if alone, €3.63 if multi-person but no children aged less than 18, €18.15 if one or two children aged less than 18, €23.14 if three or more children aged less than 18.

Sweden

Mortgage interest tax relief. Paid interests are created in the model (sum of paid interest on own home, paid interest on leisure house, paid interest on cooperative flat, paid interest on site-leasehold right, and residual paid interests). Paid interests, as defined above, are fully deductible from the taxable incomes from capital (and so are not subjected to capital income tax).

Housing benefits. (a) Housing allowance. Families with children, and also young people aged between 18 and 29 without children, may obtain housing allowance. The allowance is a monthly payment and tax-free. The amount of the allowance you may obtain depends in part on how many people make up your household, your income and your housing cost. The housing allowance consists of two parts, an allowance for housing costs and a special allowance for the children who live at home. The amount of the special allowance for the children depends on how many children there are in the family (1 child: SEK 600 per month; 2 children: SEK 900 per month; 3 or more children: SEK 1,200 per month). The allowance for housing costs is divided into two intervals. The allowance is 75% of the housing cost within the lower interval and 50% of the cost within the higher interval. The rent limits in the interval are dependent on the number of children in the family. The number of children in the

[8] The background information presented in this Appendix was drawn from the EUROMOD country reports. See http://www.iser.essex.ac.uk/msu/emod/countries/

family also decides the maximum sqm for which housing allowance can be paid. However, if the housing cost is below certain levels the sqm rule is not considered. Income qualifying for housing allowance is the sum of income from employment, income from business, income from capital and study grant. In families with children you add the capital income of the children minus SEK 1,000. If the families wealth exceeds SEK 100,000 15% of the part of the wealth over SEK 100,000 is added to the income. Housing allowance less than SEK 100 is not paid out. If the income exceeds certain amounts the housing benefit will be reduced with a percent of the income above this limit.

(b) Housing supplement for pensioners (BTP). A person who is living in Sweden with retirement pension, disability pension, temporary disability pension or survivors pension can get housing supplement for pensioners (BTP) provided he drew retirement after the age of 65. The maximum benefit is 85% of the housing costs between SEK 100 and SEK 4,000 per month. BTP below SEK 25 per month is not paid out. If a pensioner gets housing benefit from the system for families with children, the housing cost is reduced with that housing benefit. Based on housing cost, maximum BTP is calculated and from this maximum BTP a part of the income is deducted. The income is 5% of the wealth, (excluding the flat or house where the pensioner is living). For wealth over SEK 120,000 for couples and SEK 75,000 for singles, an extra 10% is added to the income. All pensions apart from National Basic pension and supplements to the pension are added to the income. Child allowance is not added. Income from work, sickness allowance and unemployment benefit is added to the income. The maximum housing supplement is reduced with 40% of the income. If the income is more then SEK 54,600 (1.5 basic amounts), the housing supplement is also reduced with 45% of the income above SEK 54,600.

(c) Special housing supplement for pensioners (SBTP) A pensioner with BTP can get special housing supplement for pensioners (SBTP) if he/she has low income and high housing costs. Housing cost is the actual housing cost, but not more than SEK 5,200 per month. Income includes the National Basic pension, supplement to the pension, a part of National supplementary pension (ATP) corresponding to the size of supplement to the pension, BTP and half of the yearly income calculated above (under BTP). The housing cost is deducted from this income. After the housing cost is deducted if income is lower than SEK 3,701 per month for singles and SEK 6,127 per month for couples, the difference is covered by the special housing supplement.

Finland

Mortgage interest tax relief. Mortgage interest payments are fully deductible from the capital income tax. If mortgage interests exceed the capital tax base then they may be deducted from earned income tax as a deficit credit. The deficit credit is deducted from earned income tax at the capital tax rate (29% in 2001) for “ordinary” mortgage loans, while the deficit credit for “first-house” mortgage loans is deducted at the capital tax rate +1% (i.e. 30% in 2001). If the deficit credit exceeds earned income tax then the remaining part can be transferred to the spouse.

Housing benefits. (a) General housing benefit. Households with low-income and living in rented or own dwellings are entitled to the general housing benefit. Housing benefit is 80% of the reasonable (accepted) housing costs which exceeds the own basic share of the costs. It is non-taxable and is calculated at household level for 12 months excluding the months when student's housing benefit is paid. In rented dwellings housing costs include the rent and separate heating and water charges. In owner-occupied apartments (where inhabitants actually own the shares of “the housing company”) housing costs include the maintenance charge and

additional heating and water charges (up to a limit). Part of the annual interest on mortgage loan can be included in the housing costs. To establish what is qualified as "reasonable" the monthly reference costs are defined. There are three municipal groups in 2001 where the rates are different, reflecting the fact that housing costs are different in different parts of the country. Own basic share depends on household's size and monthly income and the location of the dwelling. If household's income is very low the own basic share is zero. The household income used in this connection is the sum of regular gross monthly income of all household members. If household's property (as defined by tax authorities) exceeds a certain limit depending on the number of persons in the household, 15% of the exceeding amount is added to household's gross income.

(b) Pensioner's housing benefit. Persons who receive any kind of pension are entitled to pensioner's housing benefit. General housing benefit cannot be paid at the same time, but the comparison is made and the benefit which is more favourable is allowed. The benefit is paid both for rented or owner-occupied dwellings. Pensioner's housing benefit is 85% of the (accepted) housing costs which exceed the own share which pensioners must pay themselves. It is non taxable. If both spouses are entitled to pensioner's housing benefit, the benefit is divided between them. Housing costs include the rent and additional water charges. If heating and water charges are not included in the rent, they are taken into account. In owner-occupied dwellings housing costs includes maintenance and water charges. Also interests on a mortgage loan is fully taken into account as housing costs, but cannot be used as tax deductions at the same time. There are limits for housing costs, which depend on the size of the family and the municipality group where the dwelling is located. The own share consists of a flat basic part and a means-tested (nearly all regular income is taken into account with exceptions of child benefit, social assistance and child home care benefit) additional part. The means-tested part is 40% of annual income exceeding an income limit, which depends on family relations. Further, if the value of assets exceeds the income limits, 8% of this exceeding amount is taken into account as income.

(c) Student's housing benefit. Single (and married in some cases) students living in rented house are eligible for the student's housing benefit. The amount of student's housing benefit is 80% of housing costs. It is non-taxable. The monthly housing costs (rent, maintenance charge, water charges and other regular charges) are limited to €214.44 (2003). If monthly housing costs are less than €33.63, no benefit is paid. The housing benefit is means tested against student's own income basically in the same way as when calculating the student payment. Also spouse's income affect the size of the benefit.

Italy

Mortgage interest tax relief. Interests on mortgages for the first-owned house are added to tax credits up to a limit of €7,000 in 2001. Tax credits are then subtracted at a rate of 19% from gross income tax to obtain the value of net income tax.

Housing benefit. No information available.

Greece

Mortgage interest tax relief. For mortgages taken out before 31 December 1999, taxable income is reduced by the whole amount of interest payment (not capital repayment). For mortgages taken out after 1 January 2000 and before 31 December 2002, taxable income is reduced by the amount of interest payment (not capital repayment) that corresponds to the

first 120 m^2 of the housing unit (so, if the housing unit is greater than 120 m^2, the reduction of taxable income is calculated pro rata). For mortgages taken out after 1.1.2003, tax deduction is 15% of the amount of interest payment (not capital repayment) up to a maximum mortgage of 200,000 euro (limit applies to tax unit expenditure) (so, if the mortgage greater than 200,000 euro, the tax credit is calculated pro rata). Full exemption is simulated since EUROMOD uses 1995 data and housing loans taken before 31 December 1999 could be fully exempted in 2001. To discriminate between capital and interest components of mortgage repayments, an assumption based on the age of the head of the unit is made. If the head of the unit is less than 40 years old, interest payments are assumed to be 40% of mortgage repayments. If the head of the unit is 40 years old or older, interest payments are assumed to be 20% of mortgage repayments. The mortgage interest tax allowance is set equal to the estimated interest payments.

Housing benefit. Total expenditure on housing and related benefits amounted to an estimated €44 million (0.03% of GDP) in 2001. However, housing benefits are not recorded in the original dataset for Greece and are therefore not simulated by EUROMOD.

Table 1

Estimated spending on housing-related income transfers

	Netherlands	Sweden	Finland	Italy	Greece
mortgage interest tax relief	2.9	2.6	0.8	0.2	0.1
housing benefit	0.4	0.7	0.3	0.0	0.0
total	3.3	3.3	1.1	0.2	0.1

Note: The values shown are total expenditure on housing-related income transfers as proportion of net household income. Both housing transfers and household income are adjusted for household size using the modified OECD equivalence scale, which assigns a value of 1.0 to the first adult, of 0.3 to children below 14 and a value of 0.5 to other household members.

Source: EUROMOD.

Table 2

Incidence of housing-related income transfers by quintile

	Netherlands	Sweden	Finland	Italy	Greece
mortgage interest tax relief					
quintile 1 (poorest)	2	6	4	1	0
quintile 2	8	13	11	4	2
quintile 3	16	20	20	22	11
quintile 4	26	28	29	31	28
quintile 5 (richest)	49	33	36	43	59
all	100	100	100	100	100
housing benefit					
quintile 1 (poorest)	69	73	72	n.a.	n.a.
quintile 2	30	23	19	n.a.	n.a.
quintile 3	1	3	5	n.a.	n.a.
quintile 4	0	0	1	n.a.	n.a.
quintile 5 (richest)	0	0	3	n.a.	n.a.
all	100	100	100	n.a.	n.a.

Note: The values shown are total expenditure on each housing-related income transfer by quintile as proportion of total expenditure on that transfer. The unit of analysis is individuals ranked by non-decreasing net household income. Housing transfers and household income are adjusted for household size using the modified OECD equivalence scale, assigning a value of 1.0 to the first adult, of 0.3 to children below 14 and a value of 0.5 to other household members.

Source: EUROMOD.

Table 3

Income share of housing-related income transfers by quintile

	Netherlands	Sweden	Finland	Italy	Greece
mortgage interest tax relief					
quintile 1 (poorest)	0.5	1.6	0.3	0.0	0.0
quintile 2	1.6	2.2	0.6	0.1	0.0
quintile 3	2.6	2.8	0.9	0.2	0.0
quintile 4	3.2	3.2	1.0	0.3	0.1
quintile 5 (richest)	4.1	2.5	0.8	0.2	0.1
all	2.9	2.6	0.8	0.2	0.1
housing benefit					
quintile 1 (poorest)	2.9	5.6	2.3	0.0	0.0
quintile 2	0.9	1.1	0.4	0.0	0.0
quintile 3	0.0	0.1	0.1	0.0	0.0
quintile 4	0.0	0.0	0.0	0.0	0.0
quintile 5 (richest)	0.0	0.0	0.0	0.0	0.0
all	0.4	0.7	0.3	0.0	0.0

Note: The values shown are total expenditure on each housing-related income transfer by quintile as proportion of net equivalent disposable income of that quintile. The unit of analysis is individuals ranked by non-decreasing net household income. Housing transfers and household income are adjusted for household size using the modified OECD equivalence scale, assigning a value of 1.0 to the first adult, of 0.3 to children below 14 and a value of 0.5 to other household members.

Source: EUROMOD.

Table 4

Hypothetical value of the universal housing transfer simulated

	Netherlands	Sweden	Finland	Italy	Greece
single person					
€ per annum	928	1,418	275	51	7
% of average earnings	2.8%	4.8%	1.1%	0.3%	0.1%
couple with two children					
€ per annum	1,948	2,979	576	107	14
% of average earnings	5.9%	10.2%	2.4%	0.7%	0.2%

Note: The universal housing transfer is tenure-neutral and revenue-neutral, varies with household size, and replaces all currently existing housing-related income transfers (i.e. mortgage interest tax relief and housing benefit). Monetary values refer to 2001 and are not adjusted for purchasing power differences between countries. Relative values refer to average male full-time earnings. Housing transfers and household income are adjusted for household size using the modified OECD equivalence scale, assigning a value of 1.0 to the first adult, of 0.3 to children below 14 and a value of 0.5 to other household members.

Source: EUROMOD.

Table 5

Distributional impact of replacing current policies by a universal housing transfer

	Netherlands	Sweden	Finland	Italy	Greece
net gain/loss by quintile (as a proportion of net household income by quintile)					
1 (poorest)	3.9	2.2	-0.2	0.5	0.2
2	2.3	1.7	0.5	0.3	0.1
3	1.0	0.5	0.2	0.0	0.0
4	-0.2	-0.6	-0.1	-0.1	0.0
5 (richest)	-2.0	-0.7	-0.2	-0.1	-0.1
winners/losers by quintile (as a proportion of individuals in each quintile)					
1 (poorest)	80 20	75 25	73 27	100 0	100 0
2	75 25	76 24	76 24	97 3	98 2
3	66 34	61 39	70 30	89 11	94 6
4	52 48	45 55	65 35	87 13	90 10
5 (richest)	36 64	48 52	62 38	85 15	85 15
all	62 38	61 39	69 31	92 8	93 7

Note: The universal housing transfer is tenure-neutral and revenue-neutral, varies with household size, and replaces all currently existing housing-related income transfers (i.e. mortgage interest tax relief and housing benefit). The unit of analysis is individuals ranked by non-decreasing net household income. Housing transfers and household income are adjusted for household size using the modified OECD equivalence scale, assigning a value of 1.0 to the first adult, of 0.3 to children below 14 and a value of 0.5 to other household members.

Source: EUROMOD.

Table 6

Redistributive effect of replacing current policies by a universal housing transfer

	Netherlands	Sweden	Finland	Italy	Greece
progressivity					
Kakwani index	-0.1948	-0.0988	-0.0385	-0.3240	-0.4299
Reynolds-Smolensky index	-0.0067	-0.0037	-0.0004	-0.0006	-0.0002
inequality					
Gini (baseline = current policies)	0.2471	0.2507	0.2652	0.3187	0.3293
Gini (universal housing transfer)	0.2369	0.2461	0.2647	0.3178	0.3290
proportional change in Gini index	-4.1%	-1.8%	-0.2%	-0.3%	-0.1%

Note: The universal housing transfer is tenure-neutral and revenue-neutral, varies with household size, and replaces all currently existing housing-related income transfers (i.e. mortgage interest tax relief and housing benefit). Housing transfers and household income are adjusted for household size using the modified OECD equivalence scale, assigning a value of 1.0 to the first adult, of 0.3 to children below 14 and a value of 0.5 to other household members.

Source: EUROMOD.