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The Effect of Housing Expenses and Subsidies on the Income Distribution in Flanders and the Netherlands

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ABSTRACT *This study explores the role of housing expenses and subsidies with respect to income distribution in Flanders (the northern part of Belgium) and the Netherlands in 2005–2006. It analyses income poverty and inequality by comparing equivalent disposable income before and after housing expenses with a relative poverty threshold and the Gini coefficient. Poverty and income inequality increase in both ‘countries’ when equivalent disposable income is corrected for housing expenses. Furthermore, the relative position of outright owners and social tenants regarding poverty improves. Housing subsidies play a (partly) different role in Flanders and the Netherlands. The implicit social rent subsidy in Flanders and the explicit housing allowance in the Netherlands serve the same goal; however, they both redistribute income relatively strongly in favour of low-income tenants. The tax relief system on the other hand increases income inequality in society, in both Flanders and the Netherlands, whereas our comparative analysis suggests that tax relief does not have a moderating effect on net housing expenses.*

KEY WORDS: After housing income, Flanders, housing, income inequality, income poverty, the Netherlands

Introduction

National and regional governments need clear insight into the income distribution in their country or region. This not only provides policy-makers with a current picture of income inequality, but it can also help them to judge the effectiveness of the wealth redistribution policy, which normally operates via the tax and social system. Then, a clearer understanding of the size of the group living on and below the poverty line provides an idea of the relative prosperity at the lower end of the income ladder.

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An often-used methodology for measuring the income distribution in society is based on the disposable income of households. Income distribution is consistently expressed as the income that remains after deduction of tax and social insurance contributions and the addition of supplementary payments, such as child benefit. Such an approach delivers a picture of living standards based on income available for household expenditure on consumer goods and services.

When housing is at stake, the approach assumes that housing takes up such a large fixed part of disposable income that other consumption may be squeezed (Stone, 2006). Thus, the disposable income after housing expenses is calculated; this concept is called 'residual income', and the approach is known as the 'residual income approach'.

Recent comparative studies that use the residual income approach have suggested that home ownership has an equalizing effect on income inequality or income poverty. Both Ritakallio (2003) and Fahey *et al.* (2004) analysed disposable income before and after housing expenses. Based on a comparison between Australia and Finland, Ritakallio (2003) found evidence for the hypothesis that poverty is reduced in countries with high ownership rates (such as Australia) when income is corrected for housing. Fahey *et al.* (2004)—who analysed data for 14 European Union (EU) countries—came to mixed conclusions. They also found that the poverty-level differences between the countries were narrowed, thus improving the relative position of the high home ownership countries. However, the study concludes by arguing that income effects of housing tenure are related to an interplay of aspects, not just the level of home ownership, and that they vary from country to country. Dewilde & Raeymaeckers (2008) relied upon a multilevel analysis of European Community Household Panel data for 15 EU member states, using a multidimensional poverty measure. Income poverty was measured by using a relative poverty line for income that was corrected for housing expenses (after housing income). They found that—after controlling for housing and pension policy—the level of home ownership only had a slight effect on old age poverty. Instead, the provision of social housing for the elderly had the strongest poverty-reducing effect.

In our study we intend to build upon knowledge from previous research and explore the role of housing subsidies in changing income distribution. An international body of literature exists on the redistributive effects of social transfer policies [to name just a few studies of Atkinson (2003), Atkinson *et al.* (2010), Esping-Andersen (1990) and Wilensky (1974)]. However, the aspect of housing subsidies is often overlooked in these studies.

We start by exploring the changes in the relative position in the income distribution of households of different tenure types after correcting for housing expenses by calculating the residual income. Our study consists of two main research questions. First, to what extent does the relative position of outright owners improve? And to what extent does the income position of social tenants relative to private tenants improve? Second, what are the inequality changes 'within' the different tenure types after correcting disposable income for housing expenses, and why do these changes exist? Such an analysis allows us to analyse the effect of certain types of subsidies on the vertical redistribution of income within different tenure types.

In order to answer our first research question we rely on a relative poverty measure. Contrary to earlier studies we systematically explore the mechanisms that cause households to be income poor because of housing. This means that the effects of net household expenses are incorporated instead of gross housing expenses, thus taking account of the effects of different types of subsidies in renting and owning. Furthermore,

we refer to the relative size of the different groups and the distribution of housing expenses in order to explain the change in poverty (households in poverty) after taking housing expenses into account. For our second research question, we rely on the Gini coefficient in order to evaluate the changes in equality within the tenure types.

Flanders, the northern autonomous region of Belgium, and the Netherlands are chosen for the comparison because of their differing tenure type distribution which is a result of different housing policies. As the primary aim of housing policy in Belgium from the end of the nineteenth century was to encourage home ownership, it is now the largest sector in Flanders (Deschamps, 1997; Goossens, 1997). In 2005, almost three out of every four Flemish households were owner-occupiers and more than half of them owned outright. An 18.5 per cent of Flemish households lived in the private rental sector and 5.6 per cent in the—by European standards—small social rental sector. The Netherlands invested in social renting after the Second World War, with the result that it now has the largest social rental sector in the world, with a 35 per cent market share (Haffner *et al.*, 2009). The private rental sector has a market share of nine per cent, whereas the share of the owner-occupier sector amounts to almost 56 per cent; less than 1 in 10 households are outright owners.

We begin by explaining why we opted for an approach based on ‘after-housing costs’ or ‘residual income’. We then discuss the application of the concepts of residual income and the indicators for poverty and income inequality. Finally, the outcomes and conclusions are presented.

Definition of Income Poverty and Income Distribution After Housing

Income poverty is a broad concept that embodies many dimensions of deprivation of households (e.g. Saunders *et al.*, 2002). There is no agreement on what constitutes poverty, as poverty has a subjective dimension as well. Two basic definitions of poverty exist: an absolute one and a relative one. The absolute measures refer to the fulfilment of basic household needs. As these needs may differ between countries, we opted for a relative measure in our study. Such a benchmark measures the size of the group of households that is considered to be in poverty relative to a society’s average or median living standards. In our choice we follow the poverty studies, such as those discussed above, that make use of the concept of disposable household income, the income that remains after taxation and social contributions and payments, which is adjusted for housing expenses when the residual income is calculated.

Such an approach may be chosen because authors implicitly assume that this is the only approach that can be followed, or because they argue that it has certain advantages, or because, although they accept that there is another approach, they conclude that it is difficult to apply in their research context. In this other approach, which is called the ‘economic approach’ here, ‘non-cash’ income or ‘in-kind’ benefits, e.g. income from housing, education, childcare and health care, are added to cash income (e.g. Frick & Grabka, 2003; Gardiner *et al.*, 1995; Saunders & Siminski, 2005; Smeeding *et al.*, 1993). Non-cash income arises, for instance, in the situation where any of these services are delivered free of charge to a (low-income) household. With this approach the costs of consumption are calculated rather than the cash flows (housing expenses) that are used to finance the consumption (Törmälehto & Sauli, 2010). For housing this would mean for tenants that rent their dwelling at below-market rent (if rents are regulated) that the advantage will be added to income. In this way, non-cash income is imputed to a household. Imputed income does not just relate

to lower-than-market prices, however. In the case of owner-occupation, the rent that owner-occupiers would have to pay for their dwelling if it were rented will be added to their income (see also Chotikapanich *et al.*, 2003; Gardiner *et al.*, 1995; Van den Bosch, 1998; Whiteford & Kennedy, 1995).

As the imputed non-cash income is not available in our databases and cannot readily be estimated (Mullin *et al.*, 2009; Törmälehto & Sauli, 2010), we apply the residual income method, which is based on what households actually spend on housing (Stone, 2006), i.e. how they finance their housing consumption. In this approach, also called the 'after-housing-cost income' approach, housing expenses are deducted from disposable income. The method is used in the UK (Atkinson, 1998; Department of Social Security, 1993; Johnson & Webb, 1992) and Australia (Harding & Szukalska, 2000; Harding *et al.*, 2001) to measure poverty, but it is also used to measure income inequality (Dewilde & Raeymaeckers, 2008; Ritakallio, 2003). In the case of tenants, the rent is deducted from the disposable income, whereas mortgage interest and capital repayments are deducted from the disposable income of homeowners.

It will be clear that an expense approach to housing will deliver different results from an imputed income approach. There will be no imputed income added to disposable income for owner-occupiers. Nor will there be imputed income added for below-market-price housing consumption for either an owner-occupied or rental dwelling. Below-market-price delivery is another way of saying that the recipient is receiving an economic subsidy (Haffner & Oxley, 1999). As the after-housing-costs income approach does not measure the price of housing consumption, it cannot be used to calculate economic subsidies. It can, however, be used to show government intervention that has an effect on housing expenses. We discuss these types of subsidies in the methodology section, after describing the components of housing expenses.

When using the residual income approach, one has to keep in mind certain other limitations which all go hand in hand with the fact that this approach does not measure the price of housing consumption. First, it includes capital repayments of mortgages, implying that the type of mortgage will impact on housing expenses (consider the effects of an interest-only mortgage with those of an annuity mortgage). Thus, in an international comparative context, differences regarding national mortgage financing patterns will have to be considered. This also applies to the degree to which people finance their dwelling purchase with a mortgage or with family resources. Also, the residual income approach takes no account either of possible capital gains or losses or of the risks of the investment. More generally, it takes no account of the fact that households might use the potential income that is tied up in the equity in the dwelling. It ignores the fact that households may be cash income poor and non-cash income rich. Another concern is that the after-housing-costs income method disregards housing quality. Certain families may choose to live in an oversized or luxury dwelling, undermining their non-housing consumption. These families will unduly be regarded as 'poor'. Conversely, some poor families may live in a dwelling that is too small or is of poor quality, in order to safeguard their other consumption options. In more general terms, the residual income method implicitly assumes that housing expenses are exogenously determined and that households do not have a free housing choice (Haffner & Heylen, 2011; Stone, 2006). If one keeps in mind these limits of the residual income approach, it can be used, especially if one is considering whether residual income is sufficiently high to pay for other consumption.

Methodology

Housing Expenses and Residual Income

Before we can determine residual income, we need to define disposable income. In this study, disposable income is the average monthly household income that remains after the deduction of tax and social insurance contributions and the addition of any income replacement, supplementary social insurance benefits and welfare payments. The difference between disposable and residual income is housing expenses—the cash flows that households need to generate in order to fund their housing consumption. Table 1 shows the different constituents of residual income: housing expenses, government support for housing and disposable household income. In the rental sector, gross housing expenses consist of the gross rent. The net rent is calculated by deducting any housing allowance. In the owner-occupier sector, net housing expenses are determined by the mortgage burden, which consists of interest payments including tax relief,¹ capital repayments and/or endowment premiums. To maximize comparability between the two tenure types, the extra costs that a landlord incorporates in the rent are included in the gross housing expenses of the owner-occupier.

In order to facilitate comparisons between different types of households, disposable income and residual income are corrected for household size on the basis of the Organisation for Economic Co-operation and Development (OECD) equivalence scale. Although the OECD scale is basically designed for corrections to disposable household income, we also used it to correct residual income because there was no better alternative.

It is important to note that in the correction for the housing situation we do not take account of the quality of the dwellings or the preferences of households. Hence, we cannot distinguish between families that have a relatively low residual income because they choose to spend a large part of their income on a dwelling and families that have a low residual income simply because they have a low disposable income. Nor can we ascertain whether families with the same composition enjoy different levels of housing comfort in exchange for the same residual income (Gardiner *et al.*, 1995; Ritakallio, 2003; Thalmann, 2003).

Table 1. Composition of ‘after-housing costs income’^a for tenants and owner-occupiers.

Tenant	Owner-occupier
Gross rent ^b	Gross housing expenses ^c
–Housing allowances	–Fiscal effect
= Net rent	= Net housing expenses
Disposable income	Disposable income
–Net rent	–Net housing expenses
= Residual income	= Residual income

^a Technically this concept should be called ‘after-housing-expenses income’, as it relates to expenses that are not necessarily economic costs, i.e. offers expressed in cash terms.

^b Gross rent includes any costs that the landlord incorporates in the rent, such as maintenance, property tax and so on. Gross rent could be set lower than the market rent as a result of subsidy, rent regulation or acceptance of a loss (social landlord).

^c Gross housing expenses include the amounts required to finance the dwelling, property tax and other homeowner expenses, such as insurance, ground lease and the owner’s share of maintenance.

Housing Subsidies

We define a housing subsidy as any government intervention that lowers the level of housing expenses (Haffner & Heylen, 2011).² The subsidy will be explicit if it is revealed by the residual income approach. This applies to the housing allowance for the rental market and tax relief for owner-occupiers, as Table 1 shows. Their effects are explored in this study.

Implicit subsidies are those that lower housing expenses, but not explicitly. Examples of housing expenses that are lowered and in principle cannot be identified by the residual income approach are the extent to which regulated rents are lower than market rents (where applicable) or the extent to which low-cost or subsidized mortgage interest rates are lower than market interest rates. One can think of other instruments here, for instance lower transaction tax, value added tax (VAT) or property rates. In the residual income approach as applied here, these types of implicit subsidies will result in lower expenses—lower gross rent or lower housing expenses—but the extent to which expenses are lowered by each instrument cannot be shown with this approach.

Income Poverty and Inequality

In our study the unit of analysis is the household, since this is most relevant for housing research. The poverty figures are thus calculated for households by using household income. We used the 50 per cent norm for the poverty threshold which is applied in many poverty studies (Harding *et al.*, 2001; Saunders *et al.*, 2002). A household is classified as ‘poor’ when its equivalent household income is lower than 50 per cent of the median equivalent household income. In our study two poverty lines are calculated: one for disposable income and one for residual income. The household income is made equivalent by using the OECD equivalence scale. When incomes are made equivalent, they become comparable across different household types. Although the OECD scale is basically designed for corrections to disposable household income, we also used it to correct residual income because there was no better alternative.

Income inequality was mapped out with the Gini coefficient, the most commonly used method for measuring income inequality. The Gini value lies between 0 and 1. In case of total equality the figure is 0, whereas 1 represents total inequality. The numerator of the Gini coefficient is the sum of all absolute values of the income differences of each household with the other households, divided by two. Further, this value is divided by the average income. The Gini value remains the same whenever an income is multiplied by a constant value and is thus scale independent (Allison, 1978). We concentrate on the inequality within groups to get a better understanding of the effect of housing subsidies.

Databases

We used the 2005 Housing Survey of the *Kenniscentrum voor Duurzaam Woonbeleid* (Knowledge Centre for Sustainable Housing Policy) to calculate the distribution and poverty measures for Flanders. This survey covers 5216 Flemish households. For the Netherlands, we used the WoON 2006 Housing Survey conducted by the department responsible for housing. About 64 000 households were interviewed, approximately 54 000 of which lived in independent units.³ The income data from the Dutch tax records

for 2005 were linked to the survey data. In the Flemish Housing Survey, the income data were gathered by the survey itself. Hence, the two methods are not comparable. It is not an ideal basis for a comparison, but no other options were available.

Subsidization Instruments in Flanders and the Netherlands

The explicit subsidies that are revealed by the residual income approach are the housing allowance for the rental market and tax relief for owner-occupiers (see also Haffner & Heylen, 2011).

In Flanders, a selective system of housing allowances exists, which targets low-income households that move from an inadequate to a suitable dwelling or households that move to a dwelling that is rented by a so-called social rental agency (De Decker, 2002). The Housing Survey revealed that only two per cent of tenants were receiving housing allowance in 2005 (Heylen *et al.*, 2007). The amount of subsidy is related to the household income and the number of years the allowance is received.

In the Netherlands, the tenant's subsidy is the housing allowance which was introduced across the entire rental sector in 1975 (Elsinga *et al.*, 2007) with the primary purpose of making rental housing affordable. A second aim—the prevention of social segregation—was added in 1997. The amount of housing allowance is determined by the income, the rent (a maximum of 615.01 euros per month in 2006) and the composition of the household. In 2006, one out of three tenants was receiving housing allowance. The overall average was 148 euros per recipient per month (Ministerie van VROM, 2007).

In the owner-occupier sector, net housing expenses are determined by the mortgage burden, which consists of interest payments including tax relief, capital repayments and/or endowment premiums. In Flanders (Belgium), mortgages were taken out before 2005 fall under the 'old' tax system, dating from 1 January 1989. The deductible sum in this system consists of three parts: the regular, the additional interest and the capital deductions. The level of these three components depends on several conditions—the amount of the mortgage sum and the household composition being the most important factors—and is bounded by some upper limits. For each of the three components, different ceilings are installed, related to the amount of the mortgage sum (capital and additional interest deductions), the taxable income (capital deduction) and the cadastral income (regular interest deduction). Furthermore, the fiscal effect in Belgium is limited in time and is positively influenced by the marginal tax rate, which is higher for higher incomes. All in all, the tax benefits are positively related to the mortgage sum (De Meyer, 2007).

In the Netherlands, mortgage interest is fully deductible for 30 years in income tax against marginal tax rates. The benefit is marginally offset by a tax on imputed rent amounting to less than one per cent of the market value of the property in an unoccupied state (Haffner, 2002). Even though house prices rose strongly in both 'countries', 'exotic' mortgage types only appeared on the market in the Netherlands, because of the influence of the personal income tax system: endowment loans and interest-only loans in the Netherlands are attractive. This is not the case in Belgian federal law on income tax; thus, repayment mortgage types are popular there.

In addition to the explicit subsidies, the residual income approach also takes into account the effects of implicit subsidies that affect gross rent or gross housing expenses (see Table 1), but it cannot generally identify them separately or delineate the extent of the effect per instrument.

This also applies to the below-market rent level in the social rental sector, which in Flanders is the result of the government's bricks-and-mortar subsidization of investment in construction and renovation. Rents are related to both the income of the tenants and the quality of the dwelling (Winters & Elsinga, 2008). In the Netherlands, these types of subsidies stem from rent regulation, extra subsidization from social landlords which operate as revolving funds and below-market interest rates for loans for social housing via a guarantee fund (see Haffner *et al.*, 2009; Ouwehand & van Dalen, 2002).

Although the expense components do not allow the effect of this type of subsidization to be separated out, a comparison of gross rent levels in both rental sectors may give an indication of the extent of the bricks-and-mortar subsidization. This analysis will be possible for a housing market where the rents in the private rental sector are not regulated. The difference between the rent levels in both sectors can then be taken as an indication of bricks-and-mortar subsidization included in gross rents in the social sector. In practice, such an exercise will be more useful for Flanders than for the Netherlands, as in Belgium there is no system of rent setting in the private market at the beginning of a (temporary) rent contract. Adjustment of rents during the contract must, however, take place in line with changes in the price index [*Federale Overheidsdienst Justitie* (Federal Department of Justice), 2008]. Thus, the comparison between private or market rents and social rents in Flanders may not be fully indicative of the extent of bricks-and-mortar subsidization, but can be taken as a close indication. As in the Netherlands 95 per cent of all rents are regulated (initial contract rent plus annual rent adjustments), a comparison of average gross rents between social and private renting will thus not be fruitful accounting for bricks-and-mortar subsidization.

Relative Income Position

Income Poverty After Net Housing Expenses

Table 2 shows the poverty levels in Flanders and the Netherlands before and after deduction of gross and net housing expenses for a poverty threshold set at 50 per cent of the median equivalent income. This implies a different poverty line for disposable income before housing expenses than for disposable income after housing expenses. Also, the relative changes in poverty level after correcting for housing are presented. In this first section, we concentrate on the final outcome, i.e. the results after correcting for net housing expenses, which are shown in Columns (4) and (5) in Table 2. In the next section, the effects of the housing subsidies are discussed.

In line with earlier findings for Flanders (Van Dam *et al.*, 2003), the poverty rate increases in both Flanders (+73 per cent) and the Netherlands (+68 per cent), as can be seen in Column (5) after correcting for net housing expenses, to a level of 9.8 per cent and 14.9 per cent, respectively, as Column (4) shows. This finding is also in line with the results of Fahey *et al.* (2004) who found a poverty increase after correcting for housing in all EU countries, except for Ireland. The explanation for the increase is that housing expenses have a relatively higher weight for low-income households than for high-income households. In both 'countries', the average housing expenses to income ratio is higher for the lower income groups (Haffner *et al.*, 2008; Heylen *et al.*, 2007; Stephens *et al.*, 2010).

Table 2. Households in poverty (in per cent), according to tenure type for equivalent income before and after gross and net (equivalent) housing expenses, in Flanders/The Netherlands, 2005/2006.

	Per cent of poverty based on disposable income (1)	Per cent of poverty after gross housing expenses (2)	Per cent difference of Columns (2) and (1)	Per cent of poverty after net housing expenses (4)	Per cent difference of Columns (4) and (1) ^a
<i>Flanders</i>					
Total households	5.7	9.7	+72	9.8	+73 (+1)
Rental sector	8.4	20.7	+146	21.2	+148 (+2)
Private	7.8	20.8	+166	21.2	+168 (+2)
Social	10.6	20.1	+90	21.2	+95 (+5)
Owner-occupier sector	4.6	5.6	+22	5.5	+20 (-2)
Mortgagor	1.4	5.5	+293	5.3	+289 (-4)
Outright owner	7.2	5.6	-24	5.6	-24 (0)
<i>The Netherlands</i>					
Total households	9.5	17.3	+82	14.9	+68 (-14)
Rental sector	16.6	27.0	+63	22.9	+48 (-15)
Private	13.0	21.5	+65	21.0	+63 (-2)
Social	17.5	28.5	+63	23.4	+45 (-18)
Owner-occupier sector	3.9	9.6	+146	8.6	+136 (-10)
Mortgagor	3.2	10.2	+219	8.9	+206 (-13)
Outright owner	8.9	5.5	-38	6.8	-15 (+24)

Notes: The Flemish data are based on a sample of 5,216 households, whereas the Dutch income data are drawn from an administrative source (tax authorities) and are not subject to non-response. The non-response in the Flemish survey was 33 per cent. *Sources:* Flemish Housing Survey 2005, WoON 2006/TU Delft calculations. ^aThe relative difference between the 'after net housing' and 'after gross housing' poverty rates is given parentheses.

The poverty rate 'after housing' for outright owners improves in both Flanders (– 24 per cent) and the Netherlands (– 15 per cent). Thus, in line with our hypothesis, the housing correction to disposable income improves the relative position of the outright owners in the income distribution.

In Flanders, after correcting for housing, the poverty level in both rental sectors is at the same level (21.2 per cent). The poverty increase in the social rental sector (+95 per cent) is less pronounced than in the private rental sector (+168 per cent). For Flanders, the hypothesis that the relative position of social tenants compared to private tenants will improve is therefore confirmed. In the Netherlands this also applies, but to a lesser extent. After the net housing expense correction, the relative poverty position of social tenants (+45 per cent) has increased less than that of private tenants (+63 per cent). The resulting income poverty rates are close together but, unlike in Flanders, the group in poverty is bigger for social tenants (23.4 per cent) than for private tenants (21 per cent). This tenure type difference is caused by differences regarding equivalent disposable income, which on average amounts to 1204 euros per month for social tenants and 1472 euros per month for private tenants (amounts not shown in Table 2). Thus, the disposable income of social tenants on average is more than 250 euros lower than that of private tenants, while social rents on average are only more than 100 euros per month lower than the private rent, resulting in a bigger group of social tenants in poverty than private tenants in the Netherlands.

In both Flanders and the Netherlands, the relative increase in poverty is highest for the homeowners with a mortgage reaching 289 per cent and 206 per cent, respectively. This result is in accordance with expectations, since the average housing expenses for mortgagors are substantially higher than for tenants and outright owners. The average gross housing expenses for homeowners with a mortgage are 549 and 847 euros in Flanders and the Netherlands, respectively, whereas the average rent is about 400 euros in both 'countries' (amounts are not shown in Table 2, but can be inferred from Tables 3 and 4).

Furthermore, the relative size of the group of outright owners in Flanders has a strong impact on the overall poverty change, as it amounts to more than 40 per cent of all Flemish households, whereas it does not include more than 8 per cent in the Netherlands. As a consequence, the overall poverty rate in Flanders does not increase sharply, despite a high increase in the poverty rate for mortgagors and tenants. Despite a lower increase in the poverty rate for tenants and mortgagors in the Netherlands, the overall increase in poverty is almost as high as in Flanders (68 per cent vs. 73 per cent). These results suggest a refinement of the conclusion of Fahey *et al.* (2004), which stated that a housing correction to disposable income narrows the poverty-level differences between countries in favour of the high ownership countries. Instead, our analysis suggests that a high level of 'outright home ownership' has a moderating effect on the increase in the poverty rate after the deduction of housing expenses from disposable income. Since we have outlined the overall picture on income poverty per tenure type in both 'countries', the role of the subsidies needs to be analysed.

Effects of Housing Allowance, Tax Relief and Rent Regulation

Another aim of the study was to explore the effect of different subsidies on the relative income position of households in the different tenure types. A comparison of the poverty

Table 3. Housing expenses, subsidies and income inequality before and after gross and net housing expenses, according to tenure type and thirds of equivalent income^a, averages in euros per month, Flanders, 2005.

	Gross housing expenses	Housing allowances/tax relief ^b	Net rent or expenses	Gini coefficient ^c		
				Equivalent disposable income	After gross housing	After net housing
All households				0.242	0.270 + 12% (+0.4%)	0.271 + 12% (+0.4%)
Rental sector				0.232	0.295 + 27%	0.294 + 27% (-0.3%)
Private rent				0.230	0.305 + 33%	0.304 + 33% (-0.3%)
1	384	-3	381			
2	427	0	427			
3	493	0	493			
Social rent				0.172	0.210 + 22%	0.209 + 22% (-0.5%)
1	220	-2	218			
2	255	-2	253			
3	308	-1	307			
Owner-occupier sector						
Mortgagors				0.241	0.252 + 5%	0.252 + 5%
1	493	-61 (32)	432			
2	538	-80 (45)	458	0.195	0.228 + 17%	0.226 + 17% (-0.8%)
3	608	-100 (60)	508			
Outright owners				0.259	0.276 + 7%	0.276 + 7% (+0)
1	96	0	96			
2	74	0	74			
3	99	0	99			

Source: Housing Survey 2005; *N* all households = 3821.

^aFirst third = 33 per cent lowest incomes; third 'third' = 33 per cent highest incomes.

^bFigures in *italic*: Equivalent amounts for housing allowance and fiscal effect.

^cThe relative difference between the 'after net housing' and 'after gross housing' Gini coefficient is given in parentheses.

Table 4. Housing expenses, subsidies and income inequality before and after housing expenses, according to tenure type and thirds of equivalent income, averages in euros per month, the Netherlands, 2006.

	Gross housing expenses	Housing allowances/tax relief ^a	Net rent or expenses	Gini coefficient ^b		
				Equivalent disposable income	After gross housing	After net housing
All households				0.265	0.328	0.317
Rental sector					+24%	+20% (-4%)
Private rent				0.225	0.295	0.264
1	395	-51 (40)	344		+31%	+17% (-14%)
2	438	-15 (12)	423		0.339	0.324
3	573	-1 (1)	572	0.268	+27%	+21% (-6%)
Social rent						
1	380	-107 (81)	273	0.206	0.277	0.242
2	396	-46 (35)	350		+34%	+17%
3	414	-4 (3)	410			(-17%)
Owner-occupier sector						
Mortgagors				0.253	0.318	0.310
1	705	-116 (65)	589		+26%	+23% (-3%)
2	810	-189 (115)	621	0.240	0.311	0.302
3	1025	-294 (193)	731		+30%	+26% (-4%)
Outright owners ^c				0.328	0.346	0.348
1	112	7			+5%	+6%
2	128	9				(+1%)
3	168	4	171			

Source: WoON 2006/TU Delft calculations; total households (weighted): 6800 576.

^a Figures in italic: Equivalent amounts for housing allowance and fiscal effect.

^b The relative difference between the 'after net housing' and 'after gross housing' Gini coefficient is given in parentheses.

^c Households which have just paid of the mortgage; so a tax relief is still noted by the tax authorities.

level after gross and after net housing expenses allows us to evaluate the effect of the housing allowance for tenants and tax relief for mortgagors. Since this approach—to our knowledge—is new in this field, no hypotheses were drawn. In Table 2, the percentage in brackets in Column (5) represents the relative difference in poverty rate between the ‘after gross’ and ‘after net’ housing expenses income. It represents the effect of the housing allowance in the rental sector and the tax relief in the owner- occupier sector.

Tax relief for homeowners with a mortgage in both ‘countries’ has a significant impact. All mortgagors in Flanders and the Netherlands benefit from the system. In Flanders, the average fiscal effect is 81 euros per month. Table 2 shows that the poverty level for mortgagors decreases by four per cent after taking tax relief into account. Thus, tax relief in Flanders slightly improves the relative income position of mortgagors. This also applies to the Netherlands, but the impact of tax relief there is bigger than in Flanders. The average tax relief for mortgagors amounts to 200 euros per year (as can be inferred from Table 4), and the share of mortgagors in the housing market is larger than in Flanders. The poverty rate for mortgagors decreases by 13 per cent as a result of the tax advantage (Table 2). For outright owners on the other hand, the poverty rate increases (+24 per cent) as a consequence of the higher poverty line. For income after gross housing expenses, the poverty line is 598 euros, while it is 635 euros after net housing expenses.

In the rental sector, the explicit subsidy is housing allowances. In Flanders, the group receiving housing allowances is so limited that it has no impact on the relative position of tenants in the income distribution. According to a recent survey, only two per cent of tenants receive an allowance (Heylen *et al.*, 2007). Thus, the small poverty increase for tenants (+2 per cent) after correcting for subsidies is due to the change in the poverty line. For income after net housing the poverty line is 549 euros, while it is 544 euros after gross housing expenses. In the Netherlands, the impact of housing allowance is more substantial. One out of three tenants receives an allowance, and the average across all tenants is 53 and 22 euros for the social and private rental sectors, respectively (as can be inferred from Table 4). The effect on the poverty rate is primarily concentrated in the social rent sector (−18 per cent; Table 2), which is a consequence of the income boundaries of the system. The subsidy improves the relative position of social tenants compared to tenants in the private sector. For the latter group, the poverty decrease due to housing allowances is only two per cent.

With regard to the difference between social rents and private rents, an observation based on Table 2 is that the poverty rate according to disposable income (before housing; Column (1)) is higher for social tenants than for private tenants in both ‘countries’. In Flanders, this situation changes when gross rents are taken into account (Column (2)): the poverty rate in social renting (20.1) is slightly lower than in private renting (20.8). As discussed in the section ‘Income Poverty After Net Housing Expenses’, Flemish social landlords receive substantial object subsidies, which are used to set rents below the market rents. The average gross rent in the social rental sector is only 261 euros compared to 435 euros in the private sector (as can be inferred from Table 3).

As in the Netherlands, rent regulation applies to most rental dwellings and not to social rental dwellings only. This implies that the increase in poverty is almost equal for both types of tenants. The poverty position of social tenants (+63 per cent) after taking gross rent into account (Column (3)) is only slightly more improved than that of private tenants (+65 per cent). Social tenants are still more often in poverty (28.5 per cent) than private tenants (21.5 per cent; Column (2)). The difference in implicit subsidy as a result of object

subsidization is thus not large. As was argued earlier, the average lower income of social tenants causes the outcome, which changes in favour of social tenants largely because of housing allowances.

Income Inequality within the Tenure Types

The above results give us an idea of the changes in the relative income position of the different tenure types. In this section, we address our second research question: what is the effect of housing subsidies on the income distribution 'within' the tenure types?

Table 3 shows the housing expenses and subsidies split according to housing market sector and income thirds in Flanders. The thirds were calculated separately for each sector on the basis of equivalent disposable income. Furthermore, the table shows the Gini coefficient for disposable income before and after housing expenses for different tenure types. The coefficients are calculated for the deduction of both net and gross housing expenses in order to evaluate the effect of the subsidy systems. A rise in the Gini coefficient indicates an increase in inequality, while a fall in the Gini coefficient indicates a decrease in inequality. As can be expected from the results on changes in poverty discussed earlier, inequality will rise when the step is taken from equivalent disposable income to income after gross housing expenses. When the step is taken from income after gross housing expenses to income after net housing expenses, inequality may increase, remain constant or decrease. The direction of the move will be interpreted on the basis of whether there is government intervention affecting the housing expenses of households. The total effect of the difference between disposable income and income after net housing expenses is the sum of both of these effects. As Tables 3 and 4 show for both 'countries', this overall effect remains one of increased inequality for all tenure types when disposable income is corrected for housing subsidies.

The table shows that in Flanders housing allowance is only received by private tenants in the lowest third, whereas in the social rental sector beneficiaries are also found in the highest third. This is a consequence of the lower income profile of the social tenants. The effect of the housing allowance on the Gini coefficient for the rental sector is—as one would expect given the limited scope of the system—very small. The Gini score works out at 0.3 per cent and 0.5 per cent for the private and social rental sectors, respectively, after subtraction of the housing subsidy from gross rent. Overall, the Gini score for the rental sector rises by 27 per cent if the disposable income is compared with the income after net housing expenses. This means that the rent is relatively higher for the lower income households than for the higher income households on the rental market. As rent in the social sector is determined by income, the rise is more limited for social tenants (22 per cent) than for private tenants (33 per cent).

In Flanders, the scope of tax relief for mortgagors is bigger than the scope of the housing allowance. The tax benefit increases considerably between the thirds in absolute terms (see Table 3). Higher income groups profit more from tax relief because they tend to buy or build more expensive dwellings. As mentioned earlier, until 2005, the level of tax relief was positively related to the size of the mortgage. Moreover, it is positively related to the marginal tax rate, which, of course, rises in accordance with taxable income.

The redistributive effect of tax relief is still limited (−0.8 per cent), since in relative terms tax relief remains relatively even in relation to disposable income. The equivalent tax benefit amounts to, on average, 3.2 per cent, 3.1 per cent and 2.8 per cent of the equivalent

disposable income in the first, second and highest third, respectively (percentages not in table). A feature of the Gini coefficient—and any good inequality measure—is that it remains the same when all incomes are multiplied by the same factor (Allison, 1978). Like the situation for the rental market, income inequality rises substantially when disposable income is corrected for net housing expenses (+17 per cent), indicating that housing expenses are a relatively heavier burden for the lower income mortgagors.

The outright owners do not benefit from any subsidies. The Gini coefficient for this tenure type increases by seven per cent after correcting for net housing expenses, as a result of the relatively high maintenance costs for the lower incomes in this group. The overall rise in inequality in Flanders ‘after net housing’ is 12 per cent, whereas the overall impact of the subsidies is slightly positive (+0.4 per cent). When the effect of the subsidies is calculated separately, we find that this slight increase is almost entirely caused by the effect of tax relief. As explained, the effect of the housing allowance is marginal. Tax relief increases the overall income inequality since the outright owners generally belong to the higher income groups.

Table 4 is the Dutch equivalent of Table 3 for Flanders. The income inequality increases more in the Netherlands than in Flanders when income is corrected for net housing. The Gini coefficient rises from 26.5 per cent to 31.7 per cent, implying a relative increase of 20 per cent. The overall impact of the explicit housing subsidies is negative (−4 per cent). When the effect of the subsidies is calculated separately, we find that this slight decrease in inequality is caused by the effect of the housing allowances and to a lesser extent by tax relief.

Unlike in Flanders, the housing allowance system has a clear vertically redistributive effect towards the lower incomes. For the rental sector in total, the Gini score falls by 14 per cent due to the allowance. The inequality decrease is higher for the social sector than for the private rental sector (−17 per cent vs. −6 per cent) as there are relatively more beneficiaries of housing allowances in the social sector as a result of their lower income profile. Hence, the average allowance is higher for social tenants.

Furthermore, the deduction of net housing expenses from disposable income increases the Gini coefficient for the rental sector by 17 per cent. As in Flanders, the weight of the net rent is thus relatively higher for lower income tenants. Because of the strong impact of the housing allowance for social tenants, inequality rises to a lesser degree for social tenants (17 per cent) than for private tenants (21 per cent).

The tax benefits for mortgagors strongly increase with income in absolute terms. In the first third the benefit is on average 116 euros, whereas it amounts to 294 euros in the highest third (Table 4). Again, as in Flanders, tax relief does not increase inequality among the mortgagors but makes the Gini score fall by four per cent. The equivalent tax benefit is, on average, 5.8 per cent of the equivalent disposable income in the lowest third, compared with 6.9 per cent in the highest third (not shown in the table). In a previous article on the topic, this led us to conclude that there was probably an increasing effect on inequality (Haffner & Heylen, 2009). These new results make it clear that—when all incomes are included in the analysis—inequality measured by the Gini coefficient slightly decreases due to tax relief. However, as mortgagors are over-represented in the higher income groups, the tax relief still increases general income inequality.

In the owner-occupier sector, the strongest increase in inequality after correcting for net housing expenses occurs among the mortgagors (26 per cent). Outright homeowners face only a limited increase in inequality (six per cent) because they no longer have a mortgage

to pay. Given that this group is fairly limited in the Netherlands with very little variation across the thirds, the increase in inequality among all owner-occupiers is still considerable at 23 per cent.

In sum, the main differences with regard to the subsidy systems between the Netherlands and Flanders lie in the rental sectors, as in both 'countries' tax relief somewhat decreases income inequality among mortgagors.

Conclusions

Analyses of poverty and income inequality which use disposable income, a relatively standard measure for the living standards of a population, generally ignore the fact that the consumption options, and hence the living standard of families, are also influenced by the housing situation. Nowadays, studies aim to fill this gap. This study especially focuses on the effects of housing subsidies in terms of poverty and income inequality, a topic that has not yet been well researched. Such an approach allows for a clearer comparison of the different sectors in the housing market and enables a more complete comparison regarding income distribution and tenure types between countries.

Two approaches can be used to study income poverty and inequality. One focuses on actual cash flows needed to finance housing consumption. More specifically, this is the income after-housing-costs approach or residual income approach, in which housing expenses are deducted from disposable income to calculate after-housing-costs or residual income. This is the approach used in this study, as the second approach is not readily applicable in existing databases. It can be called the 'economic approach' and it includes estimates of non-cash income in the disposable income of households. In housing, non-cash income will be concerned with imputed income of owner-occupiers which is attributed to the equity tied up in their dwelling and imputed income from housing provided at lower-than-market prices. In both cases, the approach examines the price of housing consumption that needs to be taken into account. In the case of renting the lower-than-market price will be relevant if there is rent control.

It is clear that the residual income approach will shed light not on the price of housing consumption, but on the financing of—the expenses incurred through—housing consumption. One aspect that therefore cannot be taken into account here is the situation of households that may be poor in income, but not poor in housing. To put it another way, if owner-occupiers have insufficient residual income available for other consumption than housing, the situation will probably be less serious than if tenants have insufficient residual income available for other consumption. Owner-occupiers may in due course be able to release the equity tied up in the dwelling, while tenants will not have that option available.

Two research questions were examined. First, we explored the changes in the relative position in the income distribution of the different tenure types after correcting for the housing situation. Following previous research we expected the relative position of the outright owners and social tenants to improve. In line with these hypotheses, we chose Flanders and the Netherlands as our case studies. A relative poverty rate was used to evaluate the change in the income distribution. Second, we focused on the inequality changes 'within' the different tenure types after correcting for housing, using the Gini coefficient. In both parts of the study, we focused on clarifying the role of the subsidies in the relative changes, as the effects of 'abnormal' levels of housing quality consumption—either overconsumption or underconsumption—could not be corrected for.

After correcting for net housing expenses the poverty level in both Flanders and the Netherlands rose significantly. In line with our expectation, the relative position of outright owners in the income distribution improved in both countries, whereas the position of the mortgagors worsened considerably. Further, the relatively large sector of outright owners in Flanders was shown to have a moderating effect on the poverty rise after the housing correction.

Also in line with our hypothesis, the income position of social tenants relative to private tenants improved after deduction of net housing expenses. Due to the larger implicit subsidies for social housing in Flanders, this effect is much stronger in Flanders than in the Netherlands. In both 'countries', an initial poverty gap exists between the social and private rental sectors as a consequence of the low-income profile of social tenants. In Flanders, this gap is closed by the strongly subsidized social rent. In the Netherlands, social housing only narrows this gap a little. Instead, the gap is strongly narrowed by the housing allowance system. As a consequence of the income boundaries, low-income households benefit to a greater extent from the system than high-income households. In Flanders, the housing allowance system is too limited to affect the income distribution. Thus, although both 'countries' focus on different policy instruments, the final outcome regarding poverty reduction in the rental sector is surprisingly equal.

In addition to the effect of the housing allowance we also explored the effect of tax relief for mortgages. Due to different characteristics of the fiscal system, the positive effect of tax relief on the relative position of mortgagors is much stronger in the Netherlands than in Flanders. In the Dutch system all interest is tax deductible without upper ceilings. In Flanders, the deductible amount is smaller, due to some built-in upper limits. The generous system in the Netherlands seems, however, less efficient than the Flemish system. On average, net housing expenses—i.e. after the deduction of tax relief—in the Netherlands are 200 euros more than in Flanders. The tax relief system enables aspiring homeowners to take out larger mortgages, but it does seem to have pushed up property prices at the same time and hence increased the payment burden. The average price of a dwelling in 2005 was, to all intents and purposes, higher in the Netherlands (223 000 euros) than in Flanders (162 400 euros) (Heylen & Haffner, 2008). These 'high' property prices in the Netherlands are maintained by inelasticity in the supply when prices rise and exacerbate the housing shortage.

The change in income inequality within tenure types as a result of taking housing expenses into consideration shows that only in the Netherlands do the housing allowances decrease inequality. Tax relief, on the other hand, is positively related to income in both countries. However, tax relief does not strongly affect inequality among mortgagors as its relative impact does not increase with income. Since mortgagors are over-represented among the higher income groups, the overall effect is still that tax relief increases inequality.

In sum, poverty and income inequality increase considerably in both 'countries' when equivalent income is corrected for gross housing expenses. These increases imply that housing expenses place a heavier burden on the budget of lower income groups than higher income groups. Due to housing subsidies, this situation is to some extent corrected. We saw a strongly vertically redistributive effect of the bricks-and-mortar subsidy for social renting (Flanders) and the housing allowance (the Netherlands), which serve the same goal: improving the income position of low-income tenants. Tax relief on the other hand increases income inequality in society, in both Flanders and the Netherlands, whereas our

comparative analysis suggests that tax relief does not have a moderating effect on net housing expenses. In the end, taking net housing expenses into account increases income inequality, even if there is some subsidization that lowers the initial increase in inequality after taking gross housing expenses into account.

Overall, we can conclude that the residual income approach combined with an analysis of the relevant subsidies enables an in-depth comparison to be made of the income distribution between countries and enhances our understanding of the redistributive mechanisms of housing subsidies, taking the limits of the approach into account.

Notes

- ¹ The fiscal effect for the Netherlands is available as a variable in the database WoON from 2006. The fiscal effect was calculated for Flemish owner-occupiers on the basis of data from the 2005 Housing Survey. We applied the tax system that was operational until 2005.
- ² There are also other ways of defining housing subsidies (Haffner, 2003; Hancock & Munro, 1992; Hills, 1991). The key point is that a benchmark needs to be determined. Here, the benchmark is the expenses that a household needs to finance housing consumption. The subsidy is any direct or indirect cash flow that lowers these housing expenses.
- ³ Over 8000 non-weighted household members were interviewed and around 2000 respondents who rented rooms or lived in units.

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