INCLUDING IMPUTED RENT IN THE INCOME CONCEPT ESTIMATES AND DISTRIBUTION FOR FLANDERS AND BELGIUM

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INCLUDING IMPUTED RENT IN THE INCOME CONCEPT. ESTIMATES AND DISTRIBUTION EFFECTS FOR FLANDERS AND BELGIUM

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Abstract: In this paper we broaden the definition of economic resources from the narrow concept of current disposable income (the sum of market income and cash transfers minus direct taxes and social insurance contributions) towards the inclusion of imputed rent. We provide an overview of different techniques to estimate imputed rent for Flanders and Belgium, based on the methodology presented by Frick & Grabka (2003). We then apply the opportunity cost approach. Calculations are performed on the micro-data of the EU-SILC of the survey year 2008 (with income data referring to 2007). These estimates allow us to assess the distribution effect of including imputed rent in the income concept.

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1. Introduction

From a welfare perspective, all economic resources that a household commands determine its welfare levels. This means that also the value of non-cash incomes should be included. Non-cash incomes can be divided into two broad categories, namely private non-cash income components and publicly-provided services (such as free health care and education). The size of both these categories can considerably affect the welfare levels of households. In this paper we investigate an important private non-cash income component, namely the value one derives from living in a home that (s)he owns. Home-ownership has a large impact on a household's expenditure structure (Canberra Group, 2001). Firstly, mortgage-free owner-occupiers are much better off than renters with comparable cash incomes. Secondly, the impact of mortgage payments can lower a household's disposable income considerably. Because of the large proportion of home-owners in Flanders (and Belgium), a serious attempt to estimate the economic well-being of households should take the non-cash advantage derived from home-ownership, the so-called 'imputed rent' (IR), into account. As pointed out by the Canberra Group (2001), the way in which is dealt with the income value of home ownership is crucial for distribution analyses. Also tenants who benefit from below-market rent or rent-free accommodation can be considered as beneficiaries of IR; by also considering this group, we also account for a (small) category of publicly provided non-cash income. Empirical evidence shows that inequality is reduced when a value for imputed rent is included in the income concept (see e.g. Smeeding et al., 1993; Cantillon & Meulemans, 1993; Frick & Grabka, 2003; Frick et al., 2006; Frick et al., 2010). The method used to estimate a value for imputed rent has an impact on the results and requires careful consideration.

This paper provides an estimate of the monetary value of IR in Flanders and Belgium for home-owners and tenants who benefit from below-market or free rents, based on the data of the 2008 wave of the Survey of Income and Living Conditions (SILC). We use the opportunity cost approach to provide estimates of IR. These estimates are used to calculate the effects on inequality and poverty of incorporating IR in the income concept. Our paper is structured as follows. After the introduction, we present a short

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overview of federal and Flemish housing policies in Belgium, as well as the current situation on the housing market. Next, we briefly discuss the data and the methods used to estimate IR. The following section deals with the distribution effects of including IR in the income concept. We present our results using a range of inequality and poverty indicators. The last section concludes.

2. The housing market and housing policy instruments in Belgium

2.1 The housing market

Ever since the Second World War, efforts to support families in the acquisition of a private dwelling have been the core of Belgian housing policies. This resulted in a housing market where owner-occupied dwellings are dominant. About 68% of Belgian households live in a private home they own (European Commission 2003). The impact of social housing on the total market remains limited: only 5.7% of households are renters of social housing, which is below the European average. The remaining part of the housing market, about 26%, is a private rental market, which provides accommodation for many low-income households.

Table 1: Tenure status of households in Belgium, 2001.

	Belgium	Flanders	Walloon Region	Brussels Capital Region
Number of dwellings (*)	3,872,563 (100%)	2,244,512 (100%)	1,252,321 (100%)	375,730 (100%)
- owner occupation	2,715,228 (70,1%)	1,668,886 (74.4%)	883,328 (70.5%)	163,014 (43.4%)
- renting	1,157,335 (29.9%)	575,626 (25.6%)	368,993 (29.5%)	212,716 (56.6%)
Social renting (2004)(**)	273,000 (7%)	135,000 (6%)	100,000 (8%)	38,000 (9.5%)

Source: De Decker (2006).
(*) based on National Institute of Statistics (Census 2001)
(**) approximate figures, derived from various regional sources

Information from the Census for 2001 and a housing survey for 2005 (Heylen e.a. 2007) gives a similar picture as the commission's ECHP-based figures (see Table 1). The census reveals significant regional differences in tenure structure. Owner

occupation is most frequent in Flanders (74%), against only 43% in Brussels. The Walloon Region is similar to Flanders with 70% owner occupiers. Regional differences in social renting are much smaller, despite large differences in the size of the rental market. The Walloon Region has the largest proportion of social renters (9%). In Brussels, where the rental market accounts for the shelter of more than half of all households, only 8% of households are social renters.

During the last decade, prices on the Belgian housing market witnessed a boom comparable to what happened in most other European countries. The average house price doubled from 1995 to 2005. As Belgians are said to have a "brick in the stomach", this caused concern regarding access to home ownership. Up to the mid-nineties, most research pointed out that low income groups are facing increased difficulty in property acquisition (e.g. Meulemans et al., 1996).

2.2 Housing policy

Housing policy is a mixture of federal, regional and local policies. The federal level provides important tax advantages for home ownership. Following state reforms in the eighties, part of housing policy has become a responsibility of the regions. Consequently, Brussels, Flanders and the Walloon Region each have their own housing policies. Although the support of home acquisition remains the dominant policy track, the regions are increasingly investing in the provision of social rent housing (see e.g. Vlaams Minister van Binnenlands Bestuur, Stedenbeleid, Wonen en Inburgering (2004)).

2.2.1 Promotion of home-ownership through the tax system[2]

From 2005 onwards, the tax treatment of the dwelling one owns has changed considerably. Before 2005 'cadastral income' was part of taxable income. 'Cadastral income' (CI) is the average normal net income that real estate provides to its owner. This corresponds to an estimation of the average normal net rent value of the property for one year (at the reference time, which is 1 January 1975). CI is subject to annual *indexing* (the index for tax year 2010 is 1.5461). There were 4 possibilities of tax relief an owner could apply for:

(a) The *normal interest deduction*: interest payments on mortgages for purchasing or renovating a home can be deducted from income from real estate, if the loan has a term of at least 10 years. This deduction cannot exceed CI.

(b) The *dwelling allowance*: part of CI is exempt from taxes, which is known as the dwelling allowance. This amount is increased for each dependent person (incl. spouses), for disabled heads or partner, and for widow(er)s with dependent children. Depending on the level of the taxable income, owner-occupiers can be entitled to a so-called additional dwelling allowance. The deductible amount of both the dwelling and the additional dwelling allowance may not exceed income from real estate.

(c) The *additional interest deduction*: the interest that remains after the normal deduction of interest may likewise be deducted from total income on condition that the mortgage was raised in order to build, purchase or renovate a home in Belgium, and that the loan was contracted after 30 April 1986 for a term of at least 10 years. This additional interest deduction is restricted in function of the number of years that the rental value income of the real property in question has been included in the taxable income. For the first five taxable years, the

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[2] Apart from the tax treatment in the federal tax system, regional and local taxes also play a role in housing policy in the form of the *withholding tax on property income* (WTPI). It is calculated on the basis of the CI net of interest payments. It has three components: a regional, a provincial (= surcharge on the regional WTPI) and a municipal (= surcharge on the regional WTPI), and can be considered as an extra tax on the dwelling. Moreover, transaction costs for purchasing a house are considerable in Belgium (even among the highest in Europe) due to registration rights, which belong to regional competences (Catte et al., 2004). Transaction costs are the lowest in Flanders (amounting 10% of the house price, 5% for small houses), plus 1-2% additional transaction costs regardless the region of purchase.

deduction amounts to 80%, and for the next seven years it diminishes by 10% yearly, ending with a deduction of 10% in the seventh year.

(d) The *tax credit for capital redemption payments*: the capital redemption for a mortgage loan with a term of at least 10 years entitles an owner-occupier to an extra tax reduction (in the form of a tax credit). This reduction is calculated on a maximum limit of the initial loan, which is comparable to that applied for the additional interest reduction

For mortgage loans that started before 2005, measures (a), (c) and (d) still apply.

From 2005 onwards, the dwelling allowance has been abolished, and the CI of the only self-occupied dwelling has become tax exempt in the personal income tax system. For owners with a mortgage loan that is contracted after 1 January 2005, the three other tax advantages (interest deduction, additional interest deduction, tax credit for capital redemption payments) have been replaced by the so-called 'dwelling bonus', which is only applicable for mortgages contracted for the own, self-occupied and only dwelling and that have a term of at least 10 years. When these conditions are fulfilled, the tax payer can deduct each year a basic amount of 1,500 Euro from his taxable income (indexed to 2,080 Euro for tax year 2010). The tax advantage is thus applied at the marginal tax rate. This basic amount can be increased with (a) 500 Euro (690 for 2010) during the first 10 years of the term of the mortgage and with (b) 50 Euro (70 Euro for 2010) when there are three or more children in the household.

2.2.2 Social housing policies

Social housing policies are entirely part of regional competences. In general, the regions follow three policy tracks: social renting, social home purchasing and social loans. Social renting remains the dominant policy for the provision of social housing, with the annual number of newly constructed houses for social renting amounting to the three to fourfold of the number of houses built for social home purchasing over the past decade in Flanders. To stimulate ownership, social loans are available from local government institutions and municipal social renting organizations. Conditions vary but, depending on the target group, relate mainly to income, number of children and value of the purchased dwelling.

Rental subsidies are virtually non-existent. In Flanders, a small system of rental subsidies exists for emergency cases; in practice, this belongs rather to welfare than to general housing policies. This subsidy is means tested and only applies to occupants of 'unhealthy' homes, renters who are forced out of their home in so-called 'housing emergency areas' or homeless people.

In view of the empirical analysis, we focus here on the social renting system. Policy strategies are outlined in the regional governments, while the more managerial and coordinating aspects are delegated to a non-profit public company (one per region). Between the regions, the main differences relate to generosity and eligibility criteria. Local authorities have considerable freedom in the implementation of the regional regulation, to develop a housing policy suited to the needs of the municipality, including the provision of social housing. Hence, differentiation stems mainly from local policies. The social housing projects are then carried out by Social Housing Companies (private companies with municipalities as the main shareholder), that build, own and sell or let the actual houses. Apart from this system, also social letting offices operate under the social housing system. They rent dwellings on the private market and let these to social renters. If necessary, they carry out renovation works in these dwellings in order to make them in line with the applicable standards.

To be eligible for social renting, one has to fulfill an income condition and a property condition. For single persons, yearly income should not exceed 18,788 Euro, while for families (with dependents) the limit is 28,182 Euro, increased with 1,575 Euro for each dependent. The property condition implies that no person in the household can already own a dwelling or building land. In Flanders two more conditions were added as of 2006. The first relates to language skills: one should be able to prove a basic knowledge of Dutch or be willing to follow a Dutch language course corresponding to the European reference level A1 (breakthrough). The second stipulates that newcomers for whom civic integration training is obligatory, should have obtained the civic integration certificate or prove the intention to do so.

According to a study for Flanders on the basis of survey data for 2005, 39% of private renters (11.6% of all Flemish families) are eligible to rent in the social housing system. However, only 15.8% of them actually applies (Winters et al. 2007). They are placed on a waiting list and have to renew their candidacy every two years. In 2007, 75,735 households (3% of all Flemish households) were on the waiting list in Flanders (statistics VMSW 2008) 25,029 (5% of all households) in Brussels (Welzijnsbarometer Brussel 2007) and 31,070 (2% of all households) in Wallonia (SWL 2009). The assignment of the houses takes place on a chronological basis, but in specific cases exceptions and priorities apply (e.g. for disabled persons in houses adapted to their needs, for persons from the local community). Yet, the average waiting period amounted to 2.5 years in 2007 for Flanders (statistics VMSW), and 5 years in 2008 for Wallonia (SWL 2009).

The amount of social rent is determined at the regional level and is calculated on the basis of a formula which takes into account the tenant's income, the size of the family and an indicative measure of the private rental market value of the house, to reflect the quality of the dwelling. The upper limit of the monthly rent is set by 1/55 of household's yearly income, while the lower limit consists of 100 Euro/month for basic social housing, to 200 Euro/month for more expensive social housing (higher quality / bigger size). Generally, average rent prices vary between the local entities along with the average income of its social renters, so large differences exist.

The socio-economic profile of social renters largely corresponds to the society's most vulnerable: elderly (65+), lone parents, unemployed, non-EU citizens and lower educated are overrepresented among the social renters. Half of the social renters belong to the bottom quintile of the income distribution (Winters et al. 2007).

The regional governments support the provision of social housing via project-subsidies to the Social Housing Companies. There is no direct relation between the subsidy and the level of rent. Apart from these subsidies and the social rents, Social Housing Companies cannot have additional income sources. It is assumed that with the mix of higher and lower income renters, the subsidy on average reconciles the bridge between the cost of provision and the rent price. However, some companies do

not attain the equilibrium, especially in the cities, where the average income of social renters is often below average. They are currently additionally supported with more ad hoc subsidies (Winters et al. 2007).

3. Data

3.1 The dataset: EU-SILC

The most recent available version of **EU-SILC** (survey year 2008, with income data referring to 2007) provides the micro data (EUROSTAT). Unfortunately, we have not yet the Belgian dataset of the corresponding year at our disposal, which apart from the variables provided to EUROSTAT also contains extra information on some crucial variables (e.g. more details on housing costs).

The data allow us to distinguish households who own their home outright and those who are paying off a mortgage. Among tenants we can distinguish three categories: 1) tenants at the private, non-subsidized market, 2) tenants who rent at a reduced rate, and 3) those who rent for free. For tenants with reduced rent the data do not allow to differentiate between beneficiaries from social housing and those whose reduced rent is granted by their landlord (employer, local authorities, relatives etc.).

Table 2: Tenure status in EU-SILC, Flanders (FLA) and Belgium (BE), 2008.

	% of households		% of individuals living in a household of …		N (=number of cases)	
	FLA	BE	FLA	BE	FLA	BE
Owners	72.6%	67.3%	77.6%	73.2%	6,576	11,173
- owner outright	*40.1%*	*36.9%*	*35.6%*	*32.9%*	*3,062*	*5,044*
- owner with mortgage	*32.5%*	*30.4%*	*42.0%*	*40.2%*	*3,514*	*6,129*
Renters	27.4%	32.7%	22.5%	26.8%	1,693	3,902
- private market	*17.9%*	*22.0%*	*15.0%*	*18.4%*	*1,120*	*2,653*
- reduced rent	*8.1%*	*8.7%*	*6.5%*	*7.1%*	*495*	*1,024*
- rent-free	*1.4%*	*1.9%*	*1.0%*	*1.4%*	*78*	*225*

Source: own calculations on EU-SILC 2008.

Table 2 presents tenure status of households and individuals. In line with other sources (cf. supra), the SILC-data show a high share of home owners: about two thirds of all households in Belgium live in an owner-occupied house, which

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corresponds to 73% of all individuals. In Flanders homeownership is on average more widespread, with 73%, resp. 78% of households, resp. individuals. Somewhat less than half of these individuals own outright, whereas a majority of owners has an outstanding mortgage. Around a quarter of households (and 22% of the population) lives in a dwelling that is rented in the private non-subsidized market. Consequently, the share of tenants at reduced rate or rent-free is very small in Belgium, and especially in Flanders (reduced-rent: 7%; rent-free: 1%).

3.2 Data on housing costs in SILC

In order to derive *net* IR, we need information on housing costs. The variable 'Total housing cost' includes monthly costs connected with the household's right to live in the accommodation. According to the EUROSTAT-instructions for the construction of the EU-SILC variables, this variable should include:

- for owners: mortgage interest payments, structural insurance, mandatory services and charges (sewage removal, refuse removal etc.), regular maintenance and repairs, taxes, cost of utilities (water, electricity, gas and heating);
- for tenants at market price: rent payments (including housing benefits), structural insurance (if paid for), mandatory services and charges (sewage removal, refuse removal etc.), regular maintenance and repairs, taxes (if paid for the tenants), cost of utilities (water, electricity, gas and heating);
- for tenants at reduced price or rent free: imputed rent (including housing benefits), structural insurance (if paid for), mandatory services and charges (sewage removal, refuse removal etc.)(if paid for), taxes on dwelling (if applicable), regular maintenance and repairs, cost of utilities (water, electricity, gas and heating).

The Belgian EU-SILC dataset contains more country-specific variables, which allow for a further categorization into operating costs and maintenance costs. As we have not yet this dataset at our disposal, we have taken a rough estimation of maintenance costs by deducting from the variable 'Total housing cost' rent payments, mortgage interest payments, and divide the remaining amount by two, thus assuming that

maintenance and operating costs each make up about half of these remaining costs. Table 3 gives an overview of these various housing costs.

Interest repayments on mortgage of owners have been calculated by the national data provider on the basis of the survey data, following EUROSTAT instructions (Federale Overheidsdienst Economie – Algemene Directie Statistiek en Economische Informatie 2006). These are, however, gross interest payments and not net (i.e. after taking account of tax deductions). At present, net interest payments are not available. Unfortunately, they cannot be calculated due to lack of information on cadastral income in EU-SILC. The Belgian dataset of 2008 should however provide this information. Consequently, for this group housing costs will suffer from a certain degree of overestimation.

Table 3: Housing costs per month per household according to tenure status, 2008.

	Rent payments	Operating costs	Maintenance costs & taxes	Interest repayments	Total housing cost
Flanders					
Owners	-	228	228	113	569
- owner outright	-	*251*	*251*	-	*502*
- owner with mortgage	-	*201*	*201*	*252*	*654*
Tenants	411	66	66	-	530
- tenants (private market)	*499*	*70*	*70*	-	*639*
- reduced rent	*286*	*67*	*67*	-	*420*
- rent-free	-	-	-	-	-
Belgium					
Owners	-	225	225	117	567
- owner outright	-	*238*	*238*	-	*476*
- owner with mortgage	-	*209*	*209*	*258*	*676*
Tenants	404	63	63	-	530
- tenants (private market)	*484*	*69*	*69*	-	*622*
- reduced rent	*286*	*63*	*63*	-	*412*
- rent-free	-	-	-	-	-

Source: own calculations on EU-SILC 2008.

4. Methods to calculate net imputed rent

Three groups of potential beneficiaries of IR can be identified, namely owner-occupiers, rent-free tenants and tenants with below-market rent. For a general description of the various approaches to calculate IR on the basis of micro data, we

refer to Frick & Grabka (2003), Frick et al. (2006, 2007 and 2010). They propose three methods: 1) the opportunity cost approach; 2) the capital market approach; and 3) the self-assessment approach. In Belgium also the cadastral income can be considered as a measure for imputed rent. We briefly describe the various methods. With EU-SILC 2008 only the opportunity cost approach can be applied for Belgium.

4.1 Cadastral income

As we have seen, CI is used for tax purposes as an estimation of the normal net rent value of a property for one year. Hence, it can also be considered as an indicator for IR. CI in Belgium is, however, not a good measure for IR as it systematically underestimates the rental value of the property: normally there should be a 'perequation' (i.e. a general re-estimation) of CI every 10 years, but this has not been done since the seventies. Nevertheless, it would be interesting to compare the estimates of IR calculated in this paper with current CI, in order to have an idea of the extent of this underestimation. Unfortunately, this is not possible yet as we need the Belgian SILC database of 2008 for this purpose.

4.1 The capital market approach

This approach starts from the alternative use of capital on the capital market: a household's decision to move into homeownership represents a trade-off with respect to investing in real estate or in financial assets (Frick et al., 2003). Saunders et al. (1992) for instance propose to apply a two percent real return on the value of the home: "Inflation plus two percent was thus multiplied by home equity to estimate imputed rent" (p.11). Frick et al. (2003), however, argue that this may seriously overestimate the true return on investment in real estate, as the application of a nominal interest rate to equity confounds the effect of inflation on returns. In this paper, we were not able to use the capital market approach due to lack of information on the market value of the owner-occupied dwelling.

4.2 The self-assessment approach

In the SA approach respondents are asked to make an assessment of the rental value of their home. In SILC the following question is asked to owners and rent-free tenants: "Can you make an estimate of the monthly rent you would have to pay for your dwelling if you would have to rent it?"[3]. The SA approach is only applicable to owners and rent-free tenants, as the question is not asked to reduced-rent tenants. Unfortunately, the variable is empty for Belgium in 2008.

4.3 The opportunity cost approach

The OC approach estimates the opportunity cost of housing in a non-subsidized rental market (see Frick & Grabka, 2003). We apply this approach on the entire Belgian population, taking account of the regional dimension in the regression. We rely on a hedonic regression estimation of the logarithm of rent (excluding all costs) actually paid by main tenants on the private housing market (so excluding social housing and any reduced rent payments). We apply a two-step Heckmann procedure to predict the logarithm of rent:

- Step 1: running a semi-logarithmic regression model with log(rent) as dependent variable based on the population of tenants in the private market. The covariates used refer to type and size of the dwelling, quality of dwelling and neighbourhood, occupancy in years, geographical location (region and degree of urbanization) and household income (see Table 4). Most of the independent variables were recoded into dummy variables. A Heckman selection correction is applied to correct for potential selectivity into the owner status.

- Step 2: application of the resulting coefficients to otherwise similar owner-occupiers as well as rent-free and reduced-rent tenants.

After these two steps a randomly chosen error term from the true distribution of tenants on the private housing market is added in order to maintain variation in the resulting estimates of IR. We end up with an annual measure of IR by taking the antilog of the estimated monthly fictitious rent and by multiplying it by 12. In order to

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[3] It is not entirely clear whether this monthly rent refers to net or gross amounts (before or after deduction of housing costs). In the question asked to renters, the amount asked however is 'net' i.e. excluding all costs. Consequently, we assume that the same applies to self-assessed rent.

obtain net IR we deduct maintenance costs and taxes for all owner occupiers and interest payments for owners with interest payments on mortgage. Negative IR is put to zero.

Table 4: Covariates used in the two-step Heckmann estimation (opportunity cost approach), Belgium 2008.

Variable	Mean	Std. Dev.	Code
Detached house	0.344127	0.47512	No=0; yes=1
Semi-detached house	0.401111	0.490162	No=0; yes=1
Apartment/flat in building with <10 dwellings	0.169841	0.375523	No=0; yes=1
Apartment/flat in building with ≥10 dwellings	0.075238	0.263796	No=0; yes=1
1 room in house	0.014127	0.118024	No=0; yes=1
2 rooms	0.050794	0.219594	No=0; yes=1
3 rooms	0.11873	0.323496	No=0; yes=1
4 rooms	0.182064	0.385928	No=0; yes=1
5 rooms	0.233016	0.422786	No=0; yes=1
6 or more rooms	0.36127	0.480407	No=0; yes=1
Moisture free?	0.179365	0.383688	yes=0; no=1
Possible to keep home adequately warm?	0.930952	0.253555	yes=0; no=1
Modern comfort present? (bath / shower / indoor flushing toilet)	0.015556	0.123758	No=0; yes=1
Dwelling too dark?	0.08254	0.275207	yes=0; no=1
Noise from neighbours / street?	0.214286	0.410359	No=0; yes=1
Pollution, grime or other environmental problem?	0.165079	0.371282	No=0; yes=1
Crime, violence or vandalism in the area?	0.169841	0.375523	No=0; yes=1
Brussels capital region	0.130318	0.336679	No=0; yes=1
Flanders - Densely populated area	0.279841	0.448957	No=0; yes=1
Flanders - Intermediate area	0.264127	0.440902	No=0; yes=1
Walloon Region - Densely populated area	0.126032	0.331912	No=0; yes=1
Walloon Region – Intermediate area	0.156191	0.363065	No=0; yes=1
Walloon Region - Thinly populated area	0.043492	0.203978	No=0; yes=1
Occupancy in years	16.76523	14.86008	Continuous
Household disposable income	32564.71	30375.2	Continuous

Source: Own calculations on the basis of EU-SILC 2008.

Table 5 presents average amounts of imputed rent following from the opportunity cost approach, both in gross and net terms. When the Belgian SILC becomes available, these amounts will be compared with the value of CI. We can, however, compare the amounts with the SILC-variable of imputed rent (IR-SILC) that has been calculated by the national data provider of SILC[4]. As becomes apparent from the comparison, this variable contains only gross variables and does not take account of housing costs. In this sense, it is less suitable for distributive analyses.

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[4] According to EUROSTAT-documentation, this variable is also derived on the basis of an opportunity costs approach. Average amounts are in general somewhat higher than our results; especially for reduced rent tenants there are sizable differences. It is not clear to which factors can be attributed.

Table 5: Average amount of gross and net imputed rent (IR) per month per household according to the opportunity cost approach, Belgium and Flanders, 2008.

	Gross IR		Net IR (*)		IR-SILC	
	BE	FLA	BE	FLA	BE	FLA
Owners outright	371	375	181	185	408	406
Owners with mortgage	508	518	146	158	472	472
Tenants reduced rent	464	495	198	228	364	356
Tenants rent-free	417	426	417	426	391	393

(*) Negative net IR is set to zero. Hence, average net IR will not match exactly gross IR minus costs.
Source: own calculations on EU-SILC 2008.

5. Results

We now present the impact on income inequality of including net IR in the income concept. We present results for owners and tenants separately. Owners are further divided into those who own outright and those who still have a mortgage burden; tenants are further divided into private market tenants, reduced-rent tenants and rent-free tenants (with of course no IR measure for private market tenants)[5]. Results for rent-free tenants are more of an indicative nature, as the number of cases is relatively small.

Baseline income is household disposable income on a yearly basis. The income advantage of IR, using the two approaches, is compared to the baseline in both absolute and relative terms. Both disposable income and the income advantage from IR are equivalised in order to take account of family size and composition. The equivalence scale used is the modified OECD-scale, which attributes a value 1 to the first adult, 0.5 to each other adult and 0.3 to each child.

5.1 Housing tenure and imputed rent

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[5] Results for subgroups of rent-free tenants are rather of an indicative nature, as the number of cases is relatively small (cf. Table 2).

In Table 6 we present the proportion of individuals living in a household with a positive IR-measure. For the entire population this amounts to 58% for Belgium and to 63% for Flanders. The share of IR-beneficiaries is very high among owner-occupiers (BE: 70%, FLA: 73%), and especially among those who own outright (BE: 82%, FLA: 83%). For owners with a mortgage the share is much lower (BE: 60%; FLA: 64%): for around one third housing costs outweigh the benefit of IR, mainly because of outstanding mortgage interest payments. In Belgium, 26% of all tenants enjoy a positive IR (28% in Flanders), which can be attributed to rent-free tenants (98%) and to a lesser extent to reduced rent tenants (around 80%); this indicates that even though rents are at a reduced rate, the rent payments outweigh net IR for around 20% of the individuals in this group.

Table 6: Housing tenure and income advantages from IR by tenure status, Belgium and Flanders 2008.

| Tenure status	Share with IR>0 BE	Share with IR>0 FLA
Owner occupiers	69.7	72.5
outright owner	*82.1*	*82.9*
with outstanding mortgage	*59.6*	*63.7*
Tenants	25.7	27.7
in private market (non-subsidized)	*0.0*	*0.0*
rent-reduced	*78.7*	*81.7*
rent-free	*97.8*	*98.0*
Total	57.9	62.5

Source: own calculations on EU-SILC 2008.

5.2 Population share of beneficiaries

The share of beneficiaries in Belgium increases with income level: in the bottom quintile 53% of individuals benefits from IR against 60% in the top quintile (see Figure 1).

The increase is most pronounced for owners on mortgage; for owners outright the share is more stable around 25% (with a somewhat higher share in the second quintile). For tenants a reverse pattern can be distinguished: beneficiaries (both for rent-free and reduced-rent tenants) make up a higher share in the bottom quintile than in the top quintile. For Flanders separately, the pattern is more or less similar (be it at

a somewhat higher level), with the exception that for outright owners the share of beneficiaries rather decreases with income.

Figure 1: Share of beneficiaries per quintile and per tenure status, Belgium and Flanders 2008.

Belgium

Flanders
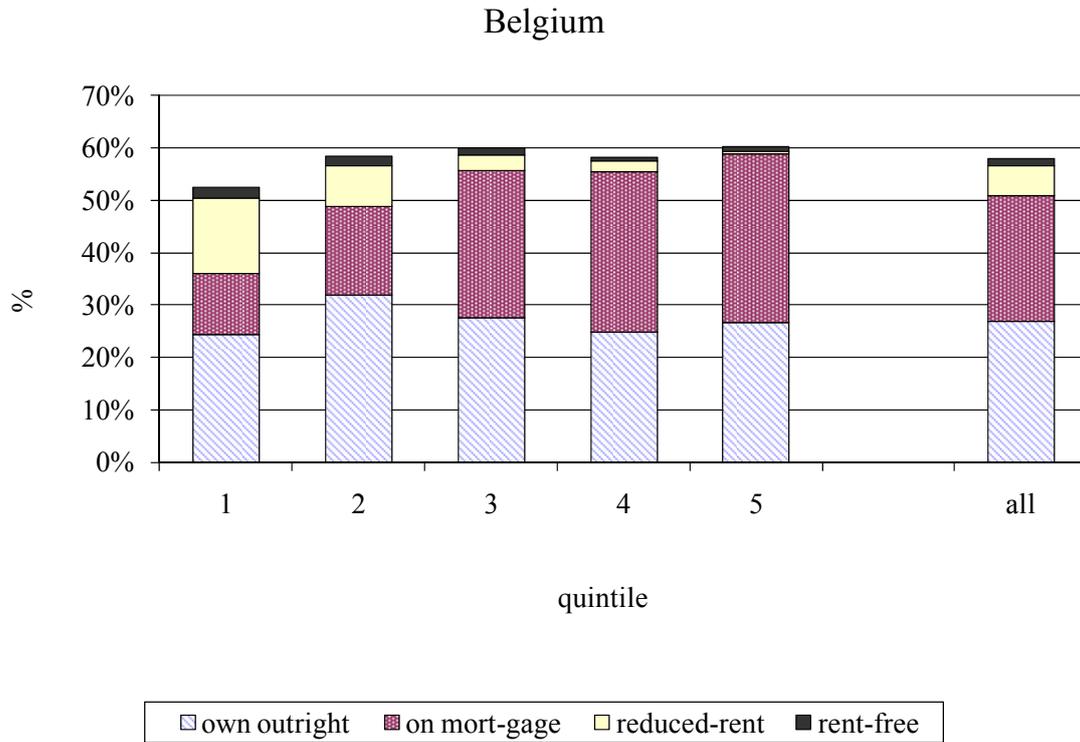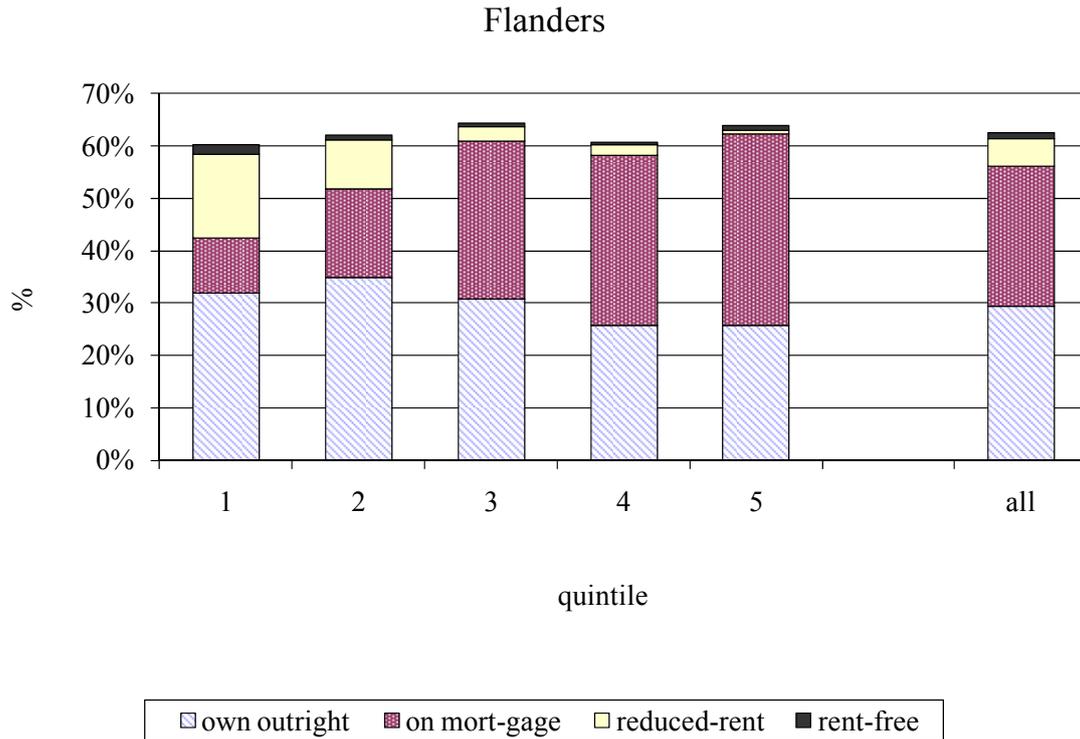
Source: own calculations on EU-SILC 2008.

5.3 Income advantages from imputed rent

Income advantages from IR per quintile and per tenure status are presented in Table 7.
Relative income increases in disposable income are not negligible: disposable income
increases on average with 5%. Income increases are more important at the bottom of
the income distribution: 10.5% for Belgium as a whole, and 12.9% for Flanders in the
bottom quintile, against only 3% in the top quintile. The proportion of IR in
disposable income tends to decrease with income level for all groups, except for
owners on mortgage. This indicates that, even though the amount of IR increases in
general with income, it increases less steeply than cash disposable income. For
owners on mortgage this is not the case, because housing costs, and more particularly
the burden of interest payments, are relatively heavier at the bottom of the income
distribution.

**Table 7: Income advantages from IR by tenure status, quintile distribution, Belgium and
Flanders, 2008.**

	BELGIUM						
	Total	**Owner-occupiers**			**Tenants**		
Quintile		**Total**	**own outright**	**on mort-gage**	**Total**	**rent-free**	**reduced-rent**
1 (bottom)	10.5%	6.2%	4.7%	1.5%	4.3%	1.0%	3.3%
2	7.5%	6.1%	3.8%	2.2%	1.4%	0.4%	1.0%
3	5.0%	4.4%	2.4%	2.1%	0.5%	0.2%	0.3%
4	3.8%	3.5%	1.8%	1.7%	0.3%	0.1%	0.2%
5 (top)	3.0%	2.8%	1.3%	1.5%	0.1%	0.1%	0.0%
All	4.8%	4.0%	2.3%	1.8%	0.8%	0.2%	0.6%
	FLANDERS						
	Total	**Owner-occupiers**			**Tenants**		
Quintile		**Total**	**own outright**	**on mort-gage**	**Total**	**rent-free**	**reduced-rent**
1 (bottom)	12.9%	7.6%	6.1%	1.5%	5.3%	0.9%	4.4%
2	9.0%	7.5%	4.4%	3.0%	1.6%	0.3%	1.3%
3	4.9%	4.5%	2.5%	2.0%	0.4%	0.1%	0.3%
4	4.1%	3.8%	1.9%	1.9%	0.3%	0.1%	0.2%
5 (top)	3.1%	3.0%	1.3%	1.7%	0.1%	0.1%	0.1%
All	5.1%	4.3%	2.4%	2.0%	0.7%	0.2%	0.6%

Source: own calculations on EU-SILC 2008.

5.4 Effect on income inequality and poverty

The effect of including IR in the income concept on income inequality and poverty is measured by calculating a series of commonly used inequality and poverty measures for both baseline income and baseline income plus IR. The inequality measures used are the Gini index; the Atkinson index for inequality aversion parameters 0.5 and 1.5; the mean log deviation (MLD); the half squared coefficient of variation (Half SCV); and three percentile ratios (90/10; 90/50 and 50/10). The poverty measures are those from the FGT family with parameters 0 (head count), 1 (normalized poverty gap) and 2 (average squared normalized poverty gap)(see Foster et al., 1984).

As can be expected from our analysis on the basis of quintile distributions, inclusion of IR in the income concept reduces inequality and poverty in general (see Table 8). The Gini coefficient decreases with 2.8% (Belgium), resp. 2.7% (Flanders). Inequality indicators that are more sensitive to changes at the bottom of the distribution, namely the MLD and especially the Atkinson 1.5, report a markedly higher decrease in inequality (5.3% and 10.8% respectively in Belgium and 6.5% and

12.2% respectively in Flanders). The results of the poverty measures confirm these results: the decrease in poverty is strongest for FGT2, which attaches more weight to poverty than the other two poverty measures.

Inequality is reduced when including IR for outright owners and when including IR for tenants. The strong effect for low-income sensitive measures (MLD, Atkinson 1.5, FGT2) is apparently to a very large extent due to IR for outright owners. This is probably due to the fact that these owners are mainly elderly, single individuals that are found relatively more at the bottom of the income distribution and that are important beneficiaries of IR. Including IR for owners on mortgage increases inequality; this is consistent with our previous finding that the share of IR increases with disposable income.

Table 8: Inequality and poverty indices by tenure status, Belgium 2008.

Inequality and poverty indices	Baseline	Total	Owner-occupiers Total	own outright	on mort-gage	Tenants Total	rent-free	reduced-rent*	Baseline	Total	Owner-occupiers Total	own outright	on mort-gage	Tenants Total	rent-free
		Belgium								Flanders					
Gini	0.2715	-2.8	-1.3	-1.6	0.5	-1.5	-0.3	-1.2	0.2416	-3.4	-1.8	-2.2	0.6	-1.5	-0.
Atkinson 0.5	0.0662	-5.3	-2.6	-2.9	0.5	-2.6	-0.5	-2.0	0.0531	-6.5	-3.6	-3.9	0.6	-2.7	-0.
Atkinson 1.5	0.1920	-10.8	-7.1	-5.2	-1.5	-3.3	-0.5	-2.8	0.1478	-12.2	-8.4	-9.2	1.2	-3.4	-0.
MLD	0.1326	-6.4	-3.1	-3.4	0.6	-3.1	-0.6	-2.5	0.1046	-7.7	-4.2	-4.8	1.1	-3.3	-0.
Half SCV	0.3006	-6.6	-4.7	-3.6	-1.0	-2.0	-0.5	-1.5	0.2398	-7.8	-6.2	-4.2	-1.9	-1.7	-0.
DR: 90/10	3.1553	-2.8	0.1	-1.3	1.7	-3.2	-0.2	-2.8	2.7307	-4.6	-0.9	-1.8	1.9	-1.6	-0.
DR: 90/50	1.6964	-1.0	-0.5	-0.7	0.5	-0.7	-0.2	-0.5	1.5992	-0.8	-0.6	-0.3	0.3	0.0	0.
DR: 50/10	1.8600	-1.9	0.5	-0.6	1.2	-2.5	0.0	-2.3	1.7076	-3.8	-0.4	-1.5	1.6	-1.6	-0.
FGT0	0.1457	-5.2	1.1	-0.6	4.3	-4.5	0.8	-3.6	0.0892	-9.0	-0.9	-4.3	5.9	-5.7	1.
FGT1	0.0320	-6.3	2.3	-1.1	3.7	-7.0	-0.5	-6.1	0.0180	-12.7	0.3	-4.7	5.4	-11.3	-1.
FGT2	0.0123	-8.1	0.3	-2.6	3.0	-6.6	-0.9	-5.2	0.0067	-15.4	-1.5	-5.6	4.3	-11.2	-2.

Source: own calculations on SILC-Belgium 2008.

The inequality and poverty reducing effect for tenants points into the direction that social housing may play a role here. Inequality in both Belgium and Flanders decrease when including imputed rent for reduced-rent tenants. Poverty rates drop with 3.6% in Belgium and almost 5% in Flanders. If we focus on the group of reduced-rent tenants, then poverty incidence decreases in Flanders from 30.4% to 22.5% (not shown in Table).

6. Conclusion

In this paper we broadened the income concept with the value of imputed rent for home-owners and tenants. For our analysis we used the 2008 wave of the EU-SILC. Poverty, poverty gap and overall inequality go down after we incorporate IR in the income concept. These findings are in line with most research on the income value of housing in other countries (e.g. Frick & Grabka, 2003), independent of the datasets used[6].

The IR causes an increase of disposable income in all quintiles, but the relative increase is the highest in the bottom quintiles and the lowest in the top quintile. The interdecile ranges show that accounting for IR lifts the income of the lower deciles while it has little effect on the higher deciles. The interdecile range between top and median incomes remains constant, while both the range between top and bottom as the range between median and bottom drop to the same extent. The drop in inequality is due to the relation between ownership and age, and income and age. At old age, when income is lower, many households own their homes outright. At active age, when income is higher, large mortgage payments are putting a weight on disposable income.

The post-war housing policies have always emphasized the stimulation of home ownership. In particular, the acquiring of modest housing has been stimulated. Below market interest rates for loans, below market prices for social housing and renovation subsidies - all with means tested eligibility – and major fiscal incentives, made

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[6] Our analyses are based on EU-SILC; Frick & Grabka used SOEP for Germany, PSID for USA and BHSP for UK.

ownership of a small family home possible for many households. Overall inequality does not rise after controlling for home ownership by including IR– it declines. Since the positive effect of IR is the largest in lower income households, housing policies are indirectly achieving its goal of bringing home-ownership in the reach of lower income groups.

Although the effect of IR on the total income distribution is known by now, the policy consequences are less clear. It is often claimed that owning a house is a protection against poverty or financial stress. Our results show that this is true as far as pensioners are concerned, but it is much harder to examine the exact causality of home-ownership. Exactly those who are in need of protection against poverty due to housing costs, are often unable to acquire a house. The increasing policy attention for social housing seems justified, as the house-poor and the income-poor are often the same.

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