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# UNIVERSITÀ DEGLI STUDI DI TORINO

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26 July, 2011

**REDUCING THE TAX WEDGE ON LABOUR INCOME BY REFORMING  
HOUSING TAXATION: CAN THIS REFORM ACHIEVE A POLITICAL  
MAJORITY?♦**

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**Abstract**

In this paper we study whether an IRPEF reform aimed at reducing the tax burden on labour income - via the enlargement of the tax base due to the inclusion of imputed rent for owner-occupied dwellings - can achieve a political majority. Our main result is that the share of the winners is consistent - between 46 and 48 percent - while the share of the losers is around one third of all taxpayers. The percentage of winners is further increased when considering households instead of individual taxpayers; however, the share of losers is also substantial. Overall, then, a political majority supporting the change is presumably obtainable. Finally, it can be seen that reducing the tax wedge on labour income while contemporaneously taxing more housing, would generate a redistribution towards younger generations.

**JEL Codes:** H24, H31

**Keywords:** Personal Income Tax, Labour Income Taxation, Housing Taxation, Imputed Rent, Microsimulation Model

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## 1. Introduction

The need to improve economic growth is a common problem in the agenda of European governments, and is especially pressing for countries – like Italy – with a high level of public debt. General recipes for improving economic growth include a wide array of policies, both in terms of more effective and lowered expenditures, and reduced taxes. Suggestions from the OECD embrace, for instance, not only the need to reduce public ownership and regulatory barriers to competition, and to improve educational outcomes, but also the need to reduce the tax wedge on labour income (OECD, 2010a). This last problem is particularly severe in Italy, since – according to the OECD (2010b) – the country is among the OECD nations that levies a relatively high tax and social security burden on labour income. Most recent estimates for 2009 suggest that single taxpayers on average earnings take home less than 55 percent of what they cost to their employer, while taxpayers on high earnings take home less than 50 percent. Most notably, the average tax wedge in Italy is about 10 percentage points higher than the OECD average. Given these figures, it is hardly surprising that the reduction of the tax burden on labour income has been considered to be one of the highest priorities by most recent Italian governments. But the attempts to reduce taxes on labour have not had much success for at least two reasons: on the one hand, because there are increasing difficulties in squeezing expenditures in the short run; on the other hand, because alternative tax bases are hard to find, and existing tax rates cannot be further augmented. In this respect, however, a potential tax base which has shown a considerable increase in recent years and seems to have been completely forgotten by Italian governments is the figurative income (and the related wealth) from homeownership. Given the high proportion of homeownership and the sharp increase in market prices in the housing market, the potential tax base will be quite large<sup>1</sup>. But at present, homeownership is favoured in terms of taxes along several dimensions: the main residence is currently exempted both from Personal Income Tax (IRPEF) and from Property Tax (ICI). This notwithstanding, there are a number of tax credits linked to homeownership (e.g. related to interest paid on mortgages). Moreover, imputed rents considered in the tax base (e.g. for dwellings other than the main residence) are quite far from current market values, in fact exempting a large share of the potential tax base.

One very simple reform to be considered in order to exploit this forgotten tax base is to introduce imputed rents from homeownership in the IRPEF tax base. A quite similar proposal has been recently advanced by a group of highly reputed economists for the UK (see the “Mirrlees Review”, in Mirrlees – Adam – Besley – Blundell – Bond – Chote – Gammie – Johnson – Myles – Poterba, 2011). In the case of Italy, taxing imputed rents from homeownership will allow the government to reduce the tax wedge on labour incomes. However, since the estimated labour supply elasticity appears to be highest for the poor (e.g. Aaberge – Colombino – Strøm, 1999), the reduction in the tax

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<sup>1</sup> According to available data from official sources - the *Agenzia del Territorio* and its *Osservatorio del Mercato Immobiliare* – housing prices registered a 27percent increase between 2004 and 2009 at the national level, with only very minor reductions from the peak in 2008 (Agenzia del Territorio, 2010). However, differences are substantial across different areas of the country and between provincial towns and other minor cities. Provincial towns in the two islands made the highest growth (+ 44percent); the lowest increase was registered for non capital cities in the North (+ 18percent). More details are available in Table A.1 in the Appendix. A striking feature of the Italian housing market becomes clear when looking at other countries. Taking for instance the USA, the S&P Case-Shiller US National Price Index recorded a variation close to zero over the same period, as the result of the expansion of more than 35percent up to the end of 2006, followed by a burst of the housing bubble up to the first quarter of 2009.

wedge should be concentrated on incomes in the lowest brackets in order to boost economic growth. Besides these expected direct effects on the labour supply of such a reform, increasing housing taxation can have other potentially beneficial indirect effects on growth, via an improved performance on the part of the labour market. In fact, without denying the benefits from homeownership (in terms of educational outcomes or reduced crime), taxing homeownership will make people more mobile, hence presumably reducing unemployment (e.g. the seminal work by Oswald, 1999) and education-job mismatches (e.g. Hensen – de Vries – Cörvers, 2009), but also increasing educational opportunities (e.g. Makovec, 2006).

Why then has no Italian government tried to modify housing taxation, and actually further increase the advantages for homeowners in recent years? One very simple answer is that – given the large number of homeowners - housing taxation is a highly sensitive political field, and politicians look for short-run returns, all of which makes housing taxation a sort of *taboo* in Italian politics<sup>2</sup>. But *taboos* are often generated by prejudices and ignorance. In this paper we attempt to increase our understanding of the impact of a policy reform aimed at introducing imputed rents from homeownership in the IRPEF tax base. By using a microsimulation model precisely designed to examine housing taxation in Italy (Pellegrino – Piacenza – Turati, 2010a), we study in particular the distributional impact of alternative reforms all aimed at increasing housing taxation while contemporaneously reducing the labour tax wedge. We show how gainers and losers are distributed across the income distribution, and discuss whether such reforms can have political success by characterising who will vote in favour, and who will be against the reform. Our main result is that, under all the three scenarios, the share of winners is consistent - between 46 and 48 percent - while the share of losers is around one third of taxpayers. The percentage of winners is further increased when considering households instead of individual taxpayers, at about 50 percent; however, the share of losers is also substantial in this case, at about 40 percent. As a result, a political majority supporting the change is presumably obtainable.

The remainder of the paper is structured as follows. Section 2 provides a brief history of housing taxation in Italy. Section 3 is devoted to a presentation of the main statistics from the empirical exercise and the results from simulations including imputed rent in the definition of the PIT gross income. Section 4 contains a discussion of the simulations under three different reform scenarios. Section 5 offers a brief conclusion and recommendations.

## **2. A brief history of housing taxation in Italy**

According to available evidence for 2010, Italy is a Western country where the ratio between mean wealth and mean income is among the highest at more than 5 (Shorrocks – Davies – Lluberas, 2010). Only the UK fares similarly (4.9), while for the US this ratio falls to 3.6. Most of this household wealth is invested in housing properties: in Europe, Italy is one of the nations – together again with the UK, but also with other Mediterranean countries such as Spain – where the proportion of homeowners is the highest. There are, however, differences with respect to the UK that characterise Italy as a unique case: first, the level of private debt is lower in Italy than in the UK, partly

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<sup>2</sup> Notice for instance that the recent draft bill of August 4<sup>th</sup>, 2010 - aimed at reforming the system of Municipalities' funding, the so-called 'Municipal federalism' - explicitly maintain the advantages for homeowners for their main residence, and does not seem to suggest any adjustments with regard to rents.

because of stricter mortgage requirements and a different attitude on the part of Italian households toward debt; second, wealth is more equally distributed: median wealth is 50 percent of mean wealth in Italy, while only 34 percent in the UK (and much less so, at 20 percent, in the US (Shorrocks – Davies – Lluberas, 2010)). This last feature of the ‘Italian case’ clearly highlights why housing taxation has been considered by Italian governments as one of the tool to gain short-run political consensus. As a result of this situation, housing is largely favoured by the tax system: figurative income from the main residence is now basically exempted from both Personal Income Tax (IRPEF) and Property Tax (ICI), while contemporaneously, tax credits for mortgage interests are available for home owners.

As our aim here is to study a reform involving a reduction in the tax wedge on labour incomes, we focus on IRPEF. The main features of housing taxation during the last two decades are summarised in Appendix Table A.2. Note that, up to 1996, the Tax Code included the main residence cadastral income  $R$  in the IRPEF tax base. However, one can argue that the cadastral income was last revised by the *Decreto Ministeriale* 20<sup>th</sup> January 1990 according to *average* market values in 1988-1989, and these values were made effective from 1992, so that those included in the tax base were largely different from current market values even at that time, in fact exempting a large share of the potential tax base<sup>3</sup>. To partially “correct” this divergence, from 1997 onwards the Tax Code considers  $R^* = R(1.05)$ , with a mild re-evaluation of 5 percent of the 1988-1989 average rents. Hence, the cadastral income is currently frozen approximately at the 1990 values.

Regardless of this favour, the Tax Code further benefited owners by making a number of tax allowances available during the years, a situation leading to a complete formal exemption from 2000 onwards. Up to 1996, the allowance to be subtracted from the main residence cadastral income was 516.46 euros; this was raised to 568.10 euros in the period 1997-1998. In fact, given the average level of rents, these allowances basically exempted the main residence for a large proportion of taxpayers well before the introduction of the formal exemption.

A number of tax credits have also been made available to homeowners despite the complete exemption granted to their main residence. These include in particular, tax credits for mortgage interest and maintenance and restructuring expenditure. Tax credits are defined according to a percentage of costs sustained by the homeowner, up to a certain threshold. Fiscal rules have changed both the percentage and the threshold over the years, slightly reducing the favour granted to homeowners. Consider mortgage interests: in the period 1995-1997 the tax credit was set equal to 22 percent of paid interest, up to about 3,500 euros (hence, fixing the maximum tax saving at about 770 euros per taxpayer). Starting from 1998, the 22 percent allowance has been reduced to 19 percent. From 2008 onwards – despite the main residence being exempted - the tax credit is still equal to 19 percent, but it is now applied on interest payments up to 4,000 euros (generating a maximum saving of 760 euros).

Since 1998, a tax credit has also been allowed for maintenance and restructuring expenditure. Rules are quite similar to those for mortgage interest, with the only difference being that those for restructuring generate savings that can be spread over a

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<sup>3</sup> Unfortunately, official data on housing prices from the *Osservatorio del Mercato Immobiliare* are not available for this period. However, one can consider changes in the cost of building a residential dwelling as a proxy for changes in the market prices of private dwellings. According to data provided by ISTAT, an increase of about 25percent in these costs has been registered between 1989 and 1992.

number of years. In particular, the credit has to be split over 5 or 10 years for expenditures made in the period 1998-2001, and over 10 years for expenditures made from 2002 onwards. As for allowances, in the period 1998-1999 and in almost all of 2006, the tax credit is equal to 41 percent of the expenditure; from 2000 (but for almost all of 2006) it was equal to 36 percent. In the period 1998-2002 the expenditure limit is raised to 77,468.53 euros. However, it decreased to 48,000 euros from 2003 onwards. Apart from 2006, the expenditure limit refers to each owner and to each dwelling.

Taxation is less favourable for dwellings which are not a main residence. A slightly higher rent is considered for unoccupied or holiday homes. Up to 1996, the Tax Code considered the cadastral income, augmented by one third, as part of the PIT gross income. From 1997 onwards, the Tax Code considered the same mild re-evaluation of the main residence rent. A tax credit for mortgage interest is available for dwellings other than the main residence from 1993 onwards. It is equal to 27 percent of the interest payments for each signer of the mortgage, up to about 2,000 euros. Only mortgages signed before 1993 allow the tax credit. Moreover, if the interest payments for the main residence are more than about 2,000 euros, no interest payments on dwellings other than the main residence can be considered for tax credit purposes. For a mortgage signed after 1993, no tax credits are allowed. From 1998 onwards, a tax credit for maintenance and restructuring expenditure is also allowed for this category of dwellings, with the same characteristics.

To sum up, changes in housing taxation from the Nineties basically reduced the tax burden for homeowners: despite the sharp increase in market prices, taxable rents did not increase<sup>4</sup>, exempting a large share of the potential tax base; moreover, an explicit exemption was introduced for the main residence. Finally, despite the main residence being exempted, allowances for mortgage interest were maintained, and tax credits for maintenance expenditures were introduced. Of course, by favouring housing, Italian governments could not reduce the tax burden on labour incomes. Understanding the size of the potential correction once imputed rents in the IRPEF tax base have been introduced, is the goal of the following sections.

### **3. Simulating the change in the IRPEF tax base**

To study how the IRPEF tax base would be modified by considering imputed rents, in this paper we make use of an updated version of the microsimulation model described in Pellegrino et al. (2010a) which, among the most important taxes and contributions characterizing the Italian fiscal system, focuses in particular on the main taxes on housing. The model considers as input data that provided by the Bank of Italy in its 2010 Survey on Households' Income and Wealth (hereafter SHIW-BI). The Survey contains information on household income and wealth in the year 2008 (the latest available), covering 7,977 households, and 19,907 individuals. The sample is representative of the Italian population, composed of about 24 million households and 60 million individuals (see Brandolini, 1999, and Bank of Italy, 2010, for details).

Relevant information for the estimation of cadastral incomes and net imputed rents for both main residences and other dwellings includes: the market value of real estate, the size (in square meters) of the dwellings, the dwelling maintenance expenditures, the

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<sup>4</sup> At present, a *market* rent is considered only for rented dwellings: in this case, net income was equal to 85 percent of the *actual* rent up to 2010. From 2011, a 19 percent (21 percent) withholding tax has been introduced on the whole *actual* rent.

interest paid on mortgages, and the initial mortgage debt. We refer to Pellegrino – Piacenza – Turati (2010a) for the techniques used in estimating the cadastral incomes, as well as the algorithm used in the transition from post- to pre-tax personal income with regard to each individual. The performance of the model is quite good: both results concerning the IRPEF gross income distribution and the number of dwellings, as well as the number of homeowners, are very close to the Ministry of Finance’s (2010) official statistics.

Table 1 shows the household composition by tenure status according to the SHIW-BI dataset. There are about 24 million Italian households: 17.2 million (71.9 percent) are the owner-occupiers of their main residence, or life tenants (‘occupiers in usufruct’); 5.3 million (22 percent) rent or occupy the dwelling under a redemption agreement (the so-called “*a riscatto*”); finally, 1.5 million (6.2 percent) are rent-free tenants. Notice that almost all the owner-occupiers are not burdened with a mortgage, while only a small percentage (9.9 percent) has a mortgage.

#### **TABLE 1 ABOUT HERE**

Focusing on the distribution across the deciles of equivalent gross income, Table 1 shows that the higher the decile, the higher the percentage of owner-occupiers within each decile, but the gap between the bottom and the top decile is relatively small (54.8 percent to 68 percent for households without a mortgage and 4.5 percent to 17.7 percent for households with a mortgage). This confirms one of the features of the ‘Italian case’ with respect to housing which has already been discussed, namely the more equal distribution of wealth in comparison with other countries (Shorrocks – Davies – Lluberas, 2010). As expected, the percentage of tenants and rent-free tenants within each decile decreases from 33.2 percent to 10.9 percent and from 7.5 percent to 3.4 percent, respectively.

Looking at the distribution of households by age class, Table 2 shows that the share of households still paying off their mortgage is decreasing with respect to the age of the household head as expected, while the opposite occurs when we consider owner-occupiers without a mortgage. Moreover, tenancy is more likely among the youngest households.

#### **TABLE 2 ABOUT HERE**

In Italy not only is the percentage of owner-occupier households very high, but also one quarter of households have at least another dwelling besides the main residence. According to the Ministry of Finance’s official statistics, the total number of dwellings owned by households are about 29.6 million. As we have already described, the number of main residences owned by households (considering full and bare properties) comes to about 17.2 million; by comparison, second homes owned by Italian households come to about 12.4 million. Most of them (about three quarters) are holiday homes or irregularly rented dwellings, while only about 3 million are second homes regularly rented by one household to another household.

The total number of dwellings owned by households is very high in Italy when compared to other countries such as the UK (where the number of dwellings is about 25 million, according to the Office for National Statistics), and their figurative income therefore represents a huge potential tax base. But – as already mentioned - rents



considered by the Tax Code are, on average, highly underestimated. According to our estimates, the average value of cadastral incomes is about five hundred euros per year<sup>5</sup>. Moreover, the overall value of the IRPEF tax base from housing represents only 5percent of the overall tax base.

Given this unexploited potential IRPEF tax base from housing whenever imputed rents instead of cadastral incomes are considered, the main goal of this paper is to evaluate alternative reforms, all aimed at reducing IRPEF marginal tax rates by introducing imputed rent from homeownership in the IRPEF tax base. In order to study this tax change, we consider the imputed rent only for owner-occupier households; following the actual Tax Code, no imputed rent for tenants and rent-free tenants is considered.

The main problem for this kind of analysis concerns the definition of ‘imputed rent’. As discussed for instance by Frick – Grabka (2003) and Garner – Short (2009), there are several methods to define this notional income based on: a) the returns obtainable from alternative investments, like the capitalization-rate approach; b) the hedonic characteristics of a dwelling, like the selection/hedonic approach; c) the reported rental equivalence from individual surveys, like the (modified) market-value approach. Here we define net imputed rent (hereafter, *IR*) following a sort of modified market-value approach. We start from gross *IR*, considering the value interviewees indicated in SHIW-BI in their answers to the following question: “Assuming you wanted to rent this dwelling, what monthly rent do you or your household think could be charged?”. To obtain the net *IR*, we subtract mortgage interest and one tenth of maintenance expenditure from the gross *IR*. As Garner – Short (2009) have consistently shown, while there are some differences across different methods in the estimates of *IR*, and the modified market-value approach is likely to produce the highest values for low-income earners, the general conclusions in terms of distributional outcomes are not affected. According to most of the literature, excluding imputed rent from the definition of income amounts to a subsidy for owner-occupation, and it is likely to favour the highest income group (e.g., Aaron, 1970; Rosen, 1985) and to underestimate the well-being of elderly householders (Garner – Short, 2009). Including imputed rent in the tax base should therefore be equality enhancing<sup>6</sup>.

Results concerning equivalent gross income distribution with and without imputed rents are presented in Table 3<sup>7</sup>. Let the actual overall household average gross income be 100. Then, the actual mean gross income is about 104.7 for owner occupiers with a mortgage, and 129.5 for owner occupiers without a mortgage; on the other hand, it will be considerably lower for tenants (78.6) and for rent-free tenants (82). On the contrary, the relative positions are very different whenever the net *IR* is considered as a component of the personal income tax gross income: with respect to the actual situation, the overall gross income rises from 100 to 115.2, but it rises up to 127 for owner occupiers without a mortgage, and to 141.6 for owner occupiers with a mortgage. As long as tenants and rent-free tenants are not affected by the tax change, their income

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<sup>5</sup> Recall that income from other dwellings owned by households is the cadastral income for unoccupied dwellings or holiday houses, as well as irregularly rented dwellings; it is the actual rent for rented and declared dwellings.

<sup>6</sup> For an in-depth discussion of the distributional effects of including *IR* in the PIT tax base in the Italian case, see Pellegrino – Piacenza – Turati (2010b).

<sup>7</sup> In each scenario, we consider each individual’s IRPEF gross income, and then aggregate incomes at the household level. We consider all households in the dataset; in particular, we do not drop households with zero household income. In order to obtain the *equivalent* income, we adopt the Cutler Scale, and choose its parameters in order to minimize the re-ranking.

positions do not change with respect to the actual situation if they do not own any dwellings.

### **TABLE 3 ABOUT HERE**

The inclusion of net *IR* yields a considerable *reducing* effect on income inequality, as already observed in other works (Frick – Grabka, 2003; D’Ambrosio – Gigliarano, 2007): the Gini coefficient for equivalent household disposable gross income is .37815 considering the reference distribution, and decreases to .36607 when including the net *IR* in the income definition. As expected, the Gini coefficient falls for owner-occupier households, and stays almost constant for tenants and rent-free tenants.

Similar comments emerge also when decomposing the population by age group. Relative income positions when considering the reference distribution are: 89.4 if the head of the household is 35 years old or younger, 106.9 for the age class 35-65 years, and 91.1 for those older than 65 (Table 4). With the inclusion of the net *IR*, the corresponding values are 97.8, 120.8 and 111, respectively. Clearly, as the share of households which own the main residence increases with age, if net *IR* is considered, the higher variations of the Gini coefficient are registered in the top two classes, whilst the variation in the first age class is marginal.

### **TABLE 4 ABOUT HERE**

The important point to be stressed is that including the *IR* raises the IRPEF tax base by about one fifth. Hence, given the enlargement of the tax base, one can simulate alternative reforms of the tax structure by keeping IRPEF revenues at the actual level, and reducing marginal tax rates. This is the goal of the next Section.

## **4. Simulating alternative IRPEF reforms: winners and losers under alternative scenarios**

### **4.1. The alternative reforms**

As including the *IR* substantially enlarges the IRPEF tax base, we can now simulate alternative reforms which keep IRPEF revenues constant at the current level, and reduce marginal tax rates with the goal of increasing the labour supply. In particular, we consider three different scenarios. The first one (SCENARIO 1) is based on the premise that labour supply elasticities differ across income deciles. As shown by Aaberge – Colombino – Strøm (1999), in Italy (as elsewhere), the elasticity of labour supply for the poor is higher than for the rich, both for males and females. Hence, if one wants to favour efficiency (and income growth), then the reduction in marginal tax rates should be higher for low income brackets. Table 5, col. SCENARIO 1, shows the reduction of tax rates that a reform of this type would allow, leaving tax deductions and tax credits unchanged with respect to the actual Tax Code.<sup>8</sup> The reduction is consistent: it would be

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<sup>8</sup> We define this change in tax rates according to the following criteria: first, all tax brackets must benefit from a reduction in marginal tax rates; second, following the efficiency criterion, we consider changes in tax rates as a convex function of income; third, for administrative reasons, we avoid decimal changes in tax rates. We then fitted the convex function by leaving the variation referred to the first tax bracket as the

possible to reduce the marginal tax rates by 5.85 percentage points in the first bracket, by 5 percentage points in the second one, by 3 points in the third and fourth ones and by 2 point in the last one. A second scenario (SCENARIO 2) considers a *flat* reduction of marginal rates in all brackets, again leaving tax deductions and credits unchanged. This second reform would allow a 4.97 percentage point reduction in *all* marginal rates (Table 5, col. SCENARIO 2), and can be considered an extreme case where the government does not take into account suggestions from the economic literature on labour supply elasticities. Notice that the large rebate is made possible by the consistent number of owners across all deciles in Italy. The third and last scenario we consider here (SCENARIO 3) emphasises efficiency to a greater extent, by allowing *de facto* an exemption for poor households for taxes due on housing incomes. This is obtained by introducing a tax credit for homeowners, linearly decreasing with respect to gross income, and re-computing marginal tax rates with respect to SCENARIO 1 in order to guarantee the condition of unchanged tax revenues. This last scenario allows us also to consider potential liquidity problems for low income households stemming from including a notional income in the tax base. Notice that Table 5, col. SCENARIO 3, shows potential reductions in tax rates when the tax credit vanishes at 10,000 euros. However, we also computed variations in marginal rates for different thresholds (up to 20,000 euros). The results discussed below are substantially unchanged when considering these alternative hypotheses in terms of threshold.

#### TABLE 5 ABOUT HERE

Tables 6 and 7 show how the distribution of IRPEF net income changes with respect to the current situation when considering these alternative scenarios. Let the 2008 mean net income be 100; this would increase to 119.3 under scenario 1, to 117.3 under scenario 2, and to 116.9 under scenario 3 (Table 6). The highest increase in mean net income would be registered for owner occupiers without a mortgage under scenario 1, and for owner occupiers with a mortgage under scenarios 2 and 3. These features of the reforms are reflected also in the Gini coefficients associated with each distribution of net income: the largest drop is recorded for owner occupiers without a mortgage in the first scenario, and for owners with a mortgage in the alternative scenarios. Distinguishing taxpayers by age classes, one can easily see that the smallest increase in net income is registered for young people (Table 7). This was largely expected since homeownership increases with respect to age. Notice however that despite ownership increasing with age, we do not observe sharp changes in the Gini coefficient as before. For the age class 35-65 years, the Gini coefficient varies from .33222 to about .3254 under SCENARIOS 1 and 2, and .3205 under SCENARIO 3. For the elderly, the Gini drops by about 2 points under SCENARIO 1, but worsens under SCENARIOS 2 and 3. All these results are driven by the interplay among four different factors: the distribution of different types of owners across deciles, the distribution of *IR* across deciles, the distribution of labour incomes across deciles, and the distribution of tax cuts across deciles under the alternative scenarios. However, net incomes here include also notional incomes from *IR*. To understand whether or not these alternative reforms would have a political majority supporting the change, we need to consider monetary incomes only. This is done in the next Section.

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unknown of the equation. Notice however that, as will be clear below, the following conclusions are substantially unaffected by this choice.

**TABLE 6 ABOUT HERE**

**TABLE 7 ABOUT HERE**

#### **4.2. Winners and losers**

In the previous Section we briefly discussed the impact on the distribution of net incomes stemming from alternative reforms aimed at reducing the tax wedge on labour income and contemporaneously increasing housing taxation (via the increase in the tax base), while keeping fiscal revenues constant. However, in order to judge the potential political success of these reforms, we need to ascertain how many there would be of gainers and the losers once the reform had been implemented. Only if the former are in the majority could the reform have political success. In particular, to identify winners and losers we need to evaluate *monetary* income once one of the alternative reforms discussed above is implemented, and then compare this with monetary income stemming from the application of current rules. We define “winners” as those taxpayers for whom the tax debt computed with the proposed rules is lower than with the current rules. For each reform scenario, we run two different exercises of this type: in the first one, we take into account *individual* taxpayers, and assume that winners will vote in favour of the reform independently of their situation at the household level; in the second one, we consider winners and losers at the household level.

*Individual taxpayers.* Table 8 shows the percentage of winners and losers across income deciles when considering individual taxpayers. Overall, under SCENARIO 1, 48.4 percent of all taxpayers (about 20.1 million people) will gain from including *IR* in the IRPEF tax base, i.e. they will have a net tax debt lower than the one paid as a result of the current rules. About 17 percent of taxpayers (about 7.1 million people) would be indifferent, whilst 34.4 percent (about 14.3 million people) would definitely lose from the reform. If all the net gainers vote in favour of the reform, and only the net losers vote against it, the reform could have a political majority based on these numbers. Similar results emerge when considering alternative scenarios.

**TABLE 8 ABOUT HERE**

Under SCENARIO 2, allowing for the same cut in all tax brackets, the share of winners would reduce to 46.8 percent, while 16.6 percent would be indifferent. Under SCENARIO 3, the one favouring the poor most, the share of winners is 48 percent, but the number of individuals who would be indifferent is now 20.8 percent, so that only 31.2 percent would lose from the reform. This is therefore the scenario that maximises the consensus.

Despite the reduction in the Gini coefficient observed at the aggregate level, notice that the distribution of winners and losers across income deciles is not uniform. In particular, most of the losers are concentrated in the bottom deciles, especially among the poorest, in both SCENARIO 1 and 2. The percentage of losers in the bottom deciles shrinks when moving to SCENARIO 3 because most taxpayers are now indifferent<sup>9</sup>. This makes clear

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<sup>9</sup> This share, however, remains constant under SCENARIO 3 when increasing the tax credit from 10,000 euros to 20,000 euros, especially for the 1<sup>st</sup> and the 2<sup>nd</sup> decile. To observe a significant increase in the share of winners we need to move up to the 4<sup>th</sup> decile, and to increase the tax credit above 14,000 euros.

the role of tax credits for low income earners: their situation is substantially unchanged with respect to actual rules, even though *IR* is included in the tax base. On the contrary, the net gainers represent more than 50 percent of people from the 4<sup>th</sup> decile onwards, under all the three scenarios. The highest share of winners is recorded for all the reforms at the 7<sup>th</sup> decile: 72.4 percent of taxpayers will gain from the reform under SCENARIO 1, 68.9 percent under SCENARIO 2, and 69.8 percent under SCENARIO 3. Given the ratio between imputed rent and monetary income across deciles, this result is largely expected. Imputed rents have a larger impact for low income taxpayers than for high earners. Hence, reducing tax wedge on labour incomes will imply - in relative terms - a larger reduction in the amount of taxes to be paid, especially on the part of people in the top deciles, than for people in the bottom ones.

Also the size of the average gains and losses will be different across income deciles, but substantially similar under the different scenarios (Table 9). Considering all taxpayers, the average gain will be 918 euros (3.8 percent of the actual PIT gross income) while average loss is about 1,300 euros (6.7 percent of the PIT gross income) under SCENARIO 1. These figures become respectively 953 euros and 1,218 euros under SCENARIO 2, and 824 euros and 1,452 euros under SCENARIO 3. However, the largest gain (ranging between 1,679 euros under SCENARIO 3 and 2,347 euros under SCENARIO 2) is always recorded for taxpayers in the top decile. Also the largest loss (between 2,700 and 2,800 euro) is concentrated in the top decile, with the notable exception of SCENARIO 3: in this case, losers in the first decile also register a huge increase in their tax debts, but are a small minority (4.6 percent of those in the bottom decile). Most of these taxpayers are people with a very low monetary income, but with a large amount of wealth invested in houses<sup>10</sup>. Notice however that average losses for people in the bottom deciles are substantial, even under SCENARIOS 1 and 2, and also their share is substantial (more than 50 percent). This is the reason why, under SCENARIO 3, we correct the tax schedule by introducing a tax credit for low income earners, in order to avoid losses with respect to the simulated situation, and the implied difficulties in paying the tax bill typical of a situation where a figurative income is considered.

## TABLE 9 ABOUT HERE

### Figure 1 about here

These considerations with regard to winners and losers (and average gains and losses) in each decile are reflected in the average tax rates in the different scenarios. We compute, for each decile, average tax rate as the ratio between the net IRPEF and the gross income; of course, we include imputed rent in the taxable income as a result of the reform. These estimated average rates are reported in Figure 1, where deciles are identified on the pre-reform gross income. As can be easily seen, the reform breaks-even between the third and the fourth deciles. Taxpayers in the bottom decile register a marked increase under both SCENARIO 1 and 2, whereas their situation worsens slightly

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Notice that the increase in marginal tax rates to keep revenues constant with respect to SCENARIO 1 is about 2 percent percent when allowing for a 20,000 euros tax credit. See Appendix, Figure A.1.

<sup>10</sup> These 'house-rich, cash-poor' individuals can be observed in all age classes. The elderly *who lose* are 1.3 percent out of all the taxpayers in the first decile. Notice that the percentage of people older than 65 is 19 percent in the first decile, and the *IR* is about 6 times their current IRPEF gross income.

under SCENARIO 3<sup>11</sup>. On the other hand, those between the 5<sup>th</sup> and the 9<sup>th</sup> deciles in terms of income distribution obtain a sizeable reduction in their tax burden under all alternative scenarios.

We further explore the issue of winners and losers by considering taxpayers' ages. This analysis brings remarkable results, highlighting the generational orientation of Italian public policies already found in other works (e.g. Berloffia – Villa, 2010). The percentage of winners rapidly decreases, and – correspondingly – the percentage of losers increases with age in all three scenarios (Table 10). For instance, under SCENARIO 1, 70.7 percent of taxpayers under 35 years of age will gain from the reform, while just 12.7 percent will lose; on the other hand, just 32.2 percent of people older than 65 will have a net gain, whereas 45.8 percent will suffer a loss. Interestingly, the average gain will decrease with age (also as a percentage of actual PIT gross income), while the average loss will increase (Table 11). Considering again for instance SCENARIO 1, the average gain is 956 euros for young people (4.9 percent of income), and just 720 euros for the elderly (3.3 percent); the average loss is about 1,000 euros for the former (6.8 percent of gross income), and 1,363 for the latter (7.6 percent). According to these figures, then, including *IR* in the IRPEF tax base will favour the younger generations.

**TABLE 10 ABOUT HERE**

**TABLE 11 ABOUT HERE**

*Households.* We rerun the same exercises by considering households instead of individual taxpayers, basically assuming that all individuals belonging to the same households will vote in favour of the reform only if tax debt at the household level is lower when including *IR* in the IRPEF tax base than under current tax rules. The results closely mirror those for individual taxpayers. Overall, under SCENARIO 1, 49.8 percent of all households (about 11.9 million) will gain from including *IR* in the IRPEF tax base, i.e. they will pay a net tax debt lower than the one paid under the current rules. This percentage drops to 48 percent under SCENARIO 2, and reach 49.6 percent under SCENARIO 3 (Table 12). As for the losers, the results show that SCENARIO 3 is slightly better than SCENARIO 1, and both are better than the remaining SCENARIO 2. Hence, as before, SCENARIO 3 is the one that maximises consensus in favour of the reform. The share of winners and losers is different across deciles also when households are considered instead of individuals taxpayers. But while the share of winners increases as before when moving from the bottom to the top deciles, with the highest values recorded for deciles in the middle of the income distribution, the share of losers is now increasing. Considering, for instance, SCENARIO 1, just 27.1 percent of households in the bottom decile lose with respect to the current situation as opposed to 46.9 percent in the top decile. The gradient in terms of the share of losers between the 1<sup>st</sup> and the 10<sup>th</sup> decile is even steeper under SCENARIO 3: from 12.2 percent to 50.7 percent. Most of the households in the bottom decile are now indifferent in all the three alternative scenarios<sup>12</sup>. Including *IR* in the IRPEF tax base will not worsen the economic situation

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<sup>11</sup> As pointed out by Garner – Short (2009), the modified market-value approach is likely to produce the highest value for low-income earners. This bias can at least partially explain our results.

<sup>12</sup> Also in this case we experimented with different levels of exemption by increasing the threshold above which the tax credit becomes zero up to 20,000 euros. There are no sizable effects for households in the 1<sup>st</sup> decile, while an increase is observed in the 2<sup>nd</sup>, the 3<sup>rd</sup> and the 4<sup>th</sup> deciles. See Figure A.2 in the Appendix.

of the poor, while contemporaneously improving the position of the majority of middle-income earners.

Table 13 reports average gains and losses across deciles. Like for individuals, we observe an increase in both gains and losses across deciles also for households. One notable exception are households in the bottom decile under SCENARIO 3: the average loss is 1,158 euros for 12.2 percent of the poorest households according to their pre-reform gross income. These are families with very low or even null labour income, but a large wealth invested in dwellings (hence, large figurative incomes).

**TABLE 12 ABOUT HERE**

**TABLE 13 ABOUT HERE**

**FIGURE 2 ABOUT HERE**

Average tax rates in the different scenarios are represented in Figure 2. Most of the comments put forward for individuals hold also at the household level: middle-income earners register a reduction of average tax rates, while those in the bottom decile record an increase. But, differently from the individual taxpayer's case, now the differences across scenarios are much more smoothed out, and the reform will break-even between the 2<sup>nd</sup> and the 3<sup>rd</sup> decile.

Finally, we also extended the analysis by considering the age of the household head. Table 14 confirms that, for all the scenarios, the share of winners halves between households with heads below 35 years of age, and those with heads aged more than 65; on the contrary, the share of losers more than doubles when comparing the same two types of families. Also gains and losses show the same pattern: gains decrease when the age of the household head increases, while losses increase (Table 15).

**TABLE 14 ABOUT HERE**

**TABLE 15 ABOUT HERE**

## **5. Concluding remarks**

In this paper we study whether an IRPEF reform aimed at reducing the tax burden on labour income - via the enlargement of the tax base due to the inclusion of imputed rent for owner-occupied dwellings – is likely to achieve a political majority. We use a micro-simulation model designed specifically to examine housing taxation in Italy. This model takes into account the BI-SHIW data as inputs, and compares the tax burden before and after the reform under three alternative scenarios, all designed in order to keep current revenues at a constant level: a first scenario in which, considering labour supply elasticities, marginal tax rates are lowered more for low income earners than for high income taxpayers; a second one in which all marginal tax rates are reduced by the same amount; and a third one in which we introduce a tax credit for low income taxpayers, in order to solve liquidity problems that can typically arise when taxing notional incomes. Our main result is that, under all the three scenarios, the share of winners is consistent, between 46 and 48 percent, while the share of losers is around one third of taxpayers. The percentage of winners is further increased when considering households instead of individual taxpayers, at about 50 percent; however, the share of losers is also substantial in this case, at about 40 percent. Overall, then, a political majority supporting the change is presumably achievable. This does not mean that the

reform will have an easy political ride. Notice, for instance, that reducing the tax wedge on labour income while contemporaneously taxing more housing would generate a redistribution towards younger generations. In a country where the median voter is rapidly ageing, favouring the young does not appear to be a good strategy for political parties that want to gain votes.

Another shortcoming of the present study, which can have an effect on the main result, is the static nature of the microsimulation exercise. Considering behavioural responses, one should take into account the impact on housing prices once the reform is implemented. If, following the increase in taxation, prices will go up, also younger generations of renters and potential (future) owners would be less likely to vote in favour of the reform. Extending the model to incorporate also behavioural responses is a goal for our future research.



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## Appendix

**Table A.1. Changes in housing prices 2004-2009 (percent)**

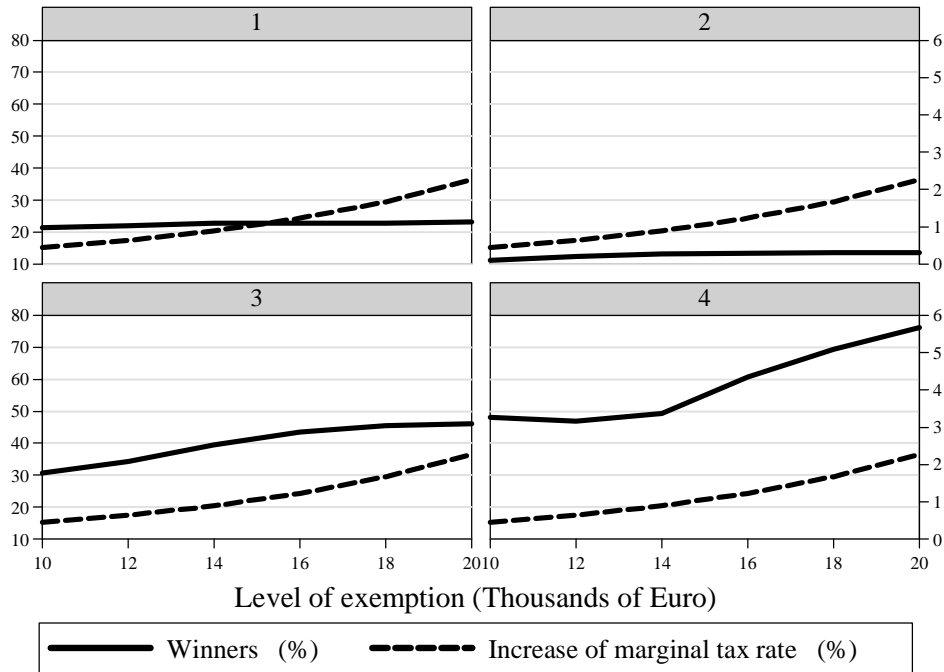
<b>Area</b>	<b>All towns</b>	<b>Provincial capitals</b>	<b>Non capitals</b>
Italy	+ 27	+ 29	+ 26
North-West	+ 19	+ 22	+ 18
North-East	+ 21	+ 28	+ 18
Centre	+ 33	+ 32	+ 35
South	+ 36	+ 31	+ 38
Islands	+ 38	+ 44	+ 35

Source: Agenzia del Territorio (2010).

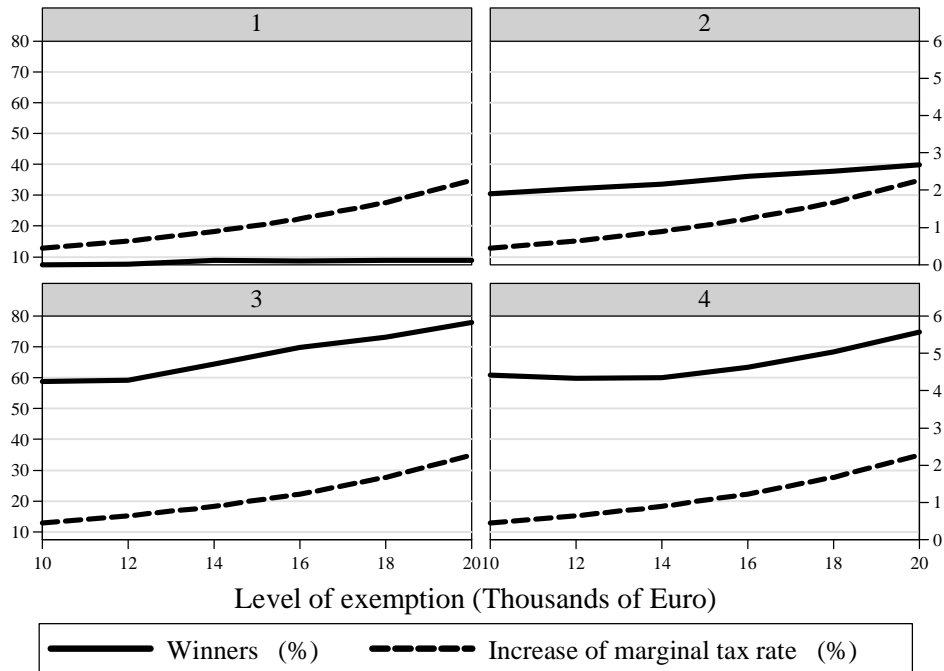
**Table A.2. The evolution of housing taxation in Italy**

Period	Main residence			Unoccupied/holiday homes	
	Rent	Tax Allowances	Other tax credits		
			Interests paid on mortgage		Maintenance and restructuring expenditures
Up to 1996	<i>R</i> included in the IRPEF tax base (rents blocked at <i>average</i> market values in 1988-1989)	Up to 516.46 euros to be subtracted from the main residence cadastral income	22percent of up to about 3,500 euros of interest	None	Cadastral income augmented by one third as part of the PIT gross income
From 1997	5 percent re-evaluation of <i>R</i>	Allowance raised to 568.10 euros	19 percent of up to about 3,500 euros of interests	41 percent (36 percent) of up to 77,468.53 euros	5 percent re-evaluation of <i>R</i>
From 1998		Up to 929.62 euros to be subtracted directly from the PIT gross income			Total exemption (allowance equal to re-evaluated <i>R</i> )
From 1999					
From 2000					
From 2003					
From 2008	19 percent of up to about 4,000 euros of interest				

**Figure A.1. Share of winners and increase in marginal tax rate for different levels of exemption (1<sup>st</sup> – 4<sup>th</sup> deciles, individual taxpayers)**



**Figure A.2. Share of winners and increase in marginal tax rate for different levels of exemption (1<sup>st</sup> – 4<sup>th</sup> deciles, households)**



## TABLES AND FIGURES

**Table 1: Distribution of households by decile of equivalent gross income**

Tenure status					
Decile	Owner occupiers without mortgage or in usufruct	Owner occupiers with mortgage	Tenants or occupiers under redemption agreement	Rent-free tenants	Total
1	54.8	4.5	33.2	7.5	100.0
2	54.8	5.5	28.8	11.0	100.0
3	60.9	4.9	27.5	6.7	100.0
4	61.6	9.0	23.7	5.6	100.0
5	60.1	8.2	24.7	6.9	100.0
6	63.5	6.4	23.1	7.0	100.0
7	65.7	11.4	18.1	4.9	100.0
8	64.2	14.8	16.2	4.9	100.0
9	66.3	16.4	13.8	3.5	100.0
10	68.0	17.7	10.9	3.4	100.0
<b>Total</b>	<b>62.0</b>	<b>9.9</b>	<b>22.0</b>	<b>6.2</b>	<b>100.0</b>

*Source:* Own calculations based on SHIW.

**Table 2: Distribution of Households by age class**

Tenure status					
Age class	Owner occupiers without mortgage or in usufruct	Owner occupiers with mortgage	Tenants or occupiers under redemption agreement	Rent-free tenants	Total
≤ 35	30.2	17.0	41.8	10.9	100.0
> 35 & ≤ 65	58.1	13.0	22.4	6.5	100.0
> 65	80.5	1.5	14.1	3.8	100.0
<b>Total</b>	<b>62.0</b>	<b>9.9</b>	<b>22.0</b>	<b>6.2</b>	<b>100.0</b>

*Source:* Own calculations based on SHIW.

**Tab. 3: Equivalent gross income by tenure status**

Gross income	Tenure status				Total
	Owner occupiers without mortgage or in usufruct	Owner occupiers with mortgage	Tenants or occupiers under redemption agreement	Rent-free tenants	
<b>2008 mean income</b>	<b>104.7</b>	<b>129.5</b>	<b>78.6</b>	<b>82.0</b>	<b>100.0</b>
<b>Mean income if net IR were taxed</b>	<b>127.0</b>	<b>141.6</b>	<b>79.3</b>	<b>82.3</b>	<b>115.2</b>
<b>Gini coefficient for the 2008 distribution</b>	<b>0.37731</b>	<b>0.35840</b>	<b>0.34983</b>	<b>0.37725</b>	<b>0.37815</b>
<b>Gini coefficient for the distribution with net IR</b>	<b>0.34702</b>	<b>0.34823</b>	<b>0.35258</b>	<b>0.37660</b>	<b>0.36607</b>

*Source:* Own calculations based on SHIW.

**Tab. 4: Equivalent gross income by age class**

Gross income	Age class			Total
	≤ 35	> 35 & ≤ 65	> 65	
<b>2008 mean income</b>	<b>89.4</b>	<b>106.9</b>	<b>91.1</b>	<b>100.0</b>
<b>Mean income if net IR were taxed</b>	<b>97.8</b>	<b>120.8</b>	<b>111.0</b>	<b>115.2</b>
<b>Gini coefficient for the 2008 distribution</b>	<b>0.33253</b>	<b>0.37800</b>	<b>0.38206</b>	<b>0.37815</b>
<b>Gini coefficient for the distribution with net IR</b>	<b>0.32414</b>	<b>0.36946</b>	<b>0.36602</b>	<b>0.36607</b>

*Source:* Own calculations based on SHIW.

**Table 5: Tax brackets and marginal tax rates**

		2008	SCENARIO 1		SCENARIO 2		SCENARIO 3 (10,000 euros)	
Tax base (euro)		Tax rate (percent)	Tax rate (percent)	Difference	Tax rate (percent)	Difference	Tax rate (percent)	Difference
Up to	15,000	23	17.15	5.85	18.03	4.97	17.60	5.40
15,000	28,000	27	22	5	22.03	4.97	22.45	4.55
28,000	55,000	38	35	3	33.03	4.97	35.45	2.55
55,000	75,000	41	38	3	36.03	4.97	38.45	2.55
Above	75,000	43	41	2	38.03	4.97	41.45	1.55

*Source:* Own calculations based on SHIW.



**Table 6: Equivalent net income by tenure status**

Net income	Tenure status				Total
	Owner occupiers without mortgage or in usufruct	Owner occupiers with mortgage	Tenants or occupiers under redemption agreement	Rent-free tenants	
<b>2008 mean income</b>	<b>105.8</b>	<b>111.0</b>	<b>82.9</b>	<b>84.8</b>	<b>100.0</b>
<b>Mean income SCENARIO 1</b>	<b>131.8</b>	<b>128.3</b>	<b>88.0</b>	<b>89.8</b>	<b>119.3</b>
<b>Mean income SCENARIO 2</b>	<b>128.0</b>	<b>142.9</b>	<b>84.4</b>	<b>86.0</b>	<b>117.3</b>
<b>Mean income SCENARIO 3 (10,000 euro)</b>	<b>127.6</b>	<b>141.9</b>	<b>84.4</b>	<b>85.8</b>	<b>116.9</b>
<b>Gini coefficient for the 2008 distribution</b>	<b>0.32511</b>	<b>0.34186</b>	<b>0.30224</b>	<b>0.32576</b>	<b>0.32748</b>
<b>Gini coefficient for the SCENARIO 1 distribution</b>	<b>0.29805</b>	<b>0.33001</b>	<b>0.31041</b>	<b>0.32978</b>	<b>0.31828</b>
<b>Gini coefficient for the SCENARIO 2 distribution</b>	<b>0.30399</b>	<b>0.29718</b>	<b>0.32892</b>	<b>0.35014</b>	<b>0.32482</b>
<b>Gini coefficient for the SCENARIO 3 distribution (10,000 euro)</b>	<b>0.29836</b>	<b>0.29255</b>	<b>0.32698</b>	<b>0.34712</b>	<b>0.32013</b>

*Source:* Own calculations based on SHIW.

**Table 7: Equivalent net income by age class**

Net income	Age class			Total
	≤ 35	> 35 & ≤ 65	> 65	
<b>2008 mean income</b>	<b>88.6</b>	<b>105.0</b>	<b>94.8</b>	<b>100.0</b>
<b>Mean income SCENARIO 1</b>	<b>101.7</b>	<b>123.3</b>	<b>118.1</b>	<b>119.3</b>
<b>Mean income SCENARIO 2</b>	<b>103.6</b>	<b>122.2</b>	<b>113.0</b>	<b>117.3</b>
<b>Mean income SCENARIO 3 (10,000 euro)</b>	<b>103.6</b>	<b>121.8</b>	<b>112.7</b>	<b>116.9</b>
<b>Gini coefficient for the 2008 distribution</b>	<b>0.29634</b>	<b>0.33222</b>	<b>0.32055</b>	<b>0.32748</b>
<b>Gini coefficient for the SCENARIO 1 distribution</b>	<b>0.28664</b>	<b>0.32548</b>	<b>0.30903</b>	<b>0.31828</b>
<b>Gini coefficient for the SCENARIO 2 distribution</b>	<b>0.29897</b>	<b>0.32543</b>	<b>0.3265</b>	<b>0.32482</b>
<b>Gini coefficient for the SCENARIO 3 distribution (10,000 euro)</b>	<b>0.29573</b>	<b>0.3205</b>	<b>0.32191</b>	<b>0.32013</b>

Source: Own calculations based on SHIW.

**Table 8. Winners and losers from the IRPEF reform in each decile (individual taxpayers)**

Decile	SCENARIO 1			SCENARIO 2			SCENARIO 3 (10,000 euro)		
	Win	Indifferent	Lose	Win	Indifferent	Lose	Win	Indifferent	Lose
1	6.9	39.4	53.7	6.4	37.8	55.7	21.4	74.0	4.6
2	8.0	72.2	19.8	7.9	70.3	21.8	11.3	74.9	13.8
3	31.1	38.5	30.4	29.4	36.9	33.7	30.6	37.5	31.9
4	50.4	14.1	35.6	45.7	13.5	40.9	48.2	13.5	38.3
5	59.5	4.8	35.6	55.6	4.8	39.6	57.2	4.8	37.9
6	68.2	2.4	29.3	63.4	2.4	34.2	65.3	2.4	32.2
7	72.4	0.0	27.6	68.9	0.0	31.1	69.8	0.0	30.2
8	69.1	0.1	30.8	65.8	0.1	34.1	66.2	0.1	33.8
9	59.9	0.0	40.1	59.0	0.0	41.0	56.7	0.0	43.3
10	58.5	0.0	41.5	65.9	0.0	34.1	53.4	0.0	46.6
All	48.4	17.2	34.4	46.8	16.6	36.6	48.0	20.8	31.2
No. Taxpayers (mln)	20.1	7.1	14.3	19.4	6.9	15.2	19.9	8.6	13.0

*Source:* Own calculations based on SHIW.

**Table 9. Average gain (loss) from the IRPEF reform in each decile (individual taxpayers)**

Decile	SCENARIO 1				SCENARIO 2				SCENARIO 3 (10,000 euro)			
	Win		Lose		Win		Lose		Win		Lose	
	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income
1	70	7.2	-752	-103.3	68	6.7	-765	-103.4	77	10.2	-2828	-184.8
2	291	5.4	-1079	-20.4	253	4.7	-1086	-20.4	280	5.4	-1288	-22.9
3	383	4.3	-921	-10.4	350	3.9	-948	-10.8	367	4.1	-945	-10.7
4	562	4.8	-837	-7.1	517	4.4	-852	-7.2	534	4.5	-853	-7.3
5	693	4.7	-903	-6.1	616	4.2	-938	-6.4	655	4.4	-937	-6.4
6	773	4.4	-879	-5.0	698	4.0	-876	-5.0	727	4.2	-899	-5.1
7	875	4.4	-1129	-5.6	783	3.9	-1107	-5.5	813	4.1	-1146	-5.7
8	971	4.2	-1411	-6.0	880	3.8	-1349	-5.8	903	3.9	-1419	-6.1
9	1173	4.0	-1867	-6.4	1097	3.8	-1785	-6.1	1103	3.8	-1889	-6.5
10	1819	2.8	-2848	-5.0	2347	3.5	-2708	-5.2	1679	2.6	-2824	-4.8
<b>Total</b>	<b>918</b>	<b>3.8</b>	<b>-1293</b>	<b>-6.7</b>	<b>953</b>	<b>3.8</b>	<b>-1218</b>	<b>-6.9</b>	<b>824</b>	<b>3.6</b>	<b>-1452</b>	<b>-6.2</b>

Source: Own calculations based on SHIW.

**Table 10. Winners and losers by age classes (individual taxpayers)**

Age class	SCENARIO 1			SCENARIO 2			SCENARIO 3 (10,000 euro)		
	Win	Indifferent	Lose	Win	Indifferent	Lose	Win	Indifferent	Lose
≤ 35	70.7	16.6	12.7	69.7	16.3	14.0	71.8	18.7	9.5
> 35 & ≤ 65	48.4	15.2	36.4	47.0	14.7	38.3	48.1	19.7	32.2
> 65	32.2	22.0	45.8	29.9	20.9	49.2	30.6	24.6	44.8
<b>Total</b>	<b>48.4</b>	<b>17.2</b>	<b>34.4</b>	<b>46.8</b>	<b>16.6</b>	<b>36.6</b>	<b>48.0</b>	<b>20.8</b>	<b>31.2</b>

*Source:* Own calculations based on SHIW.

**Table 11. Average gain (loss) by age class (individual taxpayers)**

Age class	SCENARIO 1			SCENARIO 2			SCENARIO 3 (10,000 euro)					
	Win	Lose		Win	Lose		Win	Lose				
	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income		
≤ 35	956	4.9	-1002	-6.8	892	4.6	-947	-6.5	861	4.6	-1225	-5.8
> 35 & ≤ 65	960	3.6	-1285	-6.2	1034	3.6	-1207	-6.4	853	3.4	-1466	-5.6
> 65	720	3.3	-1363	-7.6	779	3.3	-1293	-7.8	662	3.2	-1465	-7.5
<b>Total</b>	<b>918</b>	<b>3.8</b>	<b>-1293</b>	<b>-6.7</b>	<b>953</b>	<b>3.8</b>	<b>-1218</b>	<b>-6.9</b>	<b>824</b>	<b>3.6</b>	<b>-1452</b>	<b>-6.2</b>

*Source:* Own calculations based on SHIW.

**Table 12. Winners and losers from the IRPEF reform in each decile (households)**

Decile	SCENARIO 1			SCENARIO 2			SCENARIO 3 (10,000 euro)		
	Win	Indifferent	Lose	Win	Indifferent	Lose	Win	Indifferent	Lose
1	3.9	69.0	27.1	3.7	66.7	29.6	7.4	80.4	12.2
2	27.0	38.6	34.5	25.9	36.8	37.2	30.5	40.1	29.5
3	55.3	3.6	41.0	51.2	2.9	45.9	58.7	3.3	38.0
4	59.0	0.1	40.9	53.8	0.1	46.1	61.0	0.1	39.0
5	55.7	0.0	44.3	50.8	0.0	49.2	55.1	0.0	44.9
6	61.8	0.0	38.2	56.0	0.0	44.0	58.0	0.0	42.0
7	62.0	0.0	38.0	58.9	0.0	41.1	60.5	0.0	39.5
8	61.0	0.0	39.0	59.5	0.0	40.5	59.2	0.0	40.8
9	58.9	0.0	41.1	58.2	0.0	41.8	56.1	0.0	43.9
10	53.1	0.0	46.9	62.1	0.0	37.9	49.3	0.0	50.7
All	49.8	11.2	39.1	48.0	10.7	41.3	49.6	12.4	38.0
No. Households (mln)	11.9	2.7	9.4	11.5	2.6	9.9	11.9	3.0	9.1

*Source:* Own calculations based on SHIW.

**Table 13. Average gain (loss) from the IRPEF reform in each decile (households)**

Decile	SCENARIO 1				SCENARIO 2				SCENARIO 3 (10,000 euro)			
	Win		Lose		Win		Lose		Win		Lose	
	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income
1	132	3.0	-710	-18.8	124	2.8	-706	-18.6	108	2.5	-1158	-26.8
2	306	3.9	-640	-8.6	277	3.5	-675	-9.0	269	3.4	-714	-9.5
3	396	3.9	-606	-6.0	356	3.5	-634	-6.4	365	3.6	-665	-6.7
4	489	4.0	-751	-6.1	446	3.6	-769	-6.2	460	3.7	-813	-6.6
5	582	3.9	-839	-5.6	528	3.5	-856	-5.7	551	3.7	-870	-5.8
6	671	3.8	-743	-4.2	620	3.5	-748	-4.2	672	3.8	-747	-4.2
7	748	3.6	-889	-4.3	662	3.2	-915	-4.4	688	3.3	-944	-4.6
8	852	3.5	-1203	-4.9	751	3.1	-1202	-4.9	777	3.2	-1252	-5.2
9	951	3.2	-1519	-5.1	886	2.9	-1449	-4.9	874	2.9	-1550	-5.2
10	1555	2.5	-2446	-4.5	1967	3.1	-2329	-4.5	1392	2.2	-2532	-4.7
<b>Totale</b>	<b>744</b>	<b>3.3</b>	<b>-1075</b>	<b>-5.2</b>	<b>768</b>	<b>3.2</b>	<b>-1018</b>	<b>-5.3</b>	<b>672</b>	<b>3.0</b>	<b>-1176</b>	<b>-5.3</b>

Source: Own calculations based on SHIW.

**Table 14. Winners and losers by age classes of the household head (households)**

Age class	SCENARIO 1			SCENARIO 2			SCENARIO 3 (10,000 euro)		
	Win	Indifferent	Lose	Win	Indifferent	Lose	Win	Indifferent	Lose
≤ 35	65.7	11.3	23.0	64.1	11.3	24.7	66.2	12.6	21.2
> 35 & ≤ 65	54.5	9.2	36.3	53.3	9.0	37.7	54.8	10.7	34.6
> 65	35.3	14.6	50.0	32.6	13.5	53.9	34.0	15.5	50.5
<b>Total</b>	<b>49.8</b>	<b>11.2</b>	<b>39.1</b>	<b>48.0</b>	<b>10.7</b>	<b>41.3</b>	<b>49.6</b>	<b>12.4</b>	<b>38.0</b>

Source: Own calculations based on SHIW.

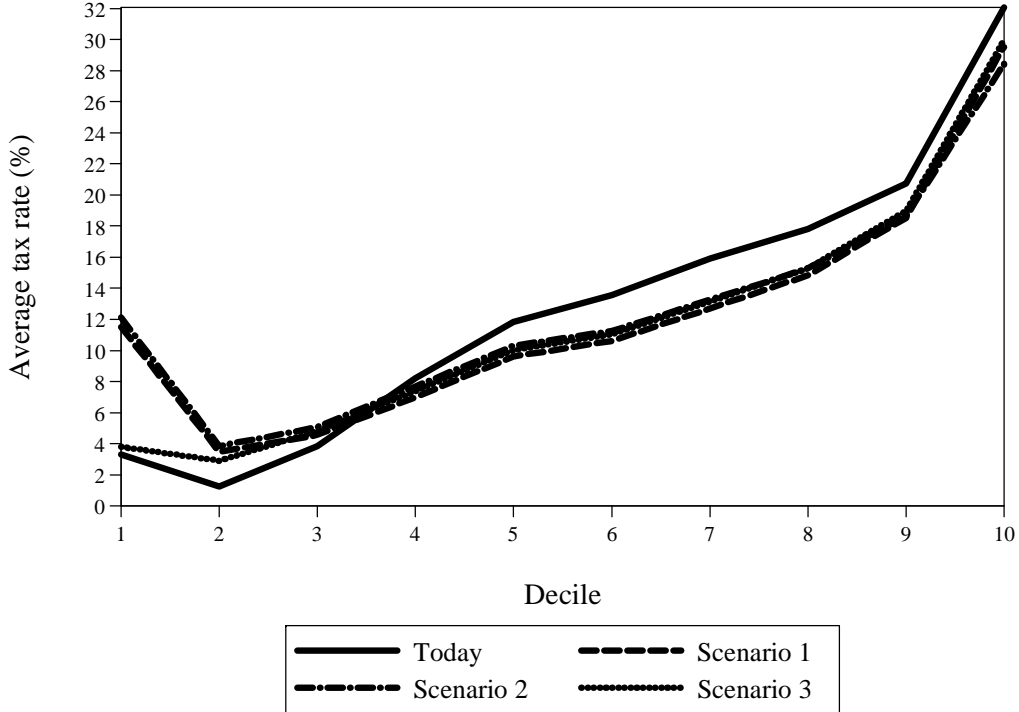
**Table 15. Average gain (loss) by age class of the household head (households)**

Age class	SCENARIO 1				SCENARIO 2				SCENARIO 3 (10,000 euro)			
	Win		Lose		Win		Lose		Win		Lose	
Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	Euro	percent of actual PIT gross income	
≤ 35	868	4.3	-841	-4.5	820	4.0	-815	-4.4	792	4.0	-944	-4.6
> 35 & ≤ 65	760	3.2	-1006	-4.5	790	3.2	-949	-4.6	681	3.0	-1125	-4.7
> 65	615	2.8	-1206	-6.4	665	2.8	-1141	-6.4	563	2.7	-1274	-6.5
<b>Totale</b>	<b>744</b>	<b>3.3</b>	<b>-1075</b>	<b>-5.2</b>	<b>768</b>	<b>3.2</b>	<b>-1018</b>	<b>-5.3</b>	<b>672</b>	<b>3.0</b>	<b>-1176</b>	<b>-5.3</b>

Source: Own calculations based on SHIW.



Figure 1. Average tax rates before and after the reform (individual taxpayers)



**Figure 2. Average tax rates before and after the reform (households)**

