



# GINI

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**A supplementary measure of income poverty including housing: advantages and risks, measurement challenges and policy implications**

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**GROWING INEQUALITIES' IMPACTS**



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## **Executive summary**

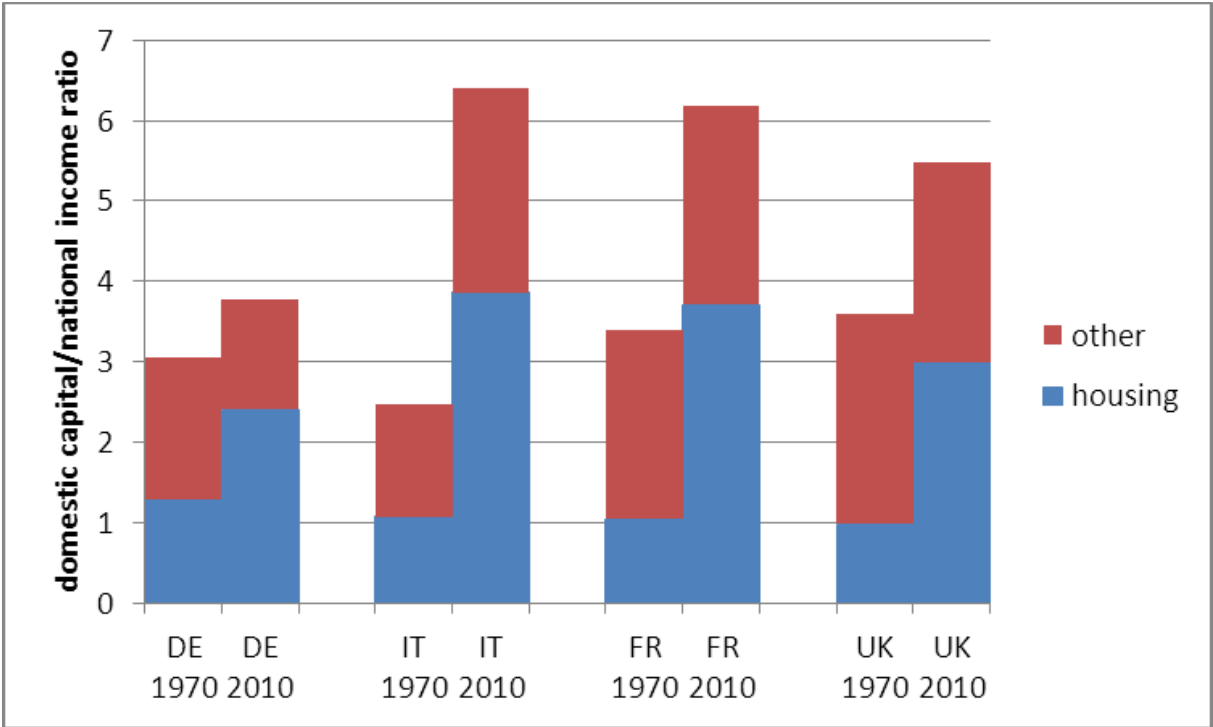
The European Commission set a target for the reduction of poverty and social exclusion by 2020. Progress are monitored with the help of EU social indicators. Although the inclusion of imputed rent has been advocated by experts in the measurement of income, it has not been adopted in standard social EU2020 indicators. This paper considers the inclusion of housing in the concept of disposable income, put forwards measurement challenges and effect of different approaches. The paper shows that:

- ✓ Housing wealth and expenditures increased in the last decades
- ✓ EU2020 target and flagship initiative on the reduction of poverty and social exclusion pay partial attention to housing
- ✓ Although expert advice the inclusion of imputed rent in the concept of disposable income, this is not part of EU social indicators, because of comparability, measurement and theoretical problems
- ✓ Several methods are available for the inclusion of housing in disposable income: rental equivalence subjective and objective) and capital market method for imputed rent; out of pocket approach for housing expenses
- ✓ While the inclusion of imputed rent generally reduces income inequality and poverty, the inclusion of housing expenses increases both; however, imputed rent generates considerable re-ranking and its importance diminished in the early phases of the Great Recession
- ✓ The inclusion of housing expenses (out of pocket approach) seems more suitable for poverty analyses, while the inclusion of imputed rent estimated with the capital market approach seems more appropriate for tax analyses
- ✓ Further improvement in EUSILC data are need for a correct measurement of housing returns and costs, in particular with reference to mortgage interest payments

**1. Motivation: the increasing importance of housing**

In the last decades, wealth became increasingly important with respect to income, due to the evolution of asset prices and macroeconomic dynamics. The wealth to income ratio increased in many EU countries, as well as the debt to income ratio. Non-financial assets and, in particular, the principal residence represent the largest component of wealth for most households. Similarly, the increase of private indebtedness was driven by home-mortgages in most countries (Maestri *et al.*, *forthcoming*). Figure 1 shows the evolution of the wealth to income ratio in four European countries over the last four decades, with a breakdown by asset type (housing *versus* other). The increasing importance of housing is straightforward, in particular in Italy and France.

**Figure 1: The evolution of wealth to income ratios, by asset type (1970-2010)**



Source: own elaboration based on data from Picketty and Zucman (2013).

The increasing importance of wealth was accompanied by a general increase in wealth inequality. The rise in wealth inequality is better explained by the evolution of capital, financial assets, debt, their fiscal treatment and the “working rich” phenomenon than by the evolution of homeownership

and house prices. However, the increase in household indebtedness changed the correspondence between the distribution of wealth and the distribution of income (Maestri *et al.*, forthcoming).

On the other hand, during the last decade household spending on housing increased, on average among OECD countries, by 3pps since the mid-1990s, due to increased real house prices and rents (Andrews *et al.*, 2011).

Government policies played a considerable role in these developments and consisted in a large use of mortgage tax reliefs and a favourable treatment of housing in most OECD countries (Andrews *et al.*, 2011).

Despite these facts, policy targets and most studies are still focused on an (monetary) income concept of economic well-being. According to the EU2020 target of poverty and social exclusion, the well-being of households is assessed over monetary income, work intensity and severe material deprivation. Recently, the European Central Bank started to collect data on household finance and consumption and published a report containing rich evidence on wealth distributions (European Central Bank, 2013). However, wealth is not included in EU social indicators.

There are two ways to link the housing situation of households to their income. One way is to consider the housing advantage of households, by imputing the economic advantage derived from homeownership into the monetary income concept (imputed rent approach). Another way is to consider the housing disadvantage of households, by deducting actual housing expenses from disposable income (out of pocket approach).

The Canberra Group on household income statistics recommended to including imputed rent in the income concept for a better assessment of the economic well-being of households. Since 2007 the main European household survey (EU-SILC) requires all Member States to provide data on the imputed rents of households. Nonetheless, the inclusion of imputed rent in the income concept is still debated and alternative approaches have not been widely discussed.

This paper explores the usefulness and challenges of including the housing situation of households in the concept of disposable income, with particular reference to the EU2020 target of poverty and social exclusion and its policy implications.

The remainder of the paper is organised as follows. Section 2 presents more in detail the literature about imputed rent and the debate about its inclusion in the EU2020 social indicators. The different measurement approaches and suitability for different aims are presented in Section 3. Section 4 discusses the distributional impacts of including housing in disposable income, with attention paid to country-specific patterns and recent developments. Section 5 suggests policy and measurement recommendations. Finally, Section 6 draws some conclusive comments.

## 2. Background: EU2020 social indicators, experts' recommendations and tax analyses

Homeowners and tenants paying a rent below market price enjoy a housing advantage which is not included in a standard definition of income. Indeed, standard measures of income are based on cash flows. The literature suggests that considering non-cash advantages bound in housing allows for a more comprehensive measure of economic well-being (Smeeding, 1993). Imputed rent for owner-occupied accommodation is the most important form of non-cash income advantage. The difficult perception of this economic advantage is due to dual nature of housing, representing at the same time consumption and investment and to the fact that this advantage is realised in-kind.

In the last years, some studies analysed the redistributive impact of imputed rents (Frick *et al.*, 2010; Eurostat, 2010b). For almost all European countries, the inclusion of imputed rent in the measurement of economic well-being reduces both inequality and poverty (at least until 2010), especially among the elderly and improves the relative position of outright owners (Eurostat, 2010; Frick *et al.*, 2010). The inclusion of imputed rent seems particularly relevant for poverty analysis. Situations of income poverty may not translate into material deprivation once imputed rent is taken into account. On the other hand, non-income poor may be material deprived in terms of housing. For instance, 80% of people deprived in two or more items have income above the median (OECD, 2008). Indeed, Eurostat (2010) finds that assessing poverty based on a definition of income inclusive of imputed-rent gives more consistent results in terms of material deprivation: cash and imputed rent poor generally are more deprived than only cash poor.

As already noted, the EU2020 target for the reduction of poverty and social exclusion is based on a concept of cash disposable income after social transfers for poverty; work intensity and severe material deprivation for the assessment of social exclusion. Material deprivation relates to economic strain (ability to pay rent and utility bills, keep home adequately warm, etc.) and durables (car, washing machine, telephone, etc.). Only the material deprivation sub-indicator considers housing, although in a very transversal and subjective way. Two dimensions of deprivation are linked to housing: arrears on paying rent, mortgage, utility bills and to keep home adequately warm. In this way, a line is drawn between households who can and cannot afford basic housing expenses. Nonetheless, housing expenses are given the same weight as, for instance, owning a car or a washing machine. All other grey areas (households who can afford these expenses but for whom they represent a heavy burden) are lost in this definition of poverty and social exclusion.



Moreover, housing is considered in the European Platform against poverty and social exclusion, the EU2020 flagship initiative to reach the target of reducing poverty and social exclusion by 20 million. In particular, the role of the European Union is to improve access to essential services that support well-being such as housing (among other actions), by for instance identifying best practices and promote mutual learning (European Commission, 2013).

The Indicators Sub-Group (ISG) of the Social Protection Committee discussed the inclusion of imputed rent in the definition of disposable income. The ISG decided that a separate indicator should be developed, but that imputed rent should not be included in the standard definition of income underpinning the main indicator of risk of poverty. The main problems underpinning this decision are:

1. the comparability of imputed rent across Member States;
2. the sensitivity of imputed rent values to estimation methods and the parameters chosen;
3. differences across Member States in the housing markets based on which imputed rents need to be estimated;
4. correct reporting of housing allowances and comparability of different types of mortgage and interest payments;
5. the illiquidity of imputed rents and their relationship with reservation wages;
6. the treatment of mortgage components (principal and interest repayments).

However, the ISG is cooperating with Eurostat on the work on the inclusion of non-monetary income components in the definition of income, including imputed rent (SPC, 2013). The issue of imputed rent goes beyond a pure assessment of poverty. Indeed, it seems necessary in all assessments of the redistributive effects of taxes and benefits. A better estimation of imputed rent in EU-SILC data is particularly important as they are used as input data in the tax microsimulation model EUROMOD. The ability to pay taxes is generally based on monetary income. In most countries, monetary and non-monetary sources of income are taxed differently, which is a violation of the classical principal of horizontal equity (Onrubia et al., 2009). As a consequence, households with different combinations of cash and in-kind income may change their relative position along the income distribution when passing from gross to disposable income augmented with imputed rent, thanks to this differential tax treatment. Taxation of imputed rent exists, in principle, in Belgium, Latvia, Lithuania, Denmark, Luxembourg and the Netherlands (Eurostat, 2010b). However, in practice imputed rent is often based on cadastral values, fully deductible (e.g. for the main residence) or only partially subject to personal income taxation. Property taxes are more common. However, they tax housing separately

from income. It is hardly the case that the taxation of housing is comparable to personal income taxes.

In a revenue neutral context Yagi and Tachibanaki (1998) find that the inclusion of imputed rent under taxable income would improve the effectiveness of the Japanese tax system in redistributing all sources of income (including imputed rent). For Italy, Pellegrino *et al.* (2011) show that the inclusion of imputed rent estimated at market values under taxable income (and at constant tax revenues) gives more progressive results than property taxes, if the redistributive effect is assessed over income augmented with imputed rent. However, if the effect is assessed against monetary income the taxation of imputed rent would increase inequality, due to the presence of income poor-housing rich households (among which elderly are over-represented). In a revenue neutral context, Figari *et al.* (2012) show that the inclusion of imputed rent under taxable income would increase inequality if compensated by a proportional rebate of personal income taxes, while it would decrease it if compensated by a lump-sum tax credit. The position of elderly (income poor house rich) is a key dimension for the assessment of the redistributive effect of imputed rent and its taxation. A definition of income before tax that is closer to the concept of economic income, especially with respect to the economic advantage of homeownership, is necessary for a proper estimation of the redistributive effect of personal income taxes (Onrubia *et al.*, 2009).

### 3. Measurement challenges

#### 3.1 The inclusion of housing in the income concept: methods

The concerns of the SPC are grounded. Indeed, the estimation of imputed rents suffers from some measurement problems, both for internal validity and for comparability across countries. Results on the inclusion of imputed rent in the concept of economic well-being are sensitive to the estimation method (Frick *et al.*, 2008).

For homeowners, imputed rent can be estimated as the rent that they would pay if the house were rented (possibly net of costs such as mortgage interests). For tenants (in social housing or under rent control), imputed rent is estimated as the difference between (estimated) market and paid rent. Alternatively, it can be estimated as the return on the housing value if that capital were invested in an alternative (safe) asset.

The choice of whether to include tenants (paying rent below market prices) as beneficiaries of imputed rent (and therefore of the estimation method) is crucial for the results on the distribution of income. Obviously, the inclusion of tenants with below-market rent reduces poverty and inequality. On the other hand, the inclusion of home-owners only as beneficiaries of imputed rent leads to less positive results: according to Frick *et al.* (2008) inequality and more considerably poverty tend to increase, in particular in Germany. For instance, for the Netherlands the use of the capital market approach (rent is imputed for homeowners only) leads to an increase in inequality and poverty. On the other hand, if market rent is imputed also for tenants with below-market rent inequality and poverty decrease (de Vos, 2007).

Estimates of imputed rent for a large number of countries are available in a few datasets. Since 2007, the national statistical offices of European countries are required to collect information on imputed rent. Nonetheless, the choice of the estimation method is left to them. Following Eurostat (2013; 2010a, 2010b) and Frick *et al.* (2010) we can distinguish between two main approaches and different methods for the estimation of imputed rents.

1. The rental equivalence approach consists of estimating the market rent that homeowners or below-market rate tenants should pay if they had to rent their places at full price. The rental equivalence may be estimated by three methods.
  - a. The first method is an objective measure: the rental equivalence is estimated by an hedonic regression (with Heckman correction).

- b. The second measure is objective and is based on the stratification method.
  - c. The third method is based on a subjective measure.
2. The capital market approach corresponds to the potential returns of the house value investment.

The table below summarizes the approach and method used by each country in the most recent EU-SILC data for the estimation of imputed rent (Eurostat, 2013).

**Table 1: Methods imputed rent**

A1) Rental equivalence – regression (Heckman*)	AT, BE*, CY*, IT*, LU*, LV, NL, PL, UK*, PT <sup>1</sup> , FR
A2) Rental equivalence objective – stratification	EL, IE, ES, FI, LT, NO, SI, RO, MT, BG
A3) Rental equivalence - subjective	EL, ES, CZ, HU
Capital market	EE, IS, SE, SK, CZ

Generally, mortgage interest payments are subtracted from the estimated value of imputed rent (Eurostat, 2010a). Negative values of net imputed rent can be set to zero (Frick *et al.* 2010). We note here that most countries allow for a mortgage interest tax relief. This means that the value of (gross) mortgage interest payments is higher than the amount actually paid after taxes. Unfortunately, the EU-SILC data do not allow to assessing the value of mortgage interests effectively paid<sup>2</sup>. The approach of setting negative values of net imputed rent to zero partially overcomes this problem.

A completely different way to look at the housing situation of households is represented by the out of pocket approach, where cash expenditures for housing (maintenance, bills, rents, mortgage interests) are deducted from disposable income. The conceptual framework underlying this approach relies on a concept of disposable income which defines how much a household is actually free to spend. This is calculated by subtracting necessary expenses, such as for housing from disposable

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<sup>1</sup> Portugal switched from subjective rental equivalence to regression-based rental equivalence.

<sup>2</sup> EU-SILC data contain two variables for the interests paid on mortgage: gross and net mortgage interest repayments. The net variable measures effective payments after taxes. However, for most countries the values of the two variables coincide, even in those where it is possible to deduct mortgage interest repayments. In EU-SILC 2010 twelve countries do not report net values and only two countries report different gross and net values (Finland and Sweden).

income (Raitano, 2012). The main criticism to this approach is that it is affected by consumption preferences (Eurostat, 2010a).

Although other expense (or other in-kind income) should be included, the importance of the distribution of housing wealth and expenditures makes this item more important than others.

### **3.2 Different ways for the inclusion of housing in the income concept for different aims**

The deduction of housing expenses from disposable income seems more suitable for poverty analyses, while the inclusion of imputed rent (better estimated by the capital market approach) seems necessary for tax analyses. This Section illustrates the motivations of this suggestion and the relative methodological aspects.

The advantage of using the out of pocket approach for the measurement of poverty is twofold: it is consistent with the EU2020 target and initiative on poverty and social exclusion and it allows to embedding the housing situation of households into a simple definition of disposable income.

The first advantage of using the out of pocket approach is theoretical. Housing often represents the main expense of households and housing markets are considerably influenced by policies. Moreover, the distribution of housing expenses is very skewed and it affects the relative position of households in terms of economic well-being. If housing expenses are considered as a basic need, income after housing expenses defines the amount of resources households are really free to spend for other goods and services. The EU2020 focus on poverty and severe material deprivation implies that the policy target is the bottom of the distribution in terms of economic well-being. Consistently with the EU2020 target and flagship initiative on poverty and their, although limited, attention to housing, the use of the out of pocket approach can help in identifying those situations of more serious economic and social vulnerability. In addition, the use of the out of pocket approach addresses the SPC concern about the illiquidity of economic advantage derived from housing. This concern may not be convincing from a cross-sectional perspective of economic vulnerability, as the economic advantage derived from housing determines how much households can spend for other goods and services. If two households earn the same income but the first is homeowner and the second has to pay a rent, the first is clearly better off, while the budget of the second is constrained by the amount spent for renting a house. However, the illiquidity concern about imputed rents makes sense from an over-time perspective. Indeed, when house prices or rents increase and, as a consequence, the value of imputed rent, this does not translate into a higher level of economic well-being for homeowners. On

the other hand, if housing costs increase, this translates into a stronger economic vulnerability. The main issue in this operation is how to define the threshold above which housing expenses can be no longer considered as a basic need. The correlation between homeownership and income and the impact that housing policies can have on housing expenses could downsize this issue.

The second advantage of using the out of pocket approach is methodological and addresses most of the concerns raised by the SPC against the inclusion of imputed rent in standard measures of poverty. Returning to the concerns of the SPC about the inclusion of imputed rent in the definition of income, it seems that the use of the out of pocket approach would address most of these points. The main advantage of the out of pocket approach is that it does not require any estimation as it is based on actual costs. The only concern is which costs should be taken into account. More in detail, with the use of the out of pocket approach:

1. there is no choice to make for the estimation method and this would guarantee cross-country comparability;
2. there is no need to estimate values and this would solve the concern about the sensitivity to the estimation method;
3. different housing markets do not represent a problem (as for the estimation of imputed rent);
4. a proper inclusion of mortgage interest payments should be still improved;
5. the illiquidity concern of imputed rents is solved, as actual expenses represent a liquidity problem;
6. it would still be possible to take into account part of the mortgage principal repayment.

Beyond the identification of vulnerable households, a proper estimation of imputed rents is necessary for the assessment of the redistributive effect of taxes. Indeed, the base for assessing the progressivity of taxes should be the tax capacity of people. There is no clear reason why in-kind returns from wealth should be excluded from the calculation of the ability to pay for tax purposes, without violating the principle of horizontal equity. In this case, the distribution of housing wealth and its return is the relevant dimension and imputed rents are the best way to measure it. If imputed rents need to be estimated for tax analyses what matters is the distribution of housing wealth and this requires the estimation of imputed rent for homeowners only. This restriction of the beneficiaries of imputed rent makes the rental equivalence approach (which includes tenants) less suitable. In this case it seems that the most suitable method for the estimation of imputed rent is represented by the capital market approach.

Eurostat (2010b) used to recommend the use of objective rental equivalence approach and, consistently with European National Accounts, the use of the capital market approach if the share of free market tenants is below 10%. This preference was probably based on the need to estimate imputed rent for poverty analyses. However, Eurostat (2010b) acknowledged that the use of the capital market approach is less vulnerable to problems with data and less sensitive to the size of the rental housing market. Recently, Eurostat (2013) suggest the user cost method for its better transparency, simplicity, lower production and respondent burden than the rental equivalence approach. The disadvantage of this method is that it is based on the owner's own estimation of the current market value of the house, which may be subjectively distorted especially for long-term homeowners.

## 4. The impact of including housing on inequality/poverty

### 4.1 Effect of imputed rents on inequality and poverty

For almost all European countries, the inclusion of imputed rent in the measurement of economic well-being reduces both inequality and poverty<sup>3</sup>, especially among the elderly and improves the relative position of outright owners (Eurostat, 2010b; Frick *et al.*, 2010). In 2007, the reduction in inequality due to the inclusion of imputed rent in the income concept ranged from a minimum of -0.3% in France to a maximum of -11% in the United Kingdom (Eurostat, 2010b). The only two exceptions are the Netherlands and Norway, where the inclusion of imputed rent increases inequality by 1%. Frick *et al.* (2010) find similar results for a subset of countries in 2002-2004. The decline in the Gini coefficient after the inclusion of imputed rent was highest in the United Kingdom (-6%) and lowest in Belgium (-1.3%). Notwithstanding the different impact of imputed rent on inequality across countries, their ranking according to the inequality level does not change substantially (Eurostat, 2010b): only Italy becomes more unequal than the United Kingdom when imputed rent is included (Frick *et al.* 2010). For Spain, Onrubia *et al.* (2009) find that the inclusion of imputed rent estimated at market values in the income concept increases inequality with respect to the case in which it is estimated at cadastral values. In 2010, the largest reduction in inequality due to imputed rent<sup>4</sup> is recorded for Spain, Malta and the United Kingdom (above 10%), while an increase in inequality is recorded in Netherlands, Germany and Denmark (Figure 3). The poverty rate is reduced the most in the United Kingdom and Spain (above 20%), while it is increased by the inclusion of imputed rents in several countries (Figure 4).

About material deprivation, 80% of people deprived in two or more items have income above the median (OECD, 2008). Indeed, Eurostat (2010b) finds that assessing poverty based on a definition of income inclusive of imputed-rent poverty gives more consistent results in terms of material deprivation: cash and imputed rent poor generally are more deprived than only cash poor. As for inequality, one of the largest reduction in poverty due to imputed rent is found for the United Kingdom: the share of people with income below 60% of the median declines by 17% (Frick and Grabka, 2010) to 28% (Eurostat, 2010b). Ireland, Estonia and Spain also enjoy a considerable

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<sup>3</sup> At least until 2009.

<sup>4</sup> These values are based on imputed rental values available in 2010 EUSILC, estimated according to the method followed by each country (see Table 1).



reduction in poverty (20-29%) thanks to the inclusion of imputed rent (Eurostat, 2010b). Greece<sup>5</sup> also shows a considerable decline in poverty due to imputed rent (Frick and Grabka, 2010).

The importance of the effect of imputed rent on measures of income distribution and redistribution depends on the share of home-owners and of tenants with below-market rent in each country, their position along the income distribution, the relative income change due to the inclusion of imputed rent and the correlation between imputed rent and income. Indeed, the size of the effect of the inclusion of imputed rent in the income concept varies widely across countries. Finally, the estimation of imputed rent with the rental equivalence approach may overestimate its redistributive effect. In fact, estimation procedures used for EU-SILC data do not take into account the area in which the house is located, but at best the municipality. Therefore, all variability of imputed rental values within municipalities is lost. This compresses the distribution of imputed rents.

## 4.2 Effect of imputed rent on income re-ranking

### 4.2.1 Extent of re-ranking

The existing literature on imputed rent and economic well-being stresses the positive effects of imputed rent in reducing inequality and poverty. However, the income re-ranking of household generated by imputed rent and the bias that this omission has on the assessment of the tax capacity of households was less researched. A valuable contribution to complementary aspects of imputed rent is represented by the literature on the redistributive effects of taxing imputed rent (see for instance Figari *et al.* (2012); Pellegrino *et al.* (2011)).

The re-ranking effect generated by imputed rent can be a useful indicator for the importance of the housing market for the economic well-being of households and for the identification of vulnerable groups.

Here, re-ranking is defined as the share of households who change income quintile due to the inclusion of imputed rent in the income concept. The extent of re-ranking is very large among European countries, although it varies considerably. Figure 2 shows the pre-tax and after-tax shares of re-ranked households by country in 2007. On average, the inclusion of imputed rent in the concept of economic well-being re-rank 18% of the households before tax and 32% after tax. Czech Republic reports the lowest extent of re-ranking due to imputed rent (3%) and Hungary the highest

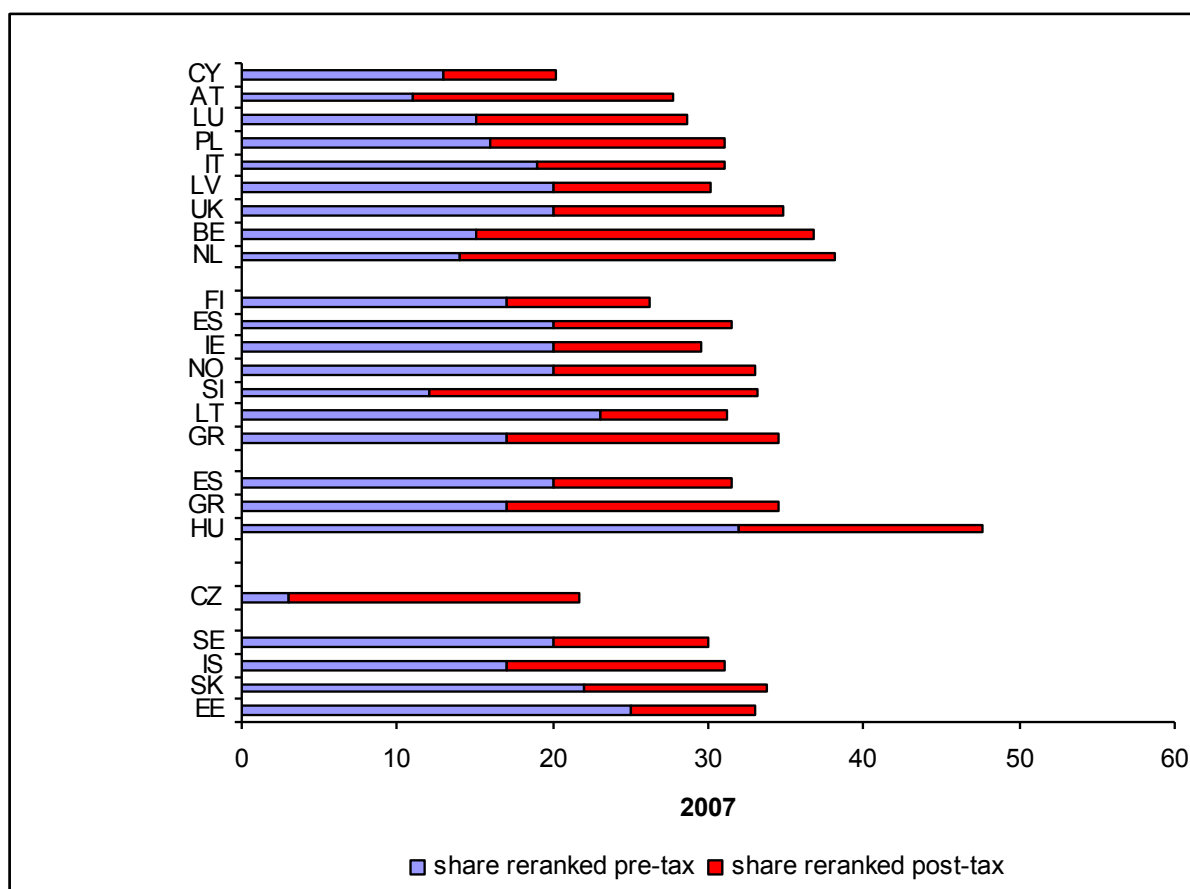
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<sup>5</sup> Greece (and Germany) is not considered in Eurostat (2010b).

(32%), by considering pre-tax income. Hungary has again the largest extent of re-ranking when considering after tax income (38%), while Cyprus has the smallest (20%).

The extent of re-ranking due to imputed rent is larger for post-tax income than for income before taxes, even considering property taxes. Indeed, in EU-SILC data property taxes are deducted from gross income and included for the calculation of disposable income. This result suggests that the burden of taxation on imputed rent is smaller than that on other sources of income (e.g. labour).

**Figure 2: Extent of re-ranking, 2007**



Source: Maestri (2012). Original data: EU-SILC 2007.

Nonetheless, the extent of re-ranking can be more meaningfully compared across countries that calculate imputed rent with the same method. In Figure 2 countries are grouped according to the method used (see Table 1). Figure 2 shows that the calculation of imputed rent with the capital market approach corresponds to a lower extent of re-ranking. Indeed, the effect of imputed rent calculated with this method affects a smaller share of households, namely homeowners. The results for 2008 and 2009 are very similar to those reported in Figure 2 in terms of country ranking.

The income re-ranking of households due to the inclusion of imputed rent may determine transitions into and out of poverty. Table 2 shows that a considerable share of households are lifted out of poverty if imputed rent is considered, while some other households fall into relative poverty.

**Table 2: Transitions into and out of poverty - imputed rent**

		Disposable income after imputed rent	
		Poor	Non-poor
Disposable income	Poor	76%	24%
	Non-poor	2%	98%

Source: own elaboration based on UDB EU-SILC 2010.

#### 4.2.2 The tenure groups most affected by imputed rent vary among Member States

The inclusion of imputed rent in the income definition changes the relative income position of different tenure groups. However, the tenure groups more negatively or positively affected by the inclusion of imputed rent vary greatly by country. We can classify the countries in three broad groups, according to the impact of re-ranking on different tenure categories.

1. Eastern European countries: for these countries re-ranking mostly occurs within the category of outright owners and not between different tenure groups. This result is clearly affected by the very large share of outright homeownership that characterizes these countries.
2. Southern and most continental countries: renters in the private market are downward re-ranked by the inclusion of imputed rent and outright owners are upward re-ranked.
3. Nordic countries with a large extent of mortgages: homeowners with a mortgage are often re-ranked down (Iceland, Norway, United Kingdom). The UK tax system does not allow anymore the possibility to deduct mortgage interest payments for the main residence. Therefore, the result for the UK is not sensitive to the measurement of net imputed rent based on before tax mortgage repayments. In the Netherlands a considerable share of homeowners with mortgage are re-ranked down. However, homeowners in the Netherlands enjoy one of the most generous system of mortgage interest tax deductions. The amount they actually pay for mortgage interests is considerably lower than their face value and, consequently, their effective net imputed rent is higher than that calculated with these data and method. In Sweden homeowners with a mortgage are the most re-ranked category as in the other Nordic countries. Contrary to the other Nordic countries, this re-ranking mostly occurs upward. Sweden also allows for a mortgage interest tax relief. Therefore, the advantage of homeowners with a mortgage could be even higher if mortgage interest

payments after taxes were considered in the calculation of net imputed rent, instead of their gross value (Maestri, 2012).

The analysis of re-ranking by tenure status suggests some specific comments for the categories of social and free tenants.

- A. Social tenants (in countries where social tenancy is relatively high): in Belgium and the United Kingdom social tenants are considerably re-ranked upward, as expected. Indeed, they should be better off than market tenants and in some cases they are better off than homeowners with an outstanding mortgage. This also means that households not eligible for social housing (e.g. because they have income above the cutoff threshold) lose in relative terms of economic well-being once considering their housing (dis)advantage. In fact, the difference they have to pay for renting a house in the private market with respect to social tenants may offset their relative net monetary income advantage. For the Netherlands, a considerable share of private tenants is re-ranked upward. However, the EU-SILC data for the Netherlands do not distinguish between private and social tenants, although a considerable share of tenants live in social housing. On the other hand, in a few countries (Czech Republic, Ireland, Norway) and in particular in Finland many social tenants are re-ranked downward almost as much as market tenants. This result suggests that in these countries the housing advantage of social renters is small (e.g. the social rent may be relatively high) or the estimated “market value” of social houses very low.
- B. Free tenants: the category of free tenants enjoys a considerable upward re-ranking in Austria, Cyprus, Greece, Hungary, Italy and Spain. On the other hand, free tenants are re-ranked downward in some Eastern European countries (Estonia, Lithuania, Slovenia). This fact means that they live in smaller/cheaper houses. In Poland the extent of re-ranked free tenants is striking both upwards and downwards (above 30%). Indeed, the share of free tenants is above 30% overall. It is difficult to identify the characteristics of this group of tenants (Eurostat, 2010b). However, the definition of this particular tenure category deserves further investigation for some Eastern and Southern European countries (Maestri, 2012).

#### **4.2.3 Imputed rent reliefs older households**

The inclusion of imputed rent in the income concept (after taxes) mostly benefits over 60 year-old. Indeed, older households are overrepresented in upward re-ranking, while households with the head aged between 20 and 40 are mostly re-ranked downward. The only exception seems Sweden, where

the impact of imputed rent does not seem to depend on the age profile of the households, as much as for other countries. In most countries, the older households who benefit from imputed rent are often classified as income poor (Maestri, 2012).

#### **4.2.4 Imputed rents in the early phases of the recession**

On average across European countries, the importance of imputed rents, as measured by the extent of income re-ranking seems on a declining trend. On average across countries, the extent of re-ranking due to imputed rent remained stable in 2008 and in 2009 it slightly decreased by 1% (Maestri, 2012).

However, during the early phases of the Great Recession some Member States seem to have undergone considerable changes in their housing markets. During the period 2007-2009, Cyprus and Ireland experienced an exception increase in the extent of re-ranking, +36% and 19%, respectively. During the same period, Latvia and United Kingdom reported a considerable decline in re-ranking of 39% and 24%, respectively. Poland and Norway experienced dramatic changes in the extent of re-ranking, that went in opposite directions between 2007-2008 and 2008-2009. Indeed, the share of re-ranked households increased by 19% and 16%, respectively, in Poland and Norway between 2007 and 2008 and the following year decreased by 21% and 22% (Maestri, 2012).

These data suggest some comments on the effect of the financial crisis on imputed rents. On the one side, the financial crisis determined a fall in house prices. On the other, foreclosure increased the demand for rental houses and this, in turn, can increase rental prices. As a consequence, the housing advantaged of homeowners may change. However, the effect of the crisis on imputed rent can be transmitted into the value of imputed rent in a different way depending of the estimation method used. A fall in house prices translates into a fall in imputed rental values for homeowners if imputed rent is estimated according to the capital market approach. An increase in imputed rental values could be observed in countries which adopt the rental equivalence and subjective methods. Nonetheless, it is difficult to single out the effect of the crisis from the extent of re-ranking generated by imputed rent (Maestri, 2012).

The apparent declining importance of imputed rents is confirmed by recent estimates of the redistributive impact of imputed rents. In 2010, the redistributive power of imputed rent is smaller than in previous years. Indeed, the inclusion of imputed rent in disposable income increased relative

poverty in some countries such as Sweden, France and Luxembourg (see Fig. 4)<sup>6</sup>. For the period 2007-2010 Eurostat (2013) reports a stable median income share of imputed rent for several countries. These facts suggest that imputed rent has less power now in compressing the income distribution than before.

**4.3 Effect of housing expenditures on inequality and poverty**

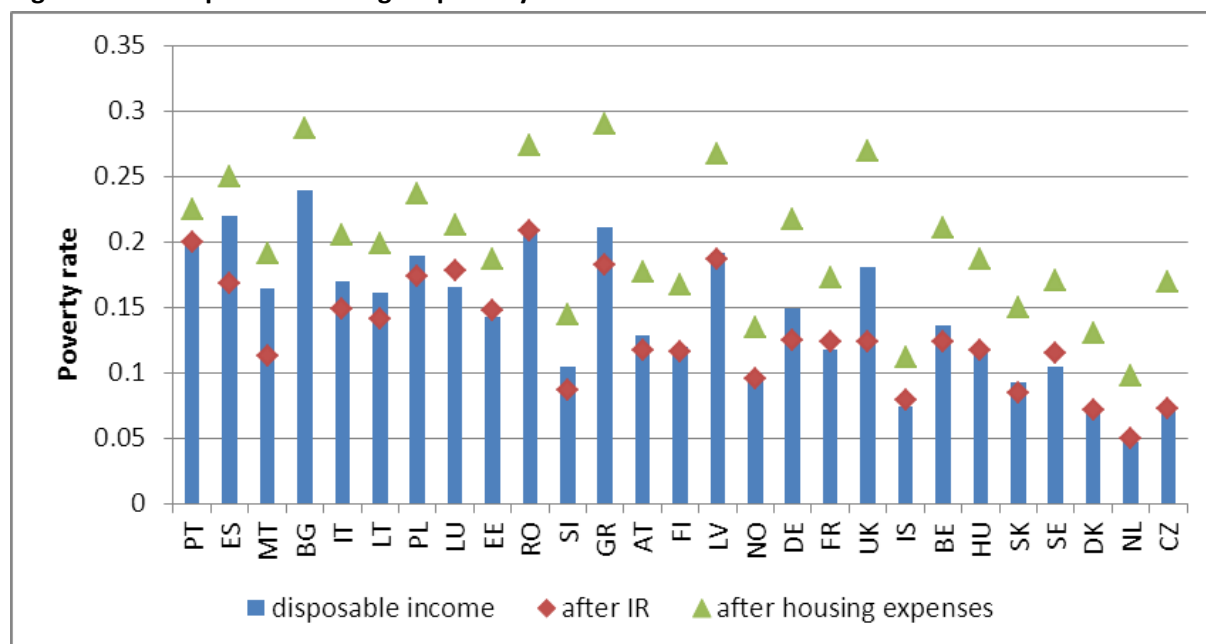
Contrary to the results obtained by the mainstream literature with the inclusion of imputed rent in the income concept, the out of pocket approach provides opposite results. Disposable income after housing expenses is much more dispersed than only cash income (Raitano, 2012). In EU-SILC data housing expense include rent payments, mortgage interest payments, structural insurance, mandatory services and charges, regular maintenance and repairs, taxes, cost of utilities.

**Figure 3: The impact of housing on inequality**



Source: own Source: own elaboration based on UDB EU-SILC 2010.  
 Notes: no available data for CY, IE; no data on imputed rent for BG; imputed rent is gross for all countries with the exception of DE. Countries are sorted in increasing order of the % increase in inequality due to the inclusion of housing expenses.

<sup>6</sup> These results are slightly different from Eurostat (2013).

**Figure 4: The impact of housing on poverty**

Source: own elaboration based on UDB EU-SILC 2010.

Notes: no available data for CY, IE; no data on imputed rent for BG; imputed rent is gross for all countries with the exception of DE. Countries are sorted in increasing order of the % increase in the poverty rate due to the inclusion of housing expenses. The poverty threshold of disposable income after housing expenses is based on a new income threshold calculated after housing costs.

For 2007, Raitano (2012) finds that income inequality increases in all EU-15 countries, in particular in Denmark, Sweden, Germany, and Belgium (larger than 20%<sup>7</sup>). Portugal, Ireland and Spain register the smallest increase in inequality (smaller than 10%). The inclusion of imputed rents or the deduction of housing expenses change substantially the income inequality ranking of some countries. However, the income inequality ranking of Sweden, Greece, Italy and Portugal is not sensitive to their specific housing market and to how these are taken into accounts.

The effect of the inclusion of housing expenses in disposable income does not change in 2010: it increases inequality in all countries. Figure 3 and 4 report the redistributive effects of the two approaches (imputed rent and housing expenses) for all countries available in 2010 EUSILC data.

However, the large increase in income inequality in countries such as the Netherlands and Denmark<sup>8</sup>, highlights once again a measurement problem: housing costs are gross and mostly gross mortgage interest payments are included.

<sup>7</sup> In the Netherlands income inequality increases by the same extent (+23%) also with the imputed rent approach.

<sup>8</sup> According to Eurostat (2013), for Denmark there may be a double counting of mortgage interest repayments using standard procedures for the inclusion of net imputed rent in disposable income.

The two approaches (imputed rent and out of pocket) are symmetrical: the larger the inequality and poverty reduction found with imputed rent, the smaller the inequality and poverty increase obtained by deducting housing expenses. Countries in which homeownership reduces to a larger extent inequality and poverty, are less affected by housing expenses. However, the position of individual households may radically changes. Table 3 shows that 8% of households not defined as poor by standard indicators fall into poverty once housing expenses are take into account.

**Table 3: Transition into and out of poverty - housing expenses**

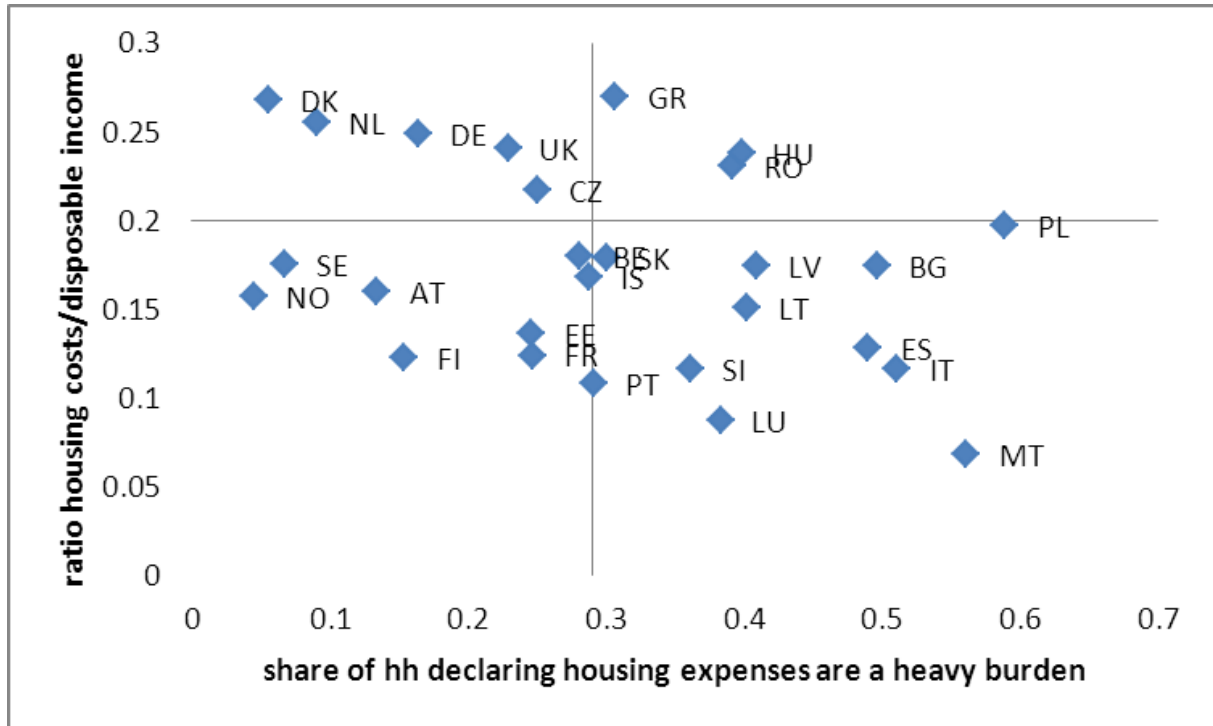
		Disposable income after housing expenses	
		Poor	Non-poor
Disposable income	Poor	95%	5%
	Non-poor	8%	92%

Source: own elaboration based on UDB EU-SILC 2010.

Moreover, it is interesting to look at the burden of housing expenses and their perception. Figure 5 plots the relationship between the share of households for whom housing costs are a heavy burden and the actual weight of housing costs on disposable income for each country. For countries in the top left and bottom right panel these two dimensions do not overlap. Countries in the top right panel have a high burden of housing costs, but a smaller share of households considers it as an excessive burden. The inclusion of countries such as the Netherlands in this group warns about a simple inclusion of mortgage interests in total housing costs. Countries in which the burden on housing expenses is a relatively low burden, but in which a large share of households considers it a heavy burden may signal unaffordable housing costs if household dynamics were different. This idea is supported by the fact that the countries in the bottom right panel are mostly Southern and Eastern European.



Figure 5: Housing costs and perception



Source: own elaboration based on 2010 EUSILC data.

Notes: lines represent median values.

## **5. Policy and measurement recommendations**

The increasing importance of housing wealth and expenses suggests that housing is a more important dimension of the household's economic well-being than years ago. Attention to housing is already present, at least partially, in the EU2020 target and flagship initiative on poverty and social exclusion. However, these facts call for a clearer inclusion of housing at policy level.

We have identified two policy aims related to EU2020 social indicators and underlying data: the assessment of economic vulnerability and of the redistributive effect of taxes. A definition of disposable income after housing expenses (and hence the use of the out of pocket approach) is a suitable candidate for the measurement of poverty consistently with the EU2020 target of poverty and social exclusion. At the same time, the out of pocket method seems to avoid most of the measurement challenges. The inclusion of housing costs shows an increased economic vulnerability of households, especially in some country. On the other hand, the inclusion of imputed rent in the income concept shows an increased economic well-being and considerable re-ranking of households. For this purpose, the assessment of the (in-kind) wealth returns to housing could be better captured by the capital market approach. This method avoids some of the measurement challenges, although further improvements are needed, as well as the availability of relevant data.

The inclusion of housing in disposable income helps in the identification of the most vulnerable groups in terms of economic well-being and may help in better targeting social policies. The comparison of disposable income poverty and inequality indicators with those including housing wealth or expenses provides a useful indication of the importance of housing markets for economic well-being in each Member State.

At present, we identify the following problems in EUSILC data and indicators:

- For almost all countries net series of mortgage interest payments in EUSILC data correspond to gross values;
- Income refer to the previous year, while housing information to the current year;
- The identification of different categories of tenants is still poor in some countries;
- The concept of disposable income underpinning poverty indicators includes paid property tax, but not its corresponding economic advantage (imputed rent).

Further improvements need to be made in terms of data, in particular with reference to the EU-SILC:

- Mortgage interest payments should be recorded at their net values, as to avoid that in Member States such as the Netherlands (where imputed rents are found negative for a large share of households<sup>9</sup>) the strategic allocation between principal amount and interests (due to tax reasons) affect the results;
- Alternatively tax microsimulation models could be used to provide coefficients of transformation by income bands;
- The reference year for housing expenses and in-kind returns should be synchronised with income data.

In terms of methodology:

- the values of housing expenses could be capped, in order to avoid the inclusion of housing consumption preferences in the concept of disposable income; formulas for the capping of housing expenses are already in place in some countries (see, for instance, the calculation of the Subsistence Benefit in Estonia);
- The value of paid property tax should be excluded from the calculation of disposable income as currently done in EU-SILC data, unless the value of imputed rent is included;
- Including part of the principal mortgage repayment should be further investigated for the use of the out of pocket approach.

Finally, country specific situations suggest some further comments:

- The use of the out of pocket approach could be less relevant for new Member States, in which the dispersion of economic well-being seems better explained by the dispersion of property values than by differences across tenure groups;
- The out of pocket approach seems the most suitable for Southern and continental EU Member States;
- The high share of homeowners with an outstanding mortgage, especially in Nordic countries, call for further thoughts on the treatment of debt; new ECB data on household finances could provide useful hints in this direction.

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<sup>9</sup> The concern about Dutch data is confirmed in Eurostat (2013).

## **6. Conclusions**

This paper highlighted the increasing importance of housing wealth, mortgage debt and housing expenses and how this stylized fact does not receive full attention at policy level.

Although experts' groups for the measurement of income recommend to including imputed rent in the concept of economic well-being, this variable is not included in EU social indicators. This choice is motivated by measurement and theoretical concerns.

Different methods are available for the inclusion of the housing situation of households in the concept of disposable income. We can distinguish between two main approaches: adding imputed rent and deducting housing expenses from disposable income. The first can be estimated with different methods, which can be summarized in the rental equivalence and capital market methods. The second is obtained with the out of pocket approach, which seems to positively address most of the concerns raised by the ISG about imputed rents.

The out of pocket approach seems more suitable for measuring poverty in terms of household vulnerability, while a proper measurement of imputed rents may be more appropriate for assessing the redistributive effect of taxes. Supplementary indicators including imputed rents or deducting housing expenses can provide useful indications for the identification of the most vulnerable groups in a static context and for a better targeting of social policies. Subjective assessments of housing costs could be more useful in the identification of difficult housing markets, which may be partially hidden by households' behaviour.

The paper showed that including imputed rents in the income concept reduces inequality and poverty, while deducting expenses from disposable income has the opposite effect. Moreover, imputed rents generate a considerable extent of income re-ranking. The size of these effects and the tenure categories most affected vary considerably across Member States. On the other hand, Member States are similar in the relieving effect that imputed rents have on older households. The early phase of the recessions seem to have reduced the redistributive impact of imputed rents.

Further improvements in terms of data and methodology are need, in particular the recording or calculation of net mortgage interest payments and the need to cap housing expenditures.

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