User Costs and Housing Expenses. Towards a more Comprehensive Approach to Affordability

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ABSTRACT   *Recently housing affordability has reached the agenda in Flanders and the Netherlands, giving a good reason to present a review of the concept of affordability and different definitions. The concept of short-term affordability, which is concerned with financial access to a dwelling and is based on cash flows, is combined with the concept of long-term affordability, which is about the costs of housing consumption. The use of these concepts is illustrated for Flanders and the Netherlands. They show that each concept has its own uses and that they are not interchangeable. However, both concepts indicate that in 2005 higher-income households, and especially homeowners (with a mortgage), were relatively better off than lower-income households, particularly renters. Homeowners' higher income levels on average more than compensate for their higher expenses in comparison with tenants; they also receive higher explicit subsidization and in times of rising prices they also receive expected returns on housing.*

KEY WORDS: Affordability, expenses, Flanders, housing, the Netherlands, user costs

Introduction

Affordability analyses may be based on out-of-pocket expenses needed by households to finance their housing consumption or their user costs of the capital embodied in the dwelling. This is not an exhaustive list, but it shows why Wilcox (1999) called the concept of affordability of housing a 'vexed' one. It means different things to different people (Quigley & Raphael, 2004, pp.191–192):

> [it] jumbles together in a single term a number of disparate issues: the distribution of income, the ability of households to borrow, public policies affecting housing markets, conditions affecting the supply of new or refurbished housing, and the choices that people make about how much housing to consume relative to other goods.

The literature about housing affordability traditionally focuses on one type of affordability concept. It is what Hancock (1993, p. 140) calls the 'short-run costs' being the out-of-pocket cash flows or expenses that households make to finance the access to their home. Hancock (1993, p. 140) contrasts this concept with the 'long-run ability' of households to pay the so-called user costs or price of housing consumption.

While the user cost concept is often used in economic modelling of the housing market, policy makers will be interested in an affordability concept that they can measure easily—the out-of-pocket cash flows. Instruments such as housing allowances often are based on a relationship (norms) between household income and these out-of-pocket cash flows. Changes in these variables are based on facts and not on expectations of house prices and of other variables necessary to calculate user costs. Consumers also often only take out-of-pocket cash flows into account. Typical here would be to forget about depreciation when calculating the costs of using a car in daily life.

However, affordability is not a one-dimensional concept, and a combination of more than one concept will give better insight into the affordability of housing for consumers. This paper aims to show how an affordability analysis for a country or a region can be improved by a more comprehensive view on affordability: a combination of the short-term and the long-term concept, which to the authors' knowledge has not been promoted much by other researchers (but see Doms *et al.*, 2001; Quigley & Raphael, 2004). The analysis will show that both concepts are not interchangeable and that each concept of affordability has its own uses in analysing the complex interplay of variables that influence affordability.

This will be illustrated with data for Flanders, one of the three Autonomous Regions of Belgium, and the Netherlands. These 'countries' may be considered good choices from a housing market point of view. They are countries with different housing markets (see Table 1). Flanders may be 'the country'[1] in northwestern Europe, with the possible exception of Germany, that has the smallest social rental sector expressed as a share of the total housing stock, while the Netherlands has the largest social rental sector (Department of the Environment, Heritage & Local Government (Ireland), 2004). Furthermore, Flanders has a relatively large owner-occupied sector, while in the Netherlands it is relatively small.

The next section describes theoretical issues concerning the two concepts of affordability. The methodology is then presented, showing how the two definitions were put into practice for Flanders and the Netherlands. The results of the calculations are presented in the fourth and fifth sections. Conclusions follow in the final section.

Table 1. Tenure distribution (%) in Flanders (2005) and the Netherlands (2006)

Tenure	Flanders		The Netherlands	
Rented sector total	24.1		44.2	
Social rented sector		*5.6*		*35.2*
Private rented sector		*18.5*		*9.0*
Owner-occupied sector total	74.4		55.8	
With a mortgage		*33.6*		*48.5*
Without a mortgage		*40.9*		*7.3*
Free housing	1.5			
Total households	100		100	

Sources: Flemish Housing Survey (2005), WoON (2006), TU Delft/OTB calculations.

Affordability in the Short and Long Run

Affordability is about three elements, as the often referred to definition by Maclennan & Williams (1990, p. 9) (Freeman *et al.*, 2000; Hancock, 1993, p. 129; Whitehead, 1991) shows:

> 'Affordability' is concerned with securing some given standard of housing (or different standards) at a price or a rent which does not impose, in the eyes of some third party (usually government) an unreasonable burden on household incomes.

Looking at the definition of the price or rent, the concept of opportunity cost may be a helpful one to distinguish between both concepts of affordability. Whitehead (1991, p. 873) defines affordability as 'the opportunity cost of housing *vis-à-vis* other goods and services' (see also Stone, 2006a). Opportunity cost of housing is then about 'what has to be foregone in order to obtain housing' (Hancock, 1993, p. 129).

Opportunity 'cost' in relation to expenses in terms of what has to be forgone can be regarded as using current household income for housing consumption instead of other consumption (or saving). This forgone income for other purposes, called cash flows, cash or out-of-pocket outlays or expenses, is used to finance the access to a dwelling at a certain moment in time without taking into account any future, or for that matter past, developments in these cash flows. It is about the out-of-pocket expenses of a household that are needed to finance housing consumption at the moment of measurement. The label of 'short run' in connection with affordability will thus be an understandable one (Hancock, 1993). For tenants the expenses come in the form of rent; for owner-occupiers in the form of expenses to finance the mortgage loan.

Long-run affordability is the long-run ability to finance housing consumption (Hancock, 1993). The long-run aspect is embodied in the term 'cost', which may not be equal to the expenses. Such a distinction becomes necessary when in the (neo)classical economic line of thought there is an investment good that generates a flow of services (see the seminal article of Hall & Jorgenson, 1967), being housing services in the case of housing. It is these housing services that are consumed, not the dwelling itself. The cost of using or consuming such a service will have to be determined or attributed based on the purchase price of the dwelling, the value changes of it and other costs of managing the dwelling. The user costs of capital are thus the costs of using or consuming one unit of housing services during a period. It is about the opportunity cost or revenue forgone of investing in housing instead of putting the funds into the best alternative investment.

The owner of a dwelling will calculate the user costs of housing consumption to determine the costs of one unit of housing services. If the owner is a landlord, the owner will set the rent for the tenant at that level. If the owner is an owner-occupier, the owner will impute this cost or 'rent' to the occupier. The rent is fictitiously set. In both tenures the occupier 'pays' the costs or price of housing consumption. In theory, the price is equal for the same quantity of housing services in renting and owner-occupation (see also Himmelberg *et al.*, 2005). In theory the rent as an expense will also be equal to the user costs for the rental service, while for owner-occupiers expenses and costs of consumption will differ.

According to the above definition of affordability, next to the price or rent of housing, two standards will be needed to determine the extent of affordability of housing for

households. The first is a standard of reasonableness of the price paid for housing consumption in relation to income. With this standard it is possible to determine the size of the group of households for whom housing will be unaffordable from an income point of view.

Furthermore, without a standard for housing quality to be consumed it is not possible to be certain whether housing indeed is unaffordable as quality influences this evaluation (Thalmann, 2003). Housing can be unaffordable because of over-consumption, while it can be affordable due to under-consumption. In the first case a household might be living in a dwelling that is 'too big', such as in the case when older people whose children have moved out may choose not to downsize. Over-consumption (or over-housing) may also occur because of investing in 'too expensive' housing. Under-consumption (or under-housing) occurs when households live in poor quality housing or housing which is 'too small' in relation to household size (over-crowding) in order to keep housing affordable within their budget.

Whitehead (1991) summarizes the above reasoning as follows:

> only those households who given their income and the cost of their housing, could not *potentially* consume the required level of housing without breaking the affordability criteria are regarded as having a [affordability] problem. (p. 875)

The actual consumption pattern can differ from the potential one, either by personal choice or by constraints (Hancock, 1993). If it is about personal choice—about not being willing to pay the price—it is not an affordability problem. Neither would there be an affordability problem in the cases of over-consumption or over-housing. In the case of constraints, e.g. choosing between housing or other consumption, and either under-consuming housing or under-servicing non-housing needs, unaffordability will be a reality. From an expenses' point of view the latter situation has been called 'shelter poverty' (Stone, 2006a).

Definition of Expenses

For the tenant net rent consists of the difference between gross rent (the rent set by the landlord) and housing allowances (see Table 2). Net housing expenses for homeowners

Table 2. Components of residual income in relation to the income of the tenant and the owner-occupier

Tenant	Owner-occupier
Gross rent*	Gross housing expenses**
– Housing allowances	– Fiscal effect income tax
= Net rent	= Net housing expenses
Disposable income	Disposable income
– Net rent	– Net housing expenses
= Residual income	= Residual income

Notes: *Gross rent includes any costs that the landlord will include in the rent calculation, also for maintenance, property tax, etc. Gross rents could be set lower than market rents either by subsidy, by rent regulation or by taking a loss (social landlord).**Gross housing expenses include the amounts for financing, property tax and other property owner expenses, such as home insurance fees, ground lease charges, property tax and owner's share of maintenance.

consist of the difference of the loan financing expenses (interest and repayment) and income tax effects, such as the mortgage interest deduction. If accessibility of housing is the concern, first it is necessary to relate expenses to income. In relating housing expenses to income, the residual income concept is applied here (Stone, 2006a, 2006b) as opposed to the ratio-approach (Hulchanski, 1995).[2] The residual income is calculated by subtracting net housing expenses from disposable income, for renters and owner-occupiers.

Definition of User Costs

In its simplest form, user costs of capital consist of the real interest rate i earned on the value V of the investment. The real interest rate can be split into composing variables such as holding costs and expected value change (Quigley & Raphael, 2004; see also e.g. Hall & Jorgenson, 1967; Hendershott, 1988; Himmelberg *et al.*, 2005; Poterba, 1984; Van Order & Villani, 1982):

$$UC = (i + h - p)V \qquad (1)$$

where:

UC = user costs
i = real interest rate
h = holding costs (depreciation, property tax, etc.)
p = expected specific price change (inflation) of the dwelling
V = value of the dwelling

The expected value change of a dwelling is to be regarded as the so-called specific or pure price change. The specific price change is the inflationary component of the value change (Garner & Verbrugge, 2007; Wigren, 1996). It is the price change of a dwelling with a constant-quality package of services. Price changes reflecting quality changes in the dwelling, such as improvements that would be regarded as new investment, are excluded from the price change in this way. The expected value change can be estimated either rationally or pragmatically via an extrapolation of recent developments (Diamond, 1980).

Next, income taxation will have an effect on the user costs because the returns to housing may be taxed. As, normally, nominal returns are taxed in income tax, not real returns, the interest rate and the specific price inflation in real terms will have to be explicitly corrected in the formula for inflation (respectively i + a and p + a; Quigley & Raphael, 2004).

$$UC = [(i + a)(1 - t) + h(1 - t) - (p + a)(1 - t)]V \qquad (2)$$

where:

a = inflation
t = income tax rate

Solving the expression yields:

$$UC = (i + h - p)V - (i + h - p)tV \qquad (3)$$

The direction of the tax influence on user costs will depend on whether the real interest rate plus the holding costs are smaller or larger than the real expected specific price change.

Note that general price inflation has cancelled out of the equation when nominal interest is tax deductible while capital gain (or loss) is taxed (tax deductible).

When nominal capital gain is not taxed in income tax in equation (2), general price inflation will reduce the user costs, as well as the tax deductions for the real interest rate and the holding costs:

$$UC = (i + h - p)V - (i + a + h)tV \qquad (4)$$

Expenses Versus User Costs and Government Intervention

Based on the government intervention identified above, the rent allowances, the statement that rent expressed as expenses will be equal to the user costs for the rental service, needs to be specified. In theory, in the first instance user costs will be equal to gross rent (Table 2), which is the price set by the landlord, being the costs necessary to produce the housing services. In practice, there may be a difference between both amounts caused by, for example, rent regulation or supply subsidization. Furthermore, if there is demand subsidization, for example, rent allowances, the price set by the landlord (including supply subsidization) and the price paid by the tenant will differ and the latter price should be called costs of occupation.

For owner-occupiers, expenses to finance the access to the dwelling and costs of consumption will differ regardless of the type of government intervention aimed at the owner of the dwelling because the composing variables differ. Both concepts take the tax treatment of funds invested in the owner-occupied dwelling into account, but differently. Expenses only take debt financing into account, while user costs also include the interest costs of equity financing. Only when there is 'other' demand subsidization than income tax subsidies, the costs paid for the occupation will differ from the user costs.

Methodology

Generally, data on housing expenses are collected by means of housing surveys, as is the case for the data that used here for Flanders and the Netherlands. Expenses are measured according to the definitions given in Table 2. User costs, however, are not readily available in surveys or statistics; thus assumptions have to be made. First, the case here will abstract from the possible differences between rent based on user costs and rent paid by tenants. It is assumed that both are equal. User costs (e.g. the costs of occupation[3]) for tenants are assumed to be equal to net rent as defined in Table 2.

Contrary to renting, for owner-occupation the user cost calculations need further detail about assumptions which are contained in Appendix 1. The Appendix also contains a more technical description on how in two counts the user costs of homeownership may be underestimated in both countries. On the one hand, house price data are used for a period where they were historically high; on the other hand, nominal rates of interest and specific price change are used. Given the possible underestimation, the user costs that are calculated can be considered the minimum amount.

As has been shown, measuring affordability requires definitions of price, income and quality standards. For the purposes of this contribution, however, the study did not design standards for quality or reasonableness. Technically, it is not possible to speak of

measuring affordability, but of measuring housing expenses and costs. This paper will thus show neither the quality being consumed nor whether households chose a certain level of expenses or costs voluntarily or by restriction (Hancock, 1993; Stone, 2006b; Whitehead, 1991).

Databases and Selections of Households

For the analysis of short-term affordability, a group of recently moved households was selected because they had dealt with the most recent situation on the housing market and the associated housing policy.[4] The group of households who moved during a period of five years before the survey date were analyzed. For the Netherlands the period was 2001–2006; for Flanders, the period was 2000–2005. With regard to the analysis of the owner-occupied sector, the homeowners who had taken out a mortgage were selected. An affordability analysis in the sense of financial accessibility is less relevant for the group without a mortgage, as their gross housing expenses only include property tax and homeowner's maintenance expenses.

The long-term affordability analysis was carried out for all the households who moved during a 10-year period before the survey date. Preferably, the study would have included all households. This was not possible because the Flemish Housing Survey 2005 does not include information on house prices for the households who moved before 1995 (for the sake of memory bias).

In order to not only present averages for households per tenure, but a distribution of affordability across households, the study used tertiles of equivalent income for the expenses and quintiles for costs. Equivalent income is calculated by correcting the disposable household income for the household composition. The OECD modified equivalence scale was applied.[5] Tertiles of equivalent income are calculated by dividing the income distribution, of the total population or a subpopulation (e.g. the renters), in three equal parts. The 33 per cent lowest-income households form the first tertile, whereas the third tertile consists of the 33 per cent of households with the highest equivalent incomes. Similarly, five quintiles of equivalent income are calculated for the user cost analyses. The lowest quintile represents the 20 per cent lowest equivalent incomes.

Interplay of Variables: Government Intervention

By presenting the results not only as averages for tenants and owner-occupiers but also corrected for household composition, possible differences in household types in the two groups are taken into account. The focus is on the influences of government intervention on expenses and costs for the different income groups in the different tenures. Next to general economic variables (such as interest rates), financial variables (such as type of loan and loan-to-value ratio) and specific housing variables (such as house price), the effects of certain government intervention can be highlighted, differently for expenses and costs. Government intervention usually takes the form of financial support, which explicitly or implicitly lowers expenses and or costs. The lowering of expenses or costs will be called a housing subsidy.[6]

An example of an implicit subsidy is the effect of rent regulation on gross rent and thus on user costs (e.g. costs of occupation). This is the case in Belgium where the federal legislation is applicable in Flanders (Elsinga *et al.*, 2007). It limits rent increases for sitting

tenants in the private rental sector to the rate of inflation for the duration of the contract (maximum of nine years). For new contracts, there is no regulation. In contrast, rent control in the Netherlands affects existing and new contracts in 95 per cent of the rental sector. Rent increases for sitting tenants are determined by a political decision, while rent levels for new contracts are based on the quality of the dwelling and, to some extent, the environment. There is a maximum rent level per dwelling, determined by specified quality criteria. In both rental tenures the rent is lower than the maximum rent, but for social renting it is almost 19 per cent lower than in private renting because of implicit subsidization by social landlords (Ouwehand & Van Daalen, 2002).

In Flanders there is another element of implicit subsidization when rents in the social sector are also set according household income. Differential rent setting can be considered an implicit housing allowance (Kemp, 1997). In contrast, in the Netherlands housing allowances are an explicit subsidy to low-income households. One Dutch tenant out of three received a housing allowance amounting to €148 per month in 2006 (Ministry of VROM, 2007). In Flanders, a means-tested housing allowance is also available, but it is selective and aims to assist low-income households who move from a poor quality rental dwelling to a good-quality, rental dwelling. In 2005, 2 per cent of tenants received this allowance, averaging €120 per month per beneficiary (Heylen *et al.*, 2007).

For owner-occupation, the non-taxation of capital gains can be considered an implicit subsidy; the tax deduction of interest of debts and equity (only user costs) are considered an explicit subsidy. In the Netherlands, mortgage interest is fully deductible against progressive tax rates for a period of 30 years (Haffner & De Vries, 2009). The system encourages people to take out interest-only mortgages. In 2006, more than 44 per cent of homeowners with one mortgage had one and 76 per cent of those with a combined mortgage had one (Ministerie van VROM, 2007). The tax deduction is marginally offset by a tax on imputed rent, amounting to less than 1 per cent of the market value of the property in an unoccupied state. In Belgium (1989–2005), mortgage interest and part of the mortgage repayment could be deducted from taxable income for a limited period. This tax relief was limited by different ceilings and was positively related to the mortgage sum (De Meyer, 2007).

Furthermore, implicit subsidies determine the level of gross expenses or user costs. In Flanders these are a lower VAT-rate for renovation costs, a lower property tax rate for families with children or the lower transaction tax rate for houses with a low cadastral income (Doms *et al.*, 2001). In the Netherlands, periodic grants for lower-income homeowners exist, as well as a government mortgage guarantee (lower interest than otherwise would be), as well as a government guarantee for loans of social landlords (Oxley & Haffner, 2010).

In sum, the effects of the explicit subsidies on expenses and costs are discussed in the next sections; the effects of the implicit subsidies generally will remain a 'black box'. One exception here is the difference in gross rent/user costs between social and private tenants in Flanders. The comparison of the two tenures gives an impression of subsidization in social renting in comparison with only slightly regulated market rents. For Dutch rents this effect will be much smaller.

Expenses: Flanders and the Netherlands Compared

Table 3 shows the results of the short-term affordability calculations for the different housing market sectors in Flanders and the Netherlands for households who had recently

Table 3. Components of residual income according to tenure for recent movers, average amounts in euro per month, Flanders/the Netherlands, 2005/2006

	Gross rent/ gross housing expenses	Housing allowance/ fiscal effect	Net rent/ net housing expenses	Disposable income	Residual income
Flanders					
Rented sector	423	− 2	421	1814	1393
Private rented sector	*453*	*− 1*	*452*	*1884*	*1432*
Social rented sector	*258*	*− 2*	*256*	*1433*	*1177*
Owner-occupied sector*	830	− 84	746	3349	2603
The Netherlands					
Rented sector	421	− 47	374	1631	1257
Private rented sector	*501*	*− 19*	*482*	*1927*	*1445*
Social rented sector	*394*	*− 56*	*338*	*1533*	*1195*
Owner-occupied sector*	1074	− 308	766	3127	2361

Notes: *owner-occupiers with a mortgage.*Sources:* Flemish Housing Survey (2005), WoON (2006), TU Delft/OTB calculations.

moved (2005/2006). In both countries the differences in disposable income between homeowners with a mortgage and tenants compensated for the higher net housing expenses for homeowners compared to tenants. In Flanders the average residual income per month was more than €1200 higher in the mortgaged owner-occupied sector than in the rental sector (2005); in the Netherlands the difference in residual income between both tenures on average amounted to €1100 per month (1 January 2006). As a result, the difference in short-term affordability between the rental sub-sectors and mortgaged homeownership was also greater in Flanders than in the Netherlands.

For the rental sub-sectors a similar description can be given of the proportions as for the difference between owner-occupation and renting. Gross social rent is much lower than gross private rent, more so in Flanders than the Netherlands. Given that social rented dwellings on average do not have fewer rooms than private rented dwellings (Heylen & Haffner, 2009), the implicit bricks and mortar subsidies involved in combination with the differential rent setting in the Flemish social rented sector must be substantial. Furthermore, on average the income differences between both rental sub-sectors are similar in both countries (€452 versus €394 per month), the income being lower for social than for private tenants. As a result of the higher incomes and the higher rents, the average residual income is considerably higher in the private than in the social rented sector. It is clear from these numbers that on average in both countries the social rental sector caters for the lowest-income households.

On average, the amounts of explicit government intervention are considerably lower in Flanders than in the Netherlands. In Flanders, the housing allowances on average have a small effect (whereas the implicit subsidization that shows in the social rents has the most effect), while in the Netherlands the rents charged become clearly much lower ('more social') as a result of housing allowances. The fiscal effect for homeowners is also higher in the Netherlands than in Flanders (€308 versus €84). However, this greater government intervention in the Netherlands is compensated for by higher gross housing expenses (€1074 versus €830), which results in a similar average amount of net housing expenses in both countries. This effect of demand subsidization translates into house prices estimated to be

10–30 per cent higher (Conijn, 2008) in the Netherlands, where house prices averaged €223 000 in 2005 in comparison with €164 000[7] in Flanders, which must be ascribed to the relatively inelastic supply. Another part of the explanation of the difference in gross expenses between both countries may be the higher loan-to-value ratio in the Netherlands for first-time buyers (101 per cent) than in Flanders (80 per cent), although the loan term differences of 30 versus 20 years will work in the opposite direction (ECB, 2009).

Table 4 shows the housing expenses and residual income according to tenure and income groups (tertiles) for Flanders. The results account for household type differences between the different tenures, since the tertiles are based on disposable income corrected for household composition (equivalent income). The gross rent for tenants and the gross housing expenses for owners rise with income tertile. However, the short-term affordability turns out relatively worse for tenants than for owner-occupiers with a mortgage as a result of the income differences between both tenures. The difference in residual income corrected for household composition is about a factor two between both tenures, implying that homeownership with a mortgage is about twice as affordable as renting.

In contrast to the Flemish situation, the Dutch differences in income between owning and renting are less than a factor two in all tertiles (Table 5). However, as in Flanders, affordability for mortgagors is much better than for tenants for the same reason as in Flanders. On average, the lower incomes of tenants determine their relatively worse short-term affordability, even though their net rents, including implicit and explicit subsidization, on average are lower than the net housing expenses of homeowners.

Even though homeowners' short-term affordability is better in both countries than that of tenants, government support as determined by the partial analysis here of explicit subsidization is in favour of owner-occupiers with a mortgage, who on average in all tertiles are deducting larger amounts of income tax than tenants receiving housing allowances. The effect of targeting is very limited. It is even absent in the Netherlands where the average fiscal effect for owner-occupiers increases between the second and third tertile, showing the effect of the unlimited mortgage interest deduction based on high house prices and high loan-to-value ratios. The effect of targeting is limited to some extent in Flanders because the average effect in the third tertile is not significantly higher than in the second, even though gross housing expenses are, on average, more than €240 per month higher in the third than in the second tertile. This is the result of the built-in upper-limits of the tax system.

Table 4. Components of residual income according to tenure and tertiles of equivalent income for recent movers, average amounts in Euro per month, Flanders, 2005

Gross rent/gross housing expenses	Housing allowance/ fiscal effect	Net rent/net housing expenses	Disposable income	Residual income
Rented sector, equivalent disposable income tertiles				
1 358	− 4	354	1125	771
2 418	− 1	417	1645	1237
3 488	0	488	2617	2129
Owner-occupied sector with a mortgage, equivalent disposable income tertiles				
1 699	− 60	639	2325	1686
2 769	− 92	677	3111	2434
3 1011	− 98	913	4540	3627

Source: Flemish Housing Survey (2005).

Table 5. Components of residual income according to tenure and tertiles of equivalent income for recent movers, average amounts in Euro per month, the Netherlands, 2006

Gross rent/gross housing expenses	Housing allowance*/ fiscal effect	Net rent/net housing expenses	Disposable income	Residual income
Rented sector, equivalent disposable income tertiles				
1 370	− 91	279	974	695
2 407	− 44	362	1518	1156
3 485	− 5	480	2401	1921
Owner-occupied sector with a mortgage, equivalent disposable income tertiles				
1 901	− 191	710	2129	1419
2 1024	− 282	742	2862	2120
3 1297	− 450	847	4390	3543

Notes: *Housing allowance received is based on income in reference period. That income may not be equal to the income measured in the survey. *Source*: WoON (2006), TU Delft/OTB calculations.

Nonetheless, subsidy targeting in the rental sector is much stronger, especially through the use of subsidized or social rents. In the Netherlands, targeting is also much stronger for tenants than for owner-occupiers, in this case as a result of housing allowances.

Government intervention not only affects the financial accessibility to housing of households, but also the income distribution of households. When taking the step from disposable to residual income the basic result is that expenses for housing increase the income inequality in both tenures and in both countries, as measured by the ratio of the average disposable (or residual) income of the third tertile to the same average of the first tertile. The increase in the ratio indicates that housing is relatively less affordable for low-income than for high-income households.

On average, in both countries inequality is higher in the rental sector before and after housing costs, and also increases more in the rental sector than in the owner-occupied sector when taking the step from disposable to residual income. This indicates that housing is relatively less affordable in the rental sector than in owner-occupation with a mortgage.

The targeted housing allowances in the Netherlands contribute to a smaller increase in inequality (from 2.5 to 2.8) than in Flanders (from 2.3 to 2.8), which implies more effective demand side subsidization for tenants in the former than in the latter country. For homeownership it is the other way around. Tax subsidization for mortgagors contributes to a stronger income inequality rise in the Netherlands (from 2.1 to 2.5) than in Flanders (from 2.0 to 2.2), implying relatively less effective subsidization of the taxpayers in the Netherlands. Regardless of the size of the effects, in both countries, subsidization makes owner-occupation more attractive, the higher the income.

User Costs: Flanders and the Netherlands Compared

Table 6 presents the yearly user costs of housing in Flanders and the Netherlands, for households who moved during the last 10 years (before the year of the survey). The results are shown according to tenure and equivalent disposable income. Figure 1 and 2 show the yearly user costs for owner-occupiers per income quintile divided according to cost (positive) and revenue (negative) components, for both countries.

When the 'expected price change' component is excluded, the yearly user costs for owner-occupation were, on average, slightly higher in the Netherlands (€12 290) than in

Table 6. User costs of housing according to tenure status and income, for households that moved during 10 recent years, average amounts in Euro per year, Flanders/the Netherlands, 2005/2006

	Total	Quintiles of equivalent disposable income				
		1	2	3	4	5
Flanders						
Owner-occupation, incl. expected value change	−7637	−8863	−9819	−9036	−9469	−1103
Owner-occupation, excl. expected value change	12066	9914	11025	12630	11597	15190
Rented sector	4936	3705	4478	5164	5133	6064
Private rented sector	*5328*	*4438*	*5217*	*5184*	*5475*	*6187*
Social rented sector	*2998*	*–*	*–*	*–*	*–*	*–*
The Netherlands						
Owner-occupation, incl. expected value change	−4128	−3093	−3292	−3431	−3504	−5660
Owner-occupation, excl. expected value change	12290	13315	10962	10968	11373	14293
Rented sector	4437	3387	4325	4889	5504	7107
Private rented sector	*5653*	*4148*	*4843*	*5360*	*6382*	*8602*
Social rented sector	*4092*	*3251*	*4216*	*4735*	*5094*	*5519*

Sources: Flemish Housing Survey (2005), Stadim (2006), WoON (2006), TU Delft/OTB calculations.
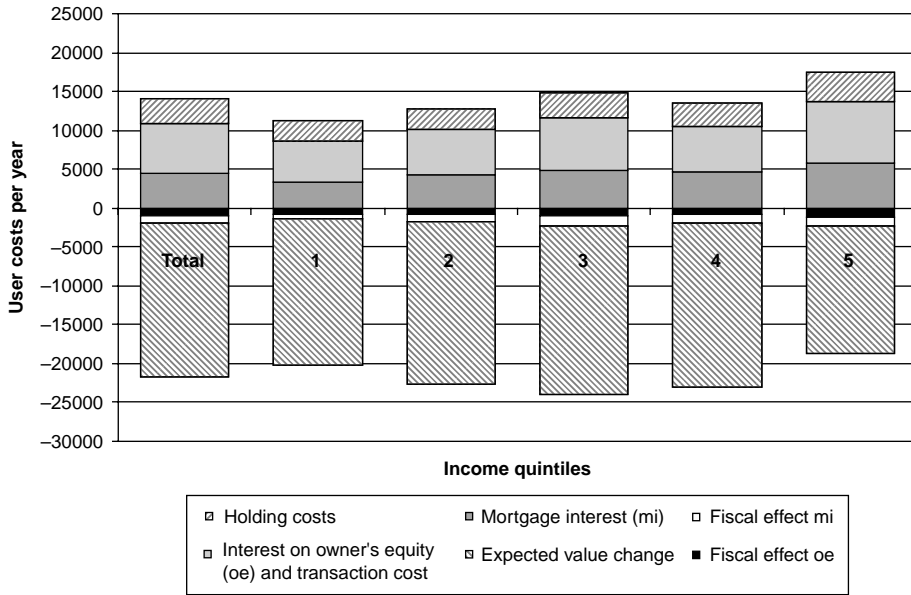
Figure 1. Composition of annual user costs (Euro) of Flemish owner-occupiers according to quintile of equivalent income, 2005. *Source:* Flemish Housing Survey (2005).
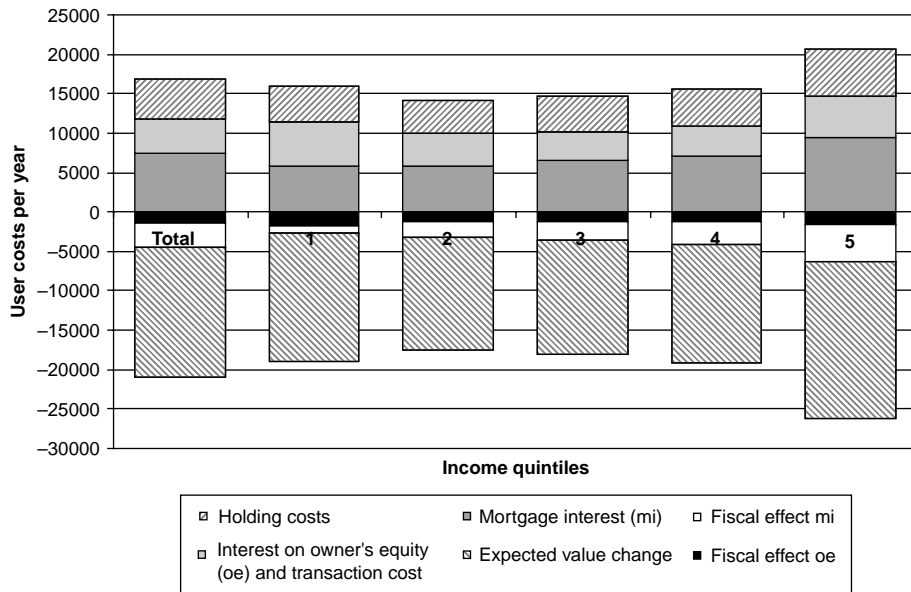
Figure 2. Composition of annual user costs (Euro) of Dutch owner-occupiers according to quintile of equivalent income, 2006. *Source:* WoON (2006), TU Delft/OTB calculations.

Flanders (€12 066). This indicates that the estimated specific price rise in Flanders was higher than in the Netherlands. This explains why the user costs of owner-occupation in Flanders are lower than in the Netherlands.

In fact, when all user cost components are included and corrected for government intervention on the demand side, the user costs of owner-occupation in 2005 turn out to be a return: revenue components exceed cost components. On average, owner-occupation yielded a yearly profit of €7637 for Flanders and €4128 for the Netherlands. The user costs turned 'negative' for 2005 because of the strong influence of the expected price change, which on average was higher in Flanders (€19 703) than in the Netherlands (€16 418).

In Flanders, the expected price rises between the first and the third income quintile whereas it is remarkably low in the fifth quintile (Figure 1). This finding can be explained by the way household income is related to the expected value change of the dwelling, which happens in two opposing ways. On the one hand, higher-income households on average occupy dwellings of a higher value than lower-income households, which contributes to a greater value change. On the other hand, the average yearly price-rise of large dwellings in the five-year period (1.1 per cent) was far less than the price-rise of medium-size dwellings (10.7 per cent) or apartments (9.3 per cent). Logically, high-income households more often own relatively large dwellings than households with a lower income. As a consequence, the expected price change in the fifth income quintile is below average, resulting in a significantly lower user 'gain' in the fifth than in the other quintiles.

In addition for the Netherlands, the expected value change rises with equivalent income, with the exception of the first quintile (Figure 1). The higher amount of estimated expected value change in this quintile than in quintiles 2 to 4 must either be an effect of the result of geographic differences (the dwellings are in provinces with higher value changes) or of the higher value of the dwelling owned. The latter argument is supported with the higher interest costs calculated for owner's equity in the first quintile compared to the other quintiles. Presumably, older, retired homeowners with a small or no mortgage and a relatively lower income cause this effect. This group of households is over-consuming housing services.

Figures 1 and 2 show that the interest costs on debt and on owner's equity are the most important components of the user cost after price effects. On average, the Dutch mortgage interest costs are higher than the Flemish ones, which will be partly due to higher house prices in the Netherlands. In addition, the ratio of the amount of mortgage interest to the amount of interest on owner's equity is higher in the Netherlands than in Flanders, which indicates that on average the loan-to-value ratio is higher in the Netherlands when mortgage interest rates are comparable. This finding clarifies that the equal housing expenses that are on average paid by the Flemish and Dutch mortgagors are made for a relatively larger part of the dwelling value in the Netherlands than in Flanders. As a consequence, when the whole dwelling value is considered, costs (without the effect of the specific price increase) are on average higher in Flanders than in the Netherlands. When purchasing a dwelling, Flemish households tend to bring in more own equity, which lowers the mortgages payments but which has to be accounted for when housing 'affordability' is examined in the long term.

Returning to Figures 1 and 2, it is found that the tax relief for mortgage debt and owner's equity in most quintiles are the lowest amounts in both countries of all the components that make up user costs, but much more so in Flanders than the Netherlands. The first reason for the difference is the smaller fiscal effect on the interest on owner's equity because of the

lower proportional tax rate of 15 per cent in Flanders than the Dutch tax rate of 30 per cent. Second, as loan-to-value ratios in the Netherlands tend to be higher than in Flanders, Dutch tax rates are progressive and the whole amount of mortgage interest is deductible, the mortgage interest deduction in the Netherlands is bigger than in Flanders and increases with income. As a result of the progressive tax rate the share of the amount of interest deducted in the amount of mortgage interest increases with income, while in Flanders the share of the amount of tax deduction to amount of mortgage interest decreases with income because of some built-in upper limits for tax relief related to the value of the dwelling.

Finally, Figures 1 and 2 show holding or management costs. On average, in the Netherlands the share of the management costs is more than 40 per cent of the user costs excluding the estimated expected price change of the dwelling. In Flanders, this share is 25 per cent because it excludes costs of the land lease and the building insurance. Otherwise these costs consist of maintenance costs, property tax and depreciation of the dwelling in both countries.

According to theory, the user costs of renting would be equal to the user costs of owner-occupation. However, that was not the case in 2005: while owner-occupiers were in fact earning a return on living in their own dwelling, tenants were paying rent (Table 6). Therefore, in 2005 owner-occupation was thus more affordable in the long term than renting. One reason for this outcome is the regulation of rents. A second reason is about quality differences between the tenures. On average, in both countries owner-occupied dwellings are of better quality than rental dwellings (Elsinga *et al.*, 2007). Another reason is methodological: the *ex post* calculation of house prices over a relatively short period (see above).

On average, social renting was more affordable in the long term than private renting in 2005. The combination of differential rents, bricks and mortar subsidies and housing allowances in the social sector resulted in a much lower average rent in Flanders (€2998) than in the Netherlands (€4092). Although the annual user costs for the private tenant were on average also lower in Flanders (€5328) than in the Netherlands (€5653) due to the much larger private rental sector, the user costs for renting were higher in Flanders than in the Netherlands. In the Netherlands they increased with income more linearly than in Flanders, probably as a result of the more widely applied means-tested housing allowance in the Netherlands.

Conclusions

This paper has argued that two concepts of affordability should be used together in order to outline a more comprehensive picture of affordability. The first concept is short-term affordability, which is concerned with financial access to a dwelling based on out-of-pocket expenses; the second is long-term affordability, which is about the costs attributed to housing consumption. The analyses here of the most recent Flemish and Dutch data available on affordability show that each concept has its own uses, that they are not interchangeable and that they complement each other. Together they provide information on the financial accessibility of housing in the short term and the capability to pay for housing in the long term.

The analyses show that in 2005 homeowners (with a mortgage) 'cashed in' twice on affordability. In the short term this conclusion can be explained by the fact that the share of income spent on necessary goods and services will decrease as income rises.

As homeowners on average have higher incomes, homeowners with a mortgage are relatively better off than tenants. The differences between both tenures are greater in Flanders than in the Netherlands. This effect mainly occurs because of the greater differences in disposable income between the housing market sectors in Flanders than in the Netherlands. These income differences are related to the policy-set income boundaries in social housing and the different shares of the sectors in the housing market in Flanders and the Netherlands.

In the long term, the difference between homeowners and tenants results from the yearly expected value gain of the dwelling surpassing the other annual cost components. Owner-occupation yields a profit regardless of the income level under the assumptions that were made. Assuming this profit as a result of the expected value gain also is accruing to landlords, rents could be lowered to a certain required, market, return. As they had not actually been lowered, tenants were paying rent, while homeowners had negative housing costs, resulting in a yield from living in their own dwelling in 2005/2006. This shows that a dwelling is thus more than just a way to satisfy consumption in the form of the provision of a roof above the head.

The expected price rise or decrease is an important aspect of housing affordability that is being overlooked, when expenses are the guiding principle for housing affordability policies. It is an expression of the risk that the investor runs when investing in housing. Housing equity is also potential income that is often found to create a so-called wealth effect, giving an incentive to increase (or decrease) consumption (Case & Quigley, 2008). However, the analyses here show that the expected specific price change is not linearly linked to equivalent household income. Rather, it redistributes housing equity in the direction of more for the Dutch 'poor' and less for the Flemish 'rich'. This comes about as the expected price change for the Dutch 'poor' is more than average and for the Flemish rich is less than average. The size of the dwelling is the intermediating variable between price change and income. In the case of the Netherlands, pensioners with repaid mortgage loans and relatively expensive homes (over-consumption) are over-represented in the first income quintile, which distorts the linear relationship between equivalent income and the expected value change. In Flanders, the expected price rise is higher for medium-sized dwellings and apartments than for large dwellings, resulting in a lower than expected value change for the highest income quintile. As a result of the importance of the value change, several other aspects such as activity status or differentiated value change rates have an impact on housing affordability in the long term.

Thus, in the case of long-term affordability the intermediary variable between household income and affordability is the value of the dwelling, making the linearity of this relationship not a necessity. In the short term that link, as is shown here, is expected to be more linear than in the long term. Cash flows usually are linked to income, especially by borrowing constraints (loan-to-income requirements) for mortgage loans, simply by the fact that a household also will have to pay for non-housing consumption, and by requirements for income subsidies for occupiers (here rent allowances).

In theory, the expected price adjustments in the long term would play a role in both tenures and the user costs in both tenures would be equal to each other. The fact that this did not turn out to be the case in the calculations here implies that homeowners have high expectations about future capital gains, which is an effect that comes about because of using *ex post* house price data for a relatively short period of time. Even if a longer period would be used, differences between both tenures in user costs will remain because of rent

regulation, which keeps rents below market rents and also because of quality differences between both tenures.

On explicit subsidies (here defined as lowering expenses or costs) to make housing more affordable, the analysis points out that housing allowances have the same impact on costs as on expenses and are targeted at low-income households in both countries. For homeownership the share of the tax effect in costs and expenses is different, much lower as a cost component than as an expense component. In the short term the tax effect increases with income in both countries. In the long term this effect is only visible in the Netherlands, while in Flanders the capping of the tax deduction for higher-income groups is much clearer in the cost concept than in the expense concept, probably because the analysis distinguishes between five income groups instead of three. Furthermore, the short-term concept shows that the average fiscal effect is about three times higher in the Netherlands than in Flanders. Nevertheless, the net housing expenses for homeowners with a mortgage are at approximately the same level in both countries. The long-term analysis complements this finding in that it points out that the loan-to-value rates for homeowners are on average higher in the Netherlands because the about equal housing expenses are made for a larger share of the dwelling value than in Flanders. This shows that when housing policy is only based on the more popular, short-term analyses, policy adjustments might be ineffective. What is not visible in this approach is the effect of policy on dwelling value. Any demand subsidization will in the end benefit the owner of the dwelling, because subsidizing demand will increase the demand for housing services as well as the price, if supply is inelastic.

The Way Forward

These findings point out that the two applied affordability approaches complement each other and that a combination of a short and long-term analysis will deliver a more complete understanding of housing affordability. It is important to realize that this analysis is a partial analysis, focusing on the price of housing consumption as expressed by expenses and as expressed by costs. The results show whether a group pays more or gets more subsidy without being able to state whether the expenses and costs that households are confronted with are affordable for the individual households.

In order to determine affordability in a more exact way, two other aspects are needed: a standard of reasonableness for the price of housing consumption in relation to income and a standard for housing quality. Therefore, there are at least two further areas to which the combination of the two affordability concepts can contribute. This is in addition to the combination of expenses with specific price changes to take the investment aspect into account, and to the financing of the consumption aspect. Another point is to make a comprehensive analysis of all the implicit and explicit subsidies involved. The cash flow subsidies will have to be distinguished from the cost price subsidies (for example, see Hancock & Munro, 1992).

When income standards are used, it will be necessary to define the maximum income that households should spend on housing or the minimum income that households should have available for other consumption. For the residual income approach, which is used in this study, budget standards need to be more widely available than at present in order to be able to identify the amount of minimum non-housing consumption that allows for decent participation in society (for example, see Stone, 2006a). The user cost approach will also

allow for such an analysis, if long-term affordability is confronted with life-long (or so-called permanent) income (for example, see Hancock, 1993). Furthermore, both approaches can be used in an income distribution analysis, exploring the redistributive effect of expenses/costs and the subsidies involved (for example, see Frick & Grabka, 2003; Ritakallio, 2003).

Finally, households which under-consume housing involuntarily need to be identified, as decent standard housing clearly is unaffordable for them. The identification of under-consumption is especially relevant in the case of subsidy measures in order to be able to target them well. Standards on dwelling quality and household composition need to be combined with a price or rent for the dwelling in relation to household income, taking any available housing equity into account in order to determine the amount of subsidization. A challenge remains on the matter of household utility coinciding with the intended utility of the subsidy.

Acknowledgements

Notes

[1] The choice of Flanders instead of Belgium was made because of the availability of the dataset.

[2] Residual income is about the living standard of households after paying for housing consumption. This clearly is its strength compared to the expense-to-income ratio that gives relative figures, which do not have the same meaning in terms of consumption for low and high-income households. Further advantages and disadvantages of both methods can be found in Hancock (1993), Hulchanski (1995) and Stone (2006a).

[3] To prevent the introduction of another concept, the paper will keep using the term 'user costs'.

[4] For the analyses of the results for tenants this choice is less relevant than for analyses of the results for owner-occupiers. As owner-occupiers repay their mortgage, their housing expenses will be highest at the point of acquisition, ceteris paribus.

[5] The disposable income is divided by the sum of the weights for the household members in order to make it 'equivalent' and comparable between different household types. The first adult has a weight of 1, each additional adult in the household a weight of 0.5 and each child up to a maximum age of 15 a weight of 0.3.

[6] This is the only way to discuss subsidies, as the aim of the analyses was not to determine the extent of subsidization according to some benchmark, e.g. the primary structure of the tax system (in order to determine tax expenditures) or in comparison with market rents or market imputed rents or to achieve a neutral subsidization of the different tenures (Haffner, 2002; Hancock & Munro, 1992; Hills, 1991; Poterba, 1984, 1992; Thalmann, 2007).

[7] In the Netherlands the average house price almost reached €223 000 in 2005; the range covered €165 000 for apartments to €370 000 for a detached single-family dwelling (Kadaster, http://www.kadaster.nl). In Flanders the average house price of €162 400 in 2005 was lower than in the Netherlands. The price of small and middle-large dwellings reached €139 600 in 2005. The price of apartments also reached €147 500 in 2005; for large dwellings €272 300 (Stadim, 2006). It should be remembered that the geographical differences regarding price increases in both 'countries' are substantial.

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Appendix 1. Datasets and Variables Used

Datasets

For Flanders, the Housing Survey 2005 was used to calculate expenses and costs. This survey was conducted by the *Kenniscentrum voor Duurzaam Woonbeleid* and included 5216 Flemish households. A weighting factor was applied to adjust the distribution of dwelling type and district. For the Netherlands, the study used the Dutch Housing Survey, the WoON 2006, a survey of the Ministry responsible for housing. The income data of the tax administration of 2005 were coupled with the survey data. More than 60 000 households were interviewed. Weighting factors were applied to the sample, also to obtain results for all Dutch households, which numbered almost 7 million. Based on the raw data, the minimum number of necessary observations was set at 50 per cell, also for the Flemish Housing Survey, in order to safeguard the statistical reliability and accuracy of the results. For the Dutch data, there were no non-responses on income as they were based on registration, while the Flemish data were based on a sample with a non-response rate of 33 per cent.

Variables Used for Expense Calculations

The necessary variables for the expense calculations are directly available in the datasets.

Variables Used for Homeowners' User Cost Calculations

For the user costs of owner-occupiers extra assumptions were added (see Table A1).

Technical Description of User Cost Analyses of Homeowners

Contrary to Equation 3, the costs of funding the value of the dwelling consists of equity and debt. For the costs of the mortgage, the actual interest payments of households were used. As flexible rate mortgages are more the exception than the rule in Flanders and the Netherlands (DNB, 2008; NBB, 2009), the implied interest rates are rather more long term than short term. For the costs of equity a long-term (10-year) interest rate was also used. According to Himmelberg *et al.*, (2005) this allows for the use of a constant rate of expected future value change.

The constant rate of future value change of the dwelling was calculated *ex post* as the average of the price changes over the five years preceding the reference dates of the surveys used. This approach mirrors homeowners' practice (Garner & Verbrugge, 2007; Nordvik, 1995). For the Flemish data, a correction was not made for quality changes, as quality improvements were not detected. For the Dutch data the repeated sales index was used to calculate the specific price change: the price change of individual dwellings was followed. The chosen period of five years may be considered too short a period in order to estimate a structural value (Boelhouwer, 2000; Eichholtz, 1997), but it does give an impression of the house price risk that the homeowner is running. As house prices were historically high for Flanders (De Decker, 2007) in this period and were coming down from a historical high in the Netherlands (Haffner & De Vries, 2009), the user costs calculated may be underestimated for both countries.

The fact that in terms of Equation (4) the interest rates and expected value change were not corrected for general price inflation does not come without a cost. Equation (4) more or less presents the Dutch situation, as far as any of the imputed deductible holding costs are included in taxable imputed rent. For Flanders, as the holding costs are not tax deductible, the holding costs would not be part of the second term of the equation where this is not the case. Using nominal rates of interest and value change means that user cost will be underestimated for Flanders as well as the Netherlands. In Equation 4 when the real rates of interest and value change are replaced by nominal ones, the addition of the inflation rate is cancelled out in the first term of the equation. In the second term, the inflation rate will be doubled, leading to an underestimation of the user cost with inflation corrected by the tax rate. Average inflation rates were relatively low in 2005: it was 2.8 per cent in Belgium and 1.7 per cent in the Netherlands.

Table A1. Datasets and variables

Variable	Flanders 2005	Netherlands 2006
Interest on mortgage loan	Calculated with data from Woonsurvey (2005)	Available in WoON (2006)
Fiscal effect mortgage loan	Calculated with data from Woonsurvey (2005)	Available in WoON (2006)
Owner's equity	Calculated as 'value of the dwelling minus outstanding mortgage loan'	By owner-occupier estimated value of dwelling minus outstanding loan
Transactions tax on purchase of existing dwelling: assumed to be financed with owner's equity	Transfer tax: 12.5% or 6% (small dwelling) of purchase price before 2002; 10% or 5% (small dwelling) since 2002	Transfer tax: 6% of purchase price
Purchase price dwelling	Available in Woonsurvey (2005)	Available in WoON (2006)
Outstanding mortgage loan	Calculated with data from Woonsurvey (2005)	Available in WoON (2006)
Interest rate on owner's equity	3.40% (2005; effective return 10-year government bond) (National Bank of Belgium, 2008)	3.37% (2005; effective return 10-year government bond) (OECD, Main Economic Indicators, 2007)
Fiscal effect owner's equity	15% of the interest on 10-year government bond	Estimated as 30% tax rate on private net wealth
Expected appreciation	Average development last five years (2001 to 2005), according to dwelling type (apartment, small/average dwelling, large dwelling) and province (Source Stadim). Average is 8.2%.	Average development last five years (December 2000 to December 2005) based on repeat sales index (Kadaster) differentiated according to dwelling type and province. For single-family dwellings: 3.9% to almost 10%; and for multi-family dwellings: 4.3% to almost 12%.
Costs of operation:		
Depreciation	0.85% of house value (Conijn, 1995)	0.85% of house value (Conijn, 1995)
Building insurance	No data available	Available in WoON (2006)
Ground lease	No data available	Available in WoON (2006)
Owner's share of maintenance costs	Estimated with data from PSBH (2001), according to number of rooms and indexed. It is estimated as: (average maintenance costs owners minus average maintenance costs tenants) / average maintenance costs owners, Ratio = 0.58	The Flemish ratio of 0.58 is used to determine the owner's share in the total average amount of maintenance costs for owner-occupiers
Owner's share of property tax	Calculated with data from Woonsurvey (2005)	Available in WoON (2006)