SIMULATING RENT SUBSIDIES FOR HOUSEHOLDS IN FLANDERS. A DISTRIBUTION ANALYSIS

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SIMULATING RENT SUBSIDIES FOR HOUSEHOLDS IN FLANDERS.
A DISTRIBUTION ANALYSIS

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Abstract: Housing policies, both in the form of cash benefits and of social housing, can have a considerable impact on the income position of households. In order to evaluate their effectiveness in Flanders, we use the microsimulation technique. We first compare the distributive pattern and poverty effect of the in-kind benefit of social housing to that of cash housing allowances for tenants (via an existing small system of rent subsidies) and owners (via the tax treatment of home ownership). For this purpose, we estimate the value of imputed rent of social housing through a regression-based opportunity cost approach (see Frick and Grabka, 2003). Next, we evaluate alternative policies by simulating them in a microsimulation tax-benefit model. We consider two means tested housing benefits, which are much more substantial in terms of size than current cash benefits for tenants. We assess the poverty impact and distributive effects, and investigate how the structure of the population (and especially the distribution of tenure status) affects the results. To make these alternative housing benefits revenue neutral, we change the tax treatment of homeowners, by reducing the tax relief for mortgage interest payments.

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1. INTRODUCTION

Housing conditions are an important topic when considering poverty and social exclusion. Quality of housing is an explicit dimension in deprivation indicators agreed at the EU-level. Moreover, housing costs make up an important share of household disposable income: according to EU-SILC European citizens spend on average around one fifth of their income on housing costs (Ozdemir and Ward, 2009). For low-incomes, the burden is often much higher. Prior studies have already provided first insights into the relations between housing costs, housing quality and various dimensions of social exclusion (see e.g. Ozdemir and Ward, 2009; Lelkes & Zólyomi, 2010; Social Situation Observatory 2009). The role of policies in this domain remains however understudied, while housing policies, both in the form of cash benefits and of social housing, can have a considerable impact on the income position of households.

There are several reasons why a government might want to intervene in the housing market (Andrews *et al.*, 2011; Ter Rele and Van Steen, 2003). First, from an external effects viewpoint, the (in)stability and (in)efficiency of the functioning of the housing market can have positive or negative effects on the macro economy, directly (as witnessed recently with the financial and economic crisis) or indirectly (carrying implications for geographical mobility on the labour market). Second, when housing is considered to be a merit-good (implying citizens underestimate the importance of adequate housing for themselves or via the potential impact of housing conditions on an individual's health status), paternalistic views as to what constitutes decent housing can motivate subsidizing it. Third, redistributive and social concerns justify policy measures that aim at the provision of affordable adequate housing opportunities for every citizen.

This paper takes the latter viewpoint, and aims to provide a better understanding of the mechanisms of current housing policies in Flanders (Belgium) that help (poor) households to cope with their housing costs (either by financial support or by the direct provision of social housing). Using the microsimulation model MISIM, which runs on the Belgian SILC-data, we compare the distributive pattern and poverty effect of the in-kind benefit of social housing to that of cash housing allowances and tax advantages for homeowners. For this purpose, we estimate the value of imputed rent of social housing through a regression-based opportunity cost approach (see Frick and Grabka, 2003).

Next, we evaluate alternative policies by simulating them in MISIM. We consider two types of means tested housing benefits, based on the concept of "affordability gap". These cash benefits to private tenants would be much more substantial in terms of size than the existing system for cash benefits for tenants in Belgium. We assess the poverty impact and distributive effects for the entire population and for specific subgroups, and investigate how the structure of the population (and especially the distribution of tenure status) affects the results. To make these alternative housing benefits revenue neutral, we change the tax treatment of homeowners by partially reducing the tax relief for mortgage interest payments. Only first round impacts are simulated, leaving aside behavioural and macro-economic second round effects, which are discussed in a separate section.

Section 2 describes the housing context in Belgium: the characteristics of the housing market, as well as the different housing policy measures currently in place for both homeowners and (social) renters are outlined. In Section 3, we discuss the data and methodologies used. The results are presented in Section 4, where we present the different steps towards the introduction of means-tested housing benefits in alternative, budget-neutral scenarios with particular attention for poverty impact and

distributive effects. Section 5 discusses possible second round effects from intervention in the housing market in general, and the effect of changes in the housing subsidy system in particular. Section 6 concludes.

2. HOUSING POLICIES IN BELGIUM AND FLANDERS

Housing policy measures in the Western world take many forms. On the one hand, measures aim to influence the housing market through regulations with respect to housing prices, rents, building stipulations on quality and energy consumption, etc. On the other hand, governments employ tax-benefit measures related to the own dwelling and/or other real estate that have a more direct impact on disposable income of households . In section 2.1 we present the main characteristics of the Belgian housing market, followed by an overview of housing policies that impact directly on disposable household income (section 2.2).

2.1 The housing market

Ever since the Second World War, efforts to support families in the acquisition of a private dwelling have been the core of Belgian housing policies. This resulted in a housing market where owner-occupied dwellings are dominant. About two thirds of Belgian households live in a private home they own, which corresponds to 73% of all individuals (see Table 1). Somewhat less than half of these individuals own outright, whereas a majority of owners has an outstanding mortgage. Around 23% of households (and 19% of the population) lives in a dwelling that is rented in the private non-subsidized market. The importance of social housing in the total market is below the European average (CECODHAS): around 9% of households are reduced rent tenants.

These nation-wide numbers, however, hide considerable regional diversity. In Flanders homeownership is most widespread, with 72%, resp. 77% of households, resp. individuals. The rental market is smaller than the Belgian average. In the Walloon region, homeownership rates are somewhat smaller than in Flanders, and the share of renters is somewhat higher. The Brussels capital region has an entirely different pattern, with 39% of households (45% of individuals) being homeowners, and a very high share private market tenants. Regional differences in social renting are much smaller, despite large differences in the size of the rental market. The Brussels Capital Region, where the rental market accounts for the shelter of more than half of all households, has the largest proportion of social renters (11%).

Compared to information from the Census for 2001 (De Decker, 2006) homeownership appears to have decreased slightly, accompanied by an increase in rental dwelling. During the last decade, prices on the Belgian housing market witnessed a boom comparable to what happened in most other European countries. The average house price doubled over the past decade (Andrews *et al.*, 2011). As Belgians are said to have a "brick in the stomach", this causes concern regarding access to home ownership. Research has pointed out that low income groups are facing increased difficulty in property acquisition (e.g. Meulemans *et al.*, 1996; Winters *et al.*, 2010).

Table 1: Tenure status of households and individuals in Belgium and regions, 2009.

	% of households				% of individuals living in a household of			
	Belgium	Flanders	Wallonia	Brussels	Belgium	Flanders	Wallonia	Brussels
Owners	66.5%	71.8%	66.7%	38.9%	72.6%	77.4%	72.7%	44.8%
Owner outright	*36.3%*	*39.4%*	*36.2%*	*21.5%*	*32.5%*	*35.3%*	*30.8%*	*21.2%*
Owner with mortgage	*30.1%*	*32.4%*	*30.5%*	*17.3%*	*40.2%*	*42.1%*	*41.9%*	*23.6%*
Renters	33.5%	28.2%	33.3%	61.1%	27.4%	22.6%	27.3%	55.2%
Private market	*22.5%*	*18.5%*	*21.1%*	*46.6%*	*18.5%*	*14.8%*	*17.7%*	*42.0%*
Reduced rent	*9.1%*	*8.3%*	*9.7%*	*11.7%*	*7.3%*	*6.5%*	*7.7%*	*10.5%*
Rent free	*1.9%*	*1.4%*	*2.4%*	*2.8%*	*1.6%*	*1.2%*	*1.9%*	*2.7%*

Source: authors' calculations on EU-SILC 2009.

2.2   Housing policy

Housing policy is a mixture of federal, regional and local policies. The federal level provides important tax advantages for home ownership. Following state reforms in the eighties, part of housing policy has become a responsibility of the regions. Consequently, Brussels, Flanders and the Walloon Region each have their own housing policies. Although the support of home acquisition remains the dominant policy track, the regions are increasingly investing in the provision of social rent housing (see e.g. Vlaams Ministerie van Energie, Wonen, Steden en Sociale Economie, 2009).

2.2.1   Taxation of homeownership

The taxation of homeownership in Belgium is divided over the different policy levels, though some important changes in this domain are scheduled for the coming years. Currently, an important part of the taxation of homeowners is still at the federal level. In 2005, the tax treatment of the own dwelling has changed considerably in the federal personal income tax system. Before 2005 'cadastral income' (CI)[1] was part of taxable income. There were 4 possibilities of tax relief an owner could apply for:

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

(b) The *dwelling allowance*: part of CI is exempt from taxes, which is known as the dwelling allowance. This amount is increased for each dependent person (incl. spouses), for disabled heads or partner, and for widow(er)s with dependent children. Depending on the level of

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[1] Cadastral income is the average normal net income that real estate provides to its owner. This corresponds to an estimation of the average normal net rent value of the property for one year (at the reference time, which is 1 January 1975). CI is subject to annual *indexing* (the index for tax year 2010 is 1.5461).

taxable income, owner-occupiers can be entitled to a so-called additional dwelling allowance. The deductible amount of both the dwelling and additional dwelling allowance may not exceed income from real estate.

(c) The *additional interest deduction*: the interest that remains after the normal deduction of interest may likewise be deducted from total income on condition that the mortgage was raised in order to build, purchase or renovate a home in Belgium, and that the loan was contracted after 30 April 1986 for a term of at least 10 years. This additional interest deduction is restricted in function of the number of years that the rental value income of the real property in question has been included in the taxable income. For the first five taxable years, the deduction amounts to 80%, and for the next seven years it diminishes by 10% yearly, ending with a deduction of 10% in the seventh year.

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

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

From 2005 onwards, the dwelling allowance has been abolished, and the CI of the only self-occupied dwelling has become tax exempt in the personal income tax system. For owners with a mortgage loan that is contracted after 1 January 2005, the three other tax advantages (interest deduction, additional interest deduction, tax credit for capital redemption payments) have been replaced by the so-called 'dwelling bonus', which is only applicable for mortgages contracted for the own, self-occupied and only dwelling and that have a term of at least 10 years. When these conditions are fulfilled, the tax payer can deduct each year a basic amount of maximum 2,120 Euro. The tax advantage is thus applied at the marginal tax rate. This basic amount can be increased with (a) 710 Euro during the first 10 years of the term of the mortgage and with (b) 70 Euro when there are three or more children in the household. These amounts apply for tax year 2012 and are indexed on a yearly basis.

Apart from the tax treatment in the federal tax system, regional and local taxes also play a role in housing policy in the form of the *withholding tax on property income* (WTPI). It is calculated on the basis of the CI net of interest payments. It has three components: a regional, a provincial (= surcharge on the regional WTPI) and a municipal (= surcharge on the regional WTPI), and can be considered as an extra tax on the dwelling. Moreover, transaction costs for purchasing a house are considerable in Belgium (even among the highest in OECD countries, Andrews *et al.* 2011) due to registration rights, which belong to regional competences (Catte *et al.*, 2004). Transaction costs are lowest in Flanders (amounting 10% of the house price, 5% for small houses), plus 1-2% additional transaction costs regardless the region of purchase.

2.2.2   Social housing policies

Social housing policies are entirely part of regional competences. In general, the regions follow three policy tracks: social renting, social home purchasing and social loans. Social renting remains the dominant policy for the provision of social housing, with the annual number of newly constructed houses for social renting amounting to the three to fourfold of the number of houses built for social

home purchasing over the past decade in Flanders. To stimulate ownership, social loans are available from local government institutions and municipal social renting organizations. Conditions vary but, depending on the target group, relate mainly to income, number of children and value of the purchased dwelling.

Housing allowances are virtually non-existent. The small system that exists for emergencies, belongs in practice rather to welfare than to general housing policies. This allowance is means tested and only applies to occupants of homes declared 'unhealthy', renters who are forced out of their home in so-called 'housing emergency areas' or homeless people. [2]

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

To be eligible for social renting, one has to fulfil an income condition and a property condition. In 2012, the yearly income of single persons should not exceed 19,796 Euro, while for families (with dependents) the limit is 29,649 Euro, increased with 1,659 Euro for each dependent. The property condition implies that no person in the household can already own a dwelling or building land. In Flanders two more conditions were added as of 2006. The first relates to language skills: one should be able to prove a basic knowledge of Dutch or be willing to follow a Dutch language course corresponding to the European reference level A1 (breakthrough). The second stipulates that newcomers for whom civic integration training is obligatory, should have obtained the civic integration certificate or prove the intention to do so. In contrast to some other countries, the income condition only has to be met when first entering social housing. Persons living in social housing are not required to move if their income rises above the threshold.

According to a study for Flanders on the basis of survey data for 2005, 39% of private renters (12% of all Flemish families) are eligible to rent in the social housing system. However, only 16% of them actually applies (Winters *et al*. 2007). They are placed on a waiting list and have to renew their candidacy every two years. VMSW identified an unfulfilled "social housing need" of 73,904 households on the waiting list in 2010 (3% of all Flemish households) (statistics VMSW, 2012). The

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[2] In addition to this, the Flemish Community announced to start mid-2012 with the introduction of a strictly means-tested premium of modest size for the small group of households that are more than 5 years on a waiting list for social housing. The target group and budgetary mass are estimated to be of similar size in comparison to the existing housing allowance (RWO, 2009), so even when both systems are taken together, they still represent a marginal share in the total housing policy package. As this system is not yet in place, we disregard it in the analysis.

assignment of the houses takes place on a chronological basis, but in specific cases exceptions and priorities apply (e.g. for disabled persons in houses adapted to their needs, for persons from the local community). Yet, the average waiting period amounted to 2.8 years in 2010 for Flanders (statistics VMSW, 2012). The Flemish coalition agreement 2009-2014 sets the goal at providing 43,000 extra dwellings for social renting by 2020 (Vlaams Ministerie van Energie, Wonen, Steden en Sociale Economie, 2009).

The procedure for calculating the amount of social rent is determined at the regional level. For Flanders, it was recently revised. As of January 1st 2012, the amount of rent is calculated on the basis of a formula which takes into account the tenant's income, size of the family and an indicative measure of the private rental market value of the house, to reflect the quality of the dwelling. The upper limit of the monthly rent is set by the minimum of either 1/55 of household's yearly income or the market value of the dwelling, while the lower limit consists of 100 Euro/month for basic social housing, to 200 Euro/month for more expensive social housing (higher quality / bigger size). Generally, average rent prices vary across local entities along with the average income of its social renters, so large differences exist.

The regional governments support the provision of social housing via project-subsidies to the Social Housing Companies. There is no direct relation between the subsidy and the level of rent. Apart from these subsidies and the social rents, Social Housing Companies cannot have additional income sources. It is assumed that with the mix of higher and lower income renters, the subsidy on average fills the gap between the cost of provision and the rent received. However, some companies do not attain the equilibrium, especially in the cities, where the average income of social renters is often below average. They are currently supported with a regulated contribution called the Regional Social Correction and additional ad hoc subsidies (Winters *et al.* 2007).

3.   DATA AND METHODOLOGY

3.1   *The dataset: EU-SILC*

The most recent available version of the Belgian SILC data (survey year 2009, with income data referring to 2008) provides the micro data (ADSEI), which compared to the EUROSTAT EU-SILC database,   contains extra information on some crucial variables (e.g. more details on housing costs). Note that there is a slight discrepancy between the reference period with regard to tenure situation (which is the moment of the interview) and the reference period for income (which is the previous calendar year). As we simulate the income situation of 2008 under different scenarios, we assume the household's tenure status has not changed since the previous calendar year (as most of the interviews take place in spring, this discrepancy varies between 2 and 6 months).

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

3.2   *Estimating the in-kind benefit from social housing*

The fact that social tenants pay in principle less rent than on the private market, can be captured by the concept of imputed rent. Imputed rent has in the literature mainly been used for describing the benefit that homeowners derive from not having to pay any more rent (*e.g.* Frick and Grabka, 2003; Frick *et al*., 2010). But the concept is also very useful in the framework of social housing (see *e.g.* definition European Commission of imputed rent). For a general description of the various approaches to calculate IR on the basis of micro data, we refer to Frick & Grabka (2003), Frick *et al*. (2006, 2007 and 2010). They propose three methods: 1) the opportunity cost approach; 2) the capital market approach; and 3) the self-assessment approach. For the capital market approach, one needs information on the market value of the dwelling, which is lacking in EU-SILC. With the self-assessment approach, respondents are asked to make an assessment of the rental value of their home, but this question is in EU-SILC not asked to reduced-rent tenants. Consequently, only the opportunity cost approach is used here to estimate the in-kind benefit of social housing.

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

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

- Step 2: application of the resulting coefficients to otherwise similar owner-occupiers as well as rent-free and reduced-rent tenants. A randomly chosen error term from the true distribution of tenants on the private housing market is added in order to maintain variation in the resulting estimates of IR. We end up with an annual measure of IR by taking the antilog of the estimated monthly fictitious rent and by multiplying it by 12. In order to obtain net IR we deduct maintenance costs. Negative IR is put to zero. [3]

3.3   *Simulating housing policies for Flanders*

In order to estimate the value of the other housing policies analysed in this paper, we use the microsimulation model MISIM, running on the Belgian version of SILC-2009. MISIM (**M**icro**SI**mulation**M**odel) is a static tax-benefit model, which enables to evaluate policy alternatives

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[3] When comparing these data with the SILC-variable of imputed rent that has been calculated by the national data provider of SILC, average amounts are in general somewhat higher than our results; especially for reduced rent tenants there are sizable differences. According to EUROSTAT-documentation, this variable is also derived on the basis of an opportunity costs approach. It is not clear to which factors the difference can be attributed. The variable in the dataset contains only gross variables, making it less suitable for distributive analyses.

in the field of social security and personal income taxation. The model covers personal income taxes, social security contributions and part of social benefits. For this simulation, we need the personal income tax modules. In a first step taxable income is calculated, which includes professional income (both from self-employment and for employees) and social benefits, and interfamily transfers like alimony payments. The following tax deductions are applied on taxable income: professional expenses (at the rates provided in the tax law) and childcare fees. Next, the tariff structure is applied, as well as the tax credits for family composition, for replacement incomes and for long-term savings (to the extent that EU-SILC provides information on this last topic). As documented in Verbist (2003), the Belgian personal tax system is well covered by MISIM, and outcomes are in line with administrative tax information. In this paper, only first-order effects are considered, so no account is taken of possible behavioural or macro-economic effects (e.g. in terms of home acquisition).

Detailed information on cadastral income and mortgage contracts for home owners allows us to accurately model the system for tax relief for home owners currently in place. We distinguish between the "old system" (pre-2005) and the dwelling bonus (from 2005 onward) based on the year the mortgage was contracted. Further information on the initial amount, monthly repayments, interest rate and duration is used to model each component of the tax relief policy package separately, and take into account interactions.

The existing system of rent allowances in Belgium is targeted at a very small and specific group of tenants (*e.g.* occupants of 'unhealthy' homes, renters who are forced out of their home in so-called 'housing emergency areas' or homeless people), and belongs in practice rather to welfare than to general housing policies. The Flemish government aims to realize affordable and high-quality dwellings for renters with a low income, and hence is considering ways to enlarge the system of rental subsidies for private renters. Besides the announced premium for households that are more than 5 years on the waiting list for social housing (cf. footnote 1), two alternative scenarios for a (broader scoped) rent subsidy have been proposed, based on the concept of "affordability gap" (Winters *et al.* 2004). The affordability gap is a measure of the amount that households lack to rent a dwelling on the private market that corresponds to their family size and that is of sufficient quality. The details of the implementation of our two scenarios are based on Heylen & Winters (2009). In the first scenario the affordability gap (AG1) is calculated as the extent to which "necessary" renting costs (taking into account family types that differ in size and composition) exceed 30% of household disposable income (HDI) or:

$$AG1 = \min(median\ rent_{ft} - 0.3 * HDI, actual\ rent)$$

A survey of Flemish Public Social Assistance Centres (OCMWs) by Van Mechelen en Bogaerts (2008) revealed that these often employ rules of this type for the assignment of additional support for renting costs (an issue belonging to their discretionary power). However, there is no real justification for taking 30% as a relevant norm for households to spend on housing costs. It is a rather arbitrary threshold that vaguely corresponds to what is considered "normal" in a society like Flanders, yet this assumption can certainly be questioned. In the second scenario the affordability gap is based on the more sound method of constructed budget standards, that have explicit normative underpinnings based on theories of human need and the ability to fully participate in society (see Storms and van den Bosch, 2009). A minimum budget norm is constructed based on a basket of goods and services that a household of a certain composition needs to live decently. We use the minimum budget norm covering all goods and services except rent, and distinguish between different family types, or:

$$AG2 = \min(\, median\ rent_{ft} - \left(HDI - MBN_{ft}\right), actual\ rent)$$

The upper limit of both operationalizations is the actual amount of rent paid, with a certain ceiling of what is considered "reasonable". We introduce both alternatives in the entire region of Flanders, partially reducing the tax relief measures for Flemish home owners, to achieve overall budget neutrality.

We use median monthly rent values for adequate housing in the private rental market. Adequate housing is defined as in good condition, without need for major renovations, absence of moisture and rot problems and equipped with toilet and bathroom, including bath or shower. Analogous to Storms and Van den Bosch (2009) we distinguish three types of housing, suiting needs of different family types, according to the number of bedrooms (resp. 1, 2 or 3). Based on earlier research (Storms and Van den Bosch, 2009), we have made assumptions about the value of median rent and the minimum budget norm, varying according to household type.

Following Winters & Heylen (2009), we construct minimum budget norms that are exclusive of housing costs for different family types, by subtracting the median monthly rent values from the minimum budget norms per family type.

Additionally, the rent subsidy is limited to the amount of rent that is actually paid, with a certain ceiling amounting to 520 Euro monthly plus 36.4 Euro per dependent (i.e. the same ceiling that is applied to the currently existing system of housing allowances described in section 2.2.2).

Table 2: Values for median rent (in €/month) used in calculation of affordability gap, Flanders 2009.

family type	number of children		
	0	1	2 or more
single person	Type 1: 404€/month	-	-
single parent	-	Type 2: 487€/month	Type 3: 555€/month
couple	Type 1: 404€/month	Type 2: 487€/month	Type 3: 555€/month
other	Type 3 : 555€/month		

Source: based on the median monthly rent in 2008 as derived in Storms and Van den Bosch (2009), pp. 223. We make no distinction between apartments and single family houses or between urban and rural areas. Notes: the category "other" contains all households containing more than one nuclear family (single or couple + children), e.g. multi-generational households, households where more than 2 adults (without partner or parent/child relation) live together. This category is too small and diverse to distinguish further according to composition.

Table 3: values for minimum budget norm exclusive of renting costs (MBN) used in calculations of affordability gap, Flanders 2009.

family type	number of children						
	no children	1	2	3	4	5	6
single person	595.1	-	-	-	-	-	-
single parent	-	921.8	1164.9	1408	1651.1	1894.2	2137.3
couple	920.7	1214.4	1447.6	1680.8	1914	2147.2	2380.4
other				1680.8			

Source: Heylen and Winters (2009), pp.14, with the minimum budget norm inflated to 2008 prices using the Harmonized Index of Consumer Prices (HICP). Notes: the category "other" contains all households containing more than one nuclear family (single or couple + children).

4. RESULTS

First, we present the distributional impact of the various housing measures that are currently used, namely the total of advantages for homeowners (including both the 'old' and the 'new' system of tax relief), the advantage derived from social housing, and the housing allowances[4]. Section 4.2 looks at the impact of our simulated alternatives. As indicators we give the share of beneficiaries per measure, the share of the advantage in equivalent disposable income and the effect on inequality. Indicators are presented for the entire Flemish population as well as per quintile and per tenure status. In order to account for family composition, we use equivalent income (components). This means that household income is divided by the so-called modified OECD scale, which gives a value of 1 for the first adult, 0.5 for each additional adult and 0.3 for each child (defined as a person younger than 14 year). These equivalent amounts are assigned to all household members.

4.1 The distributive impact of existing measures

The total of tax advantages for homeowners is more widespread than the benefits for renters (housing allowance and social housing) (see Table 4). Almost all homeowners benefit to some extent from tax relief, which comprises deductibility of mortgage payments as well as the exemption of cadastral income in the personal income tax system. Beneficiaries of imputed rent derived from social housing make up 5% of the Flemish population, whereas housing allowances are negligible. The share of beneficiaries of homeowner tax advantages tends to increase with income. Social rent beneficiaries by contrast are clearly concentrated at the bottom of the income distribution.

Also as a share of disposable income, the measures for homeowners are more important: counted together, tax relief under the old system and dwelling bonus represent 1.9% of disposable income in Flanders . Imputed rent for social housing accounts for less than half per cent of disposable income in Flanders, and the negligibility of the housing allowance is confirmed. Over the quintiles, the share of disposable income that the tax relief measures represent within households fluctuates between 1.7%

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[4] Ideally, an analysis of the distribution of tax benefits and rent subsidies should be made for life-time income, since decisions about home tenure and housing property are made in a long-term perspective and display a certain life-cycle pattern. However, the estimation of life-time income is beyond the scope of this paper.

(bottom quintile) and 2.2% (fourth quintile). The benefit of social rent is concentrated in the lower part of the income distribution, while virtually nonexistent in the upper quintiles. In the first quintile it even represents 2.5% of disposable income, which makes the policy measures for renters in terms of size about 1.5 as important as the tax relief for home owners in the first quintile.

Differentiating for tenure status, the same patterns are confirmed. For reduced renters, 80% of them benefit from net imputed rent and the benefits from the social rent policy add up to almost 10% of disposable income on average. Almost all owners benefit from some kind of relief (note that it also includes the dwelling allowance in the old system, as well as the fact that cadastral income is tax exempt in the new system), corresponding on average to a share of 2.3% of disposable income.

Table 5 presents the main poverty and inequality figures for each housing measure in place[5]. The baseline scenario represents the hypothetical situation where no housing measures are in place. The percentages display the change in poverty and inequality relative to the baseline scenario, taking into account first round effects of each housing measure in place.

All measures reduce inequality, though to a different extent (see Table 5). Social rent clearly has the largest impact according to all three inequality measures. And even though the overall poverty reduction effect of social housing may appear rather limited, for those concerned the impact is considerable with a reduction of about one third. Without the measures for tax relief for home owners, the overall poverty rate would be some 8% higher. The effect is strongest for the category of owners with a mortgage (a reduction of around 21%), who have in the current situation the lowest average poverty rate of the different population subgroups according to tenure status. The effect of the tax relief measures on the poverty gap indicator FGT(1) as well as the poor-sensitive FGT(2) is much smaller in proportion to the effect on the headcount indicator FGT(0).

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[5] We use the Foster-Greer-Thorbecke (FGT) measures of poverty (Foster, Greer, Thorbecke, 1984), which is a parametrised class of poverty measures, decomposable over different groups. The measure FGT(0) gives the proportion of poor people (headcount), while FGT(1) is an indicator for the poverty gap (average normalised poverty gap). FGT(2) gives the intensity of the poverty gap (average squared normalised poverty gap). Inequality is measured on the basis of the well-known Gini coefficient, as well as the Atkinson index using two parameters, namely 0.5 and 1.5. The higher the value of the parameter, the more weight is attached to the bottom of the income distribution. The inequality measure A(1.5) is thus more inequality averse (i.e. gives more weight to lower incomes) than Atkinson(0.5).

Table 4: Share of beneficiaries and benefit as a share of disposable income, Flanders 2009.

	Share of beneficiaries			Benefit as a % of HDI		
	Advantages for owners	Social rent	Housing allowance	Advantages for owners	Social rent	Housing allowance
Total	**74%**	**5%**	**0.6%**	**1.9%**	**0.4%**	**0.0%**
Per quintile						
Q1	49%	15%		1.7%	2.5%	
Q2	68%	7%		1.9%	0.7%	
Q3	79%	3%		1.9%	0.2%	
Q4	87%	1%		2.2%	0.1%	
Q5	89%	0%		1.8%	0.0%	
Per tenure status						
Owners	96%	0%		2.3%	0.0%	
Owner outright	*95%*	*0%*		*1.6%*	*0.0%*	
Owner mortgage	*98%*	*0%*		*2.7%*	*0.0%*	
Renters	0%	23%		0.0%	2.3%	
Private market	*0%*	*0%*		*0.0%*	*0.0%*	
Reduced rent	*0%*	*80%*		*0.0%*	*9.6%*	

Source: authors' calculations on BE-SILC 2009. Note: no further breakdown for 'Housing allowance' given the limited number of cases receiving this benefit in Flanders (n=40)

4.2 *The effect of introducing a Flemish rent subsidy*

As an alternative scenario, we introduce the proposed rent subsidies based on the concept of "Affordability Gap" (AG) as discussed in section 3.3.

Table **6** and In **nominal** terms, the total budgetary mass for the first scenario is estimated at about 153 million euro, and the second scenario to about 208 million euro. The second scenario is more generous for larger families, explaining why the difference in size between both scenarios expressed as a share of equivalent disposable income per individual (as an indicator of living standard) is much larger than the difference in budgetary mass (see also Annex 2 for the level of the minimum budget norm for different family types). Comparing the rent subsidies to the social rent policy (Table 4), makes clear that the rent subsidies as simulated would constitute a policy measure of some substance.

Table 7 present the key figures on both alternative policy measures. In Flanders, resp. 3% and 2.5% of the population is benefitting from this measure. Given the means-test, it is not surprising that the beneficiaries are concentrated in the bottom quintile (see

Table **6**), 12.5% for each scenario. In the first scenario, an additional 3% of persons in the second quintile benefit from the rent subsidy. Despite the slightly smaller target group, the rent subsidy under the second scenario is larger in terms of budgetary mass: 21% (scenario 1) to 17% (scenario 2) of private renters benefit from the simulated rent subsidies, corresponding to a share of equivalent disposable income of resp. 0.8% (first scenario) and 2.1% (second scenario) of private renters on average.[6] Equivalent income, however, takes account of household size, and hence does not provide a direct measure of the budgetary effort needed for this type of subsidy.

Table 5: Change in inequality and poverty due to housing measures, Flanders 2009.

	Baseline HDI (current situation)	Change due to Tax-relief for owners	Change due to Social rent	Change due to Housing allowance
Gini	0.238	-0.3%	-1.2%	-0.1%
Atkinson(0.5)	0.047	-0.5%	-2.0%	-0.2%
Atkinson(1.5)	0.123	-0.3%	-2.7%	-0.2%
FGT(0)	0.117	-8.4%	-6.4%	-1.1%
FGT(1)	0.027	-4.9%	-6.5%	-0.3%
FGT(2)	0.012	-3.2%	-3.8%	0.0%
Poverty (FGT(0)) per tenure status				
Owners	0.086	-13.8%	0.0%	
Owner outright	*0.139*	*-10.9%*	*0.0%*	
Owner mortgage	*0.042*	*-21.0%*	*0.0%*	
Renters	0.224	0.0%	-14.9%	
Private market	*0.185*	*0.0%*	*0.0%*	
Reduced rent	*0.290*	*0.0%*	*-32.5%*	

Notes: 1) No further breakdown for 'Housing allowance' given the limited number of cases receiving this benefit in Flanders (n=40). 2) The poverty threshold has been kept constant over the different income concepts at 60% of baseline HDI (current situation). 3) HDI = household disposable income.

Source: authors' calculations on BE-SILC 2009.

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[6] This average includes private renters that don't receive the benefit. For the share of equivalent income only for those receiving the benefit, see Table 8.

Table 6: Share of beneficiaries and benefit as a share of equivalent disposable income, for simulated alternative rent subsidy scenarios, Flanders 2009.

	share of beneficiaries		benefit as a % of equivalent HDI	
	Scenario 1: rent subsidy 30% of HDI norm	Scenario 2: rent subsidy MBN	Scenario 1: rent subsidy 30% of HDI norm	Scenario 2: rent subsidy MBN
Total	**3.1%**	**2.5%**	**0.1%**	**0.2%**
Per quintile				
Q1	12.4%	12.4%	0.9%	2.3%
Q2	3.1%	0.0%	0.0%	0.0%
Q3	0.0%	0.0%	0.0%	0.0%
Q4	0.0%	0.0%	0.0%	0.0%
Q5	0.0%	0.0%	0.0%	0.0%
Per tenure status				
Owners	0.0%	0.0%	0.0%	0.0%
Owner outright	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Owner mortgage	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Renters	13.7%	11.0%	0.6%	1.5%
Private market	*20.9%*	*16.8%*	*0.8%*	*2.1%*
Reduced rent	*0.0%*	*0.0%*	*0.0%*	*0.0%*

Note: HDI = Household Disposable Income; MBN = Minimum Budget Norm

Source: authors' calculations on BE-SILC 2009.

In nominal terms, the total budgetary mass for the first scenario is estimated at about 153 million euro, and the second scenario to about 208 million euro. The second scenario is more generous for larger families, explaining why the difference in size between both scenarios expressed as a share of equivalent disposable income per individual (as an indicator of living standard) is much larger than the difference in budgetary mass (see also Annex 2 for the level of the minimum budget norm for different family types). Comparing the rent subsidies to the social rent policy (Table 4), makes clear that the rent subsidies as simulated would constitute a policy measure of some substance.

Table 7: Change in inequality and poverty before and after alternative rent subsidy measures.

	Baseline HDI (before rent subsidy)	rent subsidy 30% of HDI norm (scenario 1)	rent subsidy MBN (scenario 2)
Gini	0.237	-0.6%	-1.1%
Atkinson(0.5)	0.051	-1.5%	-2.7%
Atkinson(1.5)	0.127	-4.1%	-6.3%
FGT(0)	0.117	-4.6%	-1.1%
FGT(1)	0.027	-6.3%	-14.4%
FGT(2)	0.012	-7.4%	-17.0%
Poverty (FGT(0)) per tenure status			
Owners	0.086	0.0%	0.0%
Owner outright	*0.139*	*0.0%*	*0.0%*
Owner mortgage	*0.042*	*0.0%*	*0.0%*
Renters	0.224	-10.6%	-2.6%
Private market	*0.185*	*-19.6%*	*-4.8%*
Reduced rent	*0.299*	*0.0%*	*0.0%*

Note: HDI = Household Disposable Income; MBN = Minimum Budget Norm. The poverty threshold has been kept constant over the different income concepts at 60% of baseline HDI (current situation).

Source: authors' calculations on BE-SILC 2009.

Inequality and poverty drop significantly in both scenarios (Table 7). When looking at the poverty headcount indicator FGT(0), poverty is reduced by resp. 20% and 5% for the target group (renters at the private market). For the entire population, the rent subsidy based on the minimum budget norms reduced poverty by somewhat more than 1%, while the 30%-norm has a 5% poverty reduction potential. So despite the larger budgetary mass it represents, the scenario where the rent subsidy is based on the minimum budget norm seems somewhat less effective in reducing poverty. The explanation follows from the level of the Flemish poverty line (calculated according to the European standard as 60% of the Flemish median equivalent income), relative to the level of the minimum budget norm. For most family types, the second is slightly lower than the first, leading to an apparently small poverty reduction potential. In Annex 2, we provide an overview per family type of the level of the minimum budget norm, the Flemish poverty line, and the Belgian poverty line. The Belgian poverty line is situated below the Flemish line, as the median income in Flanders is higher than the median in entire country. The minimum budget norm is in most cases between these two lines. This implies that the poverty reduction potential using a Belgian poverty line would be estimated as very high, while it appears to be low using a Flemish poverty line. Of course, this is to a large extent a statistical artefact. To assess the redistributive capacity of a policy measure, it is also

necessary to take other indicators into account. Indeed, the indicator for the poverty gap FGT(1) shows a much stronger reduction in the second scenario. Also all other indicators presented measuring the inequality of the income distribution, show a larger impact of the rent subsidy based on the minimum budget norm (scenario 2). This again indicates that a rent subsidy system along these lines has a poverty reduction potential that is of comparable size or even larger than the social rent policy (cf. Table 6). In terms of improving the position for those at the lowest end of the income distribution (using indicators that are more sensitive to the bottom of the income distribution, such as the FGT(2) indicator and the Atkinson indices), the second alternative scenario even performs substantially better.

Finally, we simulate the effects if the introduced rent subsidy scenarios were financed by partially reducing the existing benefits for home owners, in order to achieve overall budget neutrality. We must emphasize that budget neutrality applies to all Belgian governments in the aggregate. While rent subsidies would be paid by the *Flemish* government, the reduction of the tax benefits for home owners would increase the tax revenue of the *Belgian* federal government. However, at the end of 2011 a political agreement was reached to transfer responsibility and the budget for the homeowner's tax benefits to the regional governments. The budgetary mass needed for the first scenario rent subsidy (based on the 30% of income norm) corresponds to 9% of the net advantage that home owners gain through the tax relief measures. We chose to proportionally decrease the net benefit for each beneficiary home owner with 9% in order to achieve the required budget neutral scenario 1 (though of course other mechanisms can be thought of). For scenario 2, we follow the same procedure, with a slightly larger required reduction of home ownership advantage: the second rent subsidy amounts to 12% of the total budget allocated to tax relief for home ownership.

Table 8 presents the share of winners and losers over the population (subgroups), as well as the size of the corresponding gains and losses for those who are winning or losing in the two scenarios – expressed as a percentage of disposable income.[7] The effects are relatively similar between the two scenarios, but slightly more pronounced in the second scenario. In general, the losers (resp. 24 and 34% of the Flemish population) are far more numerous in the population than the winners (resp. 2.9 and 2.5%). Consequently, the average change in disposable income is far more important for the winners (the rent subsidy corresponds to resp. 10% and 25% of original disposable income on average for the beneficiaries) and less than 0.5% of original income for the losers, in this case home owners who see their net advantage of tax relief measures reduced by resp. 9 and 12%. Over the quintiles, the percentage of losers increases, but the share of disposable income involved decreased from 0.6% and 0.7% in the first quintile to 0.3% in the fifth quintile.

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[7] We identify winners and losers comparing net disposable household income under the current system with the same income concept in the alternative scenario. When the net difference amounts to more than 100€/year, all individuals in the households are categorized as winners (income in the alternative scenario > income in the current system) or losers (income in the alternative scenario < income in the current system). The threshold of 100€ is chosen arbitrarily, yet prevents that the average figures presented are blurred by the presence of a majority of very small gains and losses. Of course, it also implies that the shares of beneficiaries in

Table **6** do not entirely correspond to the share of winners in the population in Table 8, as those who are only marginally affected by the rent subsidy (gain of less than 8€/month) are left out of the "winning" category in Table 8.

Table 9 shows modest decreases in poverty: overall poverty rates drop with 4% in the first scenario and with 0.4% in the second scenario. The drop is mainly caused by the group of private renters, where poverty rates plunge with respectively 20 and 5%. Poverty among outright owners is also slightly upwardly affected (+2%). Even more manifest is the strong inequality reduction potential of the alternative scenarios, following on the one hand from improvement in the income position of tenants (which are in general at the lower end of the income distribution) and on the other hand of the slightly deteriorating position of homeowner who lose income following the partial reduction of their tax advantages.

Table 8: Share of winners and losers over population (subgroups), and average change in income for those affected as a share of disposable income, for two budget-neutral scenarios.

	Share of population winning/losing				average change in income for those affected, in % of HDI			
	winning scenario 1	losing scenario 1	winning scenario 2	losing scenario 2	winning scenario 1	losing scenario 1	winning scenario 2	losing scenario 2
Total	**2.9%**	**24.3%**	**2.5%**	**33.6%**	**9.6%**	**0.3%**	**24.8%**	**0.4%**
Per quintile								
Q1	11.9%	8.6%	12.3%	13.6%	11.3%	0.6%	24.8%	0.7%
Q2	2.5%	15.3%	0.0%	21.8%	2.1%	0.5%	0.0%	0.6%
Q3	0.0%	25.7%	0.0%	34.7%	0.0%	0.4%	0.0%	0.4%
Q4	0.0%	33.2%	0.0%	45.1%	0.0%	0.4%	0.0%	0.4%
Q5	0.0%	38.8%	0.0%	52.7%	0.0%	0.3%	0.0%	0.3%
Per tenure status								
Owners	0.0%	31.4%	0.0%	43.4%	0.0%	0.3%	0.0%	0.4%
Owner outright	*0.0%*	*9.3%*	*0.0%*	*22.3%*	*0.0%*	*0.2%*	*0.0%*	*0.3%*
Owner mortgage	*0.0%*	*50.0%*	*0.0%*	*61.1%*	*0.0%*	*0.4%*	*0.0%*	*0.4%*
Renters	12.8%	0.0%	10.9%	0.0%	9.6%	0.0%	24.8%	0.0%
Private market	*19.5%*	*0.0%*	*16.6%*	*0.0%*	*9.6%*	*0.0%*	*24.8%*	*0.0%*
Reduced rent	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

Source: own calculations on BE-SILC 2009.

Table 9: Change in inequality and poverty before and after the introduction of two alternative budget-neutral scenarios.

	Baseline HDI (before alternative scenario)	budget-neutral scenario 1	budget-neutral scenario 2
Gini	0.237	-0.6%	-1.1%
Atkinson(0.5)	0.051	-1.5%	-2.7%
Atkinson(1.5)	0.127	-4.2%	-6.3%
FGT(0)	0.117	-3.8%	-0.3%
FGT(1)	0.027	-5.9%	-13.8%
FGT(2)	0.012	-7.2%	-16.6%
Poverty (FGT(0)) per tenure status			
Owners	0.086	1.4%	1.4%
Owner outright	*0.139*	*1.9%*	*1.9%*
Owner mortgage	*0.042*	*0.0%*	*0.0%*
Renters	0.224	-10.6%	-2.6%
Private market	*0.185*	*-19.6%*	*-4.8%*
Reduced rent	*0.299*	*0.0%*	*0.0%*

Source: authors' calculations on BE-SILC 2009.

5.   SECOND ROUND EFFECTS OF HOUSING MARKET INTERVENTION POLICY

The results presented in Section 4 follow from the microsimulation of first round effects of the outlined scenarios, i.e. the results the morning after the overnight introduction of an alternative scenario. This implies that we make abstraction of all behavioural effects stemming from the new policy system. As this intervention influences the relative attractiveness of the different types of tenure, individuals and households might make different tenure status decisions under different policy configurations, in their aggregated impact leading to a changed housing market equilibrium. The characteristics of this new equilibrium depend on several parameters of the housing market, with an important role for its supply elasticity.

The scenarios set out in this paper, where the support for homeowners would be partially replaced by a rent subsidy for private renters, is motivated on the one hand by the fact that the current system is not tenure-neutral, with a bias in favour of homeowners, and on the other hand by affordability problems among renters (as is illustrated by the waiting lists of the social housing system). When simulating such a budgetary shift, a number of relevant second round effects can be expected, and which we want to summarize here, even though our model does not allow us to quantify them.

A first effect relates to pressure on rental prices. As landlords become aware of such rent subsidies, these subsidies may be capitalised into housing rents. Furthermore, as renting becomes more attractive, the share of renting households could be expected to rise. When supply of rental accommodation is more or less fixed and therefore cannot react to increased pressure with increased

supply (i.e. inelastic supply of rental accommodation), this may be another reason for rent prices to move upward. In combination with the increased purchasing power of (current) private renters, this might well result in an equilibrium with higher rent prices, with rent subsidies eventually feeding through into rent prices at the benefit of private landlords. The situation is different when the market of rental accommodation does react to increased prices with an expansion at the supply side. As investing in a rental property becomes more attractive, the supply of rental accommodation expands, with a downward pressure on prices. While short-term supply elasticity is typically smaller (more inelastic) than long-term supply elasticities, it is the latter which is most relevant for policy purposes, as housing investment takes time and search and transaction costs are high (DiPasquale and Wheaton, 1994) so reaching a new housing market equilibrium typically passes over a relatively long time horizon. This long-term rental housing supply elasticity is also affected by contextual factors that go beyond the scope of this paper, such as the degree of rental market regulation, factors influencing the relative profitability of rental property income versus other forms of investment, the supply of social rental housing, and spatial planning policies.

To our knowledge, there are no studies empirically assessing the elasticity of rental housing supply in Flanders or Belgium. Some insight can be gained from empirical studies assessing this aspect of the housing market in other countries. In France, Laferrère and Le Blanc (2004) find that the extension of housing allowances to all low-income households in the period 1992-1994 was in the short run for a significant part captured by landlords in the form of higher prices. Gibbons and Manning (2006) investigate the effect of a reform in the system of rent subsidies in the UK, where the maximum subsidy payable was reduced. The reform resulted in a fall in benefit receipt, which was largely offset by a fall in the rents paid. The estimates imply that around two thirds of the incidence of the subsidy reduction was on landlords. For Finland, Kangasharju (2010) estimates that one additional euro of allowance increases the rent of claimants by 60–70 cents.

The drawback of these studies, however, is that they generally only assess the short-term elasticity. For policy purposes, it is rather the long-term elasticity that is most relevant, when all factors mentioned above have come into play, but which is of course much more difficult to identify empirically. Also, some studies assess whether receiving a housing allowance increases rents faced by the beneficiary households (Laferrère and Le Blanc (2004); Gibbons and Manning (2006); Kangasharju (2010)), while others take the general level of rental prices in the rental housing market as the subject of empirical investigation[8]. The opposite results obtained in these different contexts demonstrate the importance of contextual factors mentioned above. On their eventual influence on the long run elasticity of (rental) housing supply, the empirical evidence is far from conclusive.

We discussed the role of rental housing supply elasticities, but also total housing supply elasticity (the extent to which the total number of dwellings available on the market reacts to price evolutions) is relevant to the analysis. The former can be expected to be larger than the latter, as housing can be transferred from the homeowners market to the rental market. For an excellent overview of empirical

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[8] Susin (2002) finds that in metropolitan areas in the USA, where (especially in the low-quality rental housing market) supply is typically low, the introduction of rental vouchers led to significantly higher rent prices. As the price raise also affected non-recipients of the allowance, the author estimates the voucher scheme implied a net loss for low-income renters, and therefore advocates supply-side policies for low-income renting population. In an earlier study for the US, Rydell (1982) did find significant supply side response following the introduction of housing allowances in two smaller communities in Midwest USA.

findings on the price elasticity of housing supply, see Green et al. (2005). Andrews et al. (2011) estimate housing supply responsiveness to changes in prices for 20 OECD countries, providing unique cross-country comparable empirical evidence on long-run price elasticities. They find that housing supply tends to be relatively flexible in North America and some Nordic countries, while it is more rigid in continental European countries and the United Kingdom. Belgium clearly belongs to the latter group with an estimated long-run price elasticity of around 0.3, where only Switzerland, The Netherlands, Austria and Italy have more inelastic housing supply. In this context, which the authors relate to factors such as a high population density, stricter spatial planning and/or lower efficiency of the land-use regulation system, tax relief of debt financing costs of housing tends to be more capitalized into house prices (see also Rosen, 1984; Green et al. 1996, 2005; Berger et al., 2000, Harris, 2010) instead of reducing the costs of home acquisition for households.

In the light of these findings, it is important to note that also the current housing policy system in Belgium and Flanders, which is still largely geared at supporting home acquisition, is an intervention in the housing market that generates comparable second round effects in the (non-rental) housing market, supporting only partly the burden of home acquisition for buyers and largely feeding through via higher house prices at the benefit of sellers. As Ter Rele and Van Steen (2003) point out, this also implies that first round calculations of the net benefit from tax relief measures (or, as in our alternative budget neutral scenarios, of the net cost of the reduction of these benefits) tend to overestimate the effect for the resident. The main effect of intervening in the treatment of mortgage financing (either way) then implies a redistribution of wealth between (future) home acquirers and sellers. It therefore seems difficult to justify the current support of home ownership from a social justice point of view. In this context, we should also point out that price evolutions in the sale market (either upward or downward) will also translate to some extent in an impact on rental prices.

Finally, we briefly touch upon the relation between residential mobility and the labour market. It has been repeatedly argued that policy interventions in the housing market, affecting the relative attractiveness of one tenure status over the other, may affect geographical and, in turn, labour mobility, giving rise to inefficiencies in the allocation of jobs. The main explaining factors are that property selling & purchasing is associated with higher transaction costs and that home ownership increases the risk of negative equity in case of a housing market shock. Both effects are empirically supported (see Andrews *et al.*, 2011 and references therein). The same argument holds to some extent for the direct provision of social housing (mobility reducing) versus "portable" housing allowances.

6.   CONCLUSION

Housing policies in Belgium are channelled through different instruments. In general, we can say that these policies are strongly geared towards homeowners, and then in particular in the form of the tax treatment. On the one hand, cadastral income of the own dwelling is in practice tax exempt (also in the pre-2005 system due to the dwelling allowance), and on the other hand the mortgage interest tax relief aims to reduce the burden of lending for home acquisition. This favourable tax treatment of owner occupiers is in place to stimulate home acquisition, but it drives a wedge between different tenure options and resulting in efficiency losses (Rosen, 1984; Ter Rele and Van Steen, 2003; Andrews *et al.*, 2011). For renters, the main instrument is social housing, which proves to have an important poverty-reducing effect. But as there are substantial waiting lists, this system is not sufficient to provide for affordable housing for tenants. Moreover, as tenants are situated relatively

more at the bottom of the income distribution compared to homeowners, there are reasons to investigate the possibilities of introducing a rent subsidy, as exists in other European countries (e.g. France, United Kingdom). The income-dependent subsidy proposed in this paper is based on the concept of 'affordability gap' and aims to support private tenants, who have an above average poverty risk. We have presented two different scenarios. Depending on the scenario, such a subsidy would cost, around 150 à 200 million euro, which we finance by a proportional reduction of the tax advantages for homeowners. We find important gains for private renters, as well as a substantial reduction in their poverty risk. The loss for homeowners is rather small, as the effort is spread over a large group. Overall, our budgetary neutral scenario leads to a strong decrease in inequality, following on the one hand from improvement in the income position of tenants (which are in general at the lower end of the income distribution) and on the other hand of the slightly deteriorating position of homeowner who lose income following the partial reduction of their tax advantages. Given that the tax treatment of homeowners will become part of Flemish competence in the future, the simulations presented in this paper hope to provide relevant information for the housing policy debate.

We have not been able to include possible second-order effects in our simulations, due to lack of information. An overview of existing literature on the long-run effects of intervening in the housing market as discussed in this paper, shows that the price elasticity of housing supply has a strong role in determining the eventual beneficiaries of the financial support. We have discussed the possible upward pressure on rental prices following the introduction of rent subsidy. This depends on the price elasticity of the supply of rental accommodation: inelastic supply indeed risks leading to higher rents, thus making the owners of rental accommodation the – partial – beneficiaries of such a subsidy. A similar mechanism, however, is also at work for homeowners: research has indicated that mortgage interest tax relief my results in upward pressure on housing prices. Recent OECD-research (2011) has shown that long-term price elasticity of housing supply is rather low in Belgium, indicating that the mortgage interest tax relief is probably to a large extent capitalised in housing prices, making the final beneficiary of this tax advantage more probably the seller instead of the buyer of the house. These results indicate that the current shift in housing policies offers an opportunity to fundamentally rethink the system.

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Annex 1

Table A.1: Covariates used in the two-step Heckmann estimation (opportunity cost approach), Belgium 2009.

Variable	Mean	Std. Dev.	Code
Detached house	0.3449	0.4754	No=0; yes=1
Semi-detached house	0.3832	0.4902	No=0; yes=1
Apartment/flat in building with <10 dwellings	0.1612	0.3755	No=0; yes=1
Apartment/flat in building with ≥10 dwellings	0.0831	0.3755	No=0; yes=1
1 room in house	0.0137	0.3755	No=0; yes=1
2 rooms	0.0505	0.2191	No=0; yes=1
3 rooms	0.1139	0.3178	No=0; yes=1
4 rooms	0.1674	0.3734	No=0; yes=1
5 rooms	0.2310	0.4215	No=0; yes=1
6 or more rooms	0.4031	0.4906	No=0; yes=1
Moisture free?	0.1430	0.3501	Yes=0; no=1
Possible to keep home adequately warm?	0.9390	0.2393	No=0; yes=1
Modern comfort present? (bath / shower / indoor flushing toilet)	0.0163	0.1266	Yes=0; no=1
Dwelling too dark?	0.0971	0.2962	Yes=0; no=1
Noise from neighbours / street?	0.2008	0.4006	No=0; yes=1
Pollution, grime or other environmental problem?	0.1498	0.3569	No=0; yes=1
Crime, violence or vandalism in the area?	0.1826	0.3863	No=0; yes=1
Central heating?	0.1340	0.3407	Yes=0; no=1
Dirty neighbourhood?	0.1498	0.3569	No=0; yes=1
Brussels capital region	0.1356	0.3424	No=0; yes=1
Flanders - Densely populated area	0.2712	0.4446	No=0; yes=1
Flanders - Intermediate area	0.2615	0.4395	No=0; yes=1
Walloon Region - Densely populated area	0.1311	0.3375	No=0; yes=1
Walloon Region – Intermediate area	0.1560	0.3629	No=0; yes=1
Walloon Region - Thinly populated area	0.0447	0.2066	No=0; yes=1
Occupancy in years	16.6022	14.9475	Continuous
Household disposable income	34039.98	26554.79	Continuous

Source: Own calculations on the basis of EU-SILC 2009.

Annex 2: Levels of the poverty line taking resp. Belgium and Flanders as the reference population, and comparison with minimum budget standard

Table A.2. Comparison of Minimum Budget Standard for Flanders (inclusive renting costs) with Belgian and Flemish poverty line, in euro per month, for different family types, Flanders 2008.

	Minimum Budget Standard (incl. rent)	Flemish 60%-poverty line	Belgian 60%-poverty line
single man	976	1012	965
single woman	979	1012	965
woman + child (boy, age 2)	1274	1316	1255
woman + child (girl, age 4)	1302	1316	1255
woman + child (boy, age 8)	1403	1316	1255
woman + child (girl, age 15)	1540	1518	1448
woman + 2 children (age 2 and 4)	1507	1620	1545
woman + 2 children (age 4 and 8)	1637	1620	1545
woman + 2 children (age 8 and 15)	1875	1822	1738
couple man + woman	1296	1518	1448
couple + child (boy, age 2)	1554	1822	1738
couple + child (girl, age 4)	1588	1822	1738
couple + child (boy, age 8)	1683	1822	1738
couple + child (girl, age 15)	1823	2025	1931
couple + 2 children (age 2 and 4)	1785	2126	2027
couple + 2 children (age 4 and 8)	1906	2126	2027
couple + 2 children (age 8 and 15)	2151	2328	2221

Note: the Belgian and Flemish poverty lines are based on 60% of median equivalised income for the entire population of resp. Belgium and Flanders. Income is equivalized using the modified OECD scale is used, where the first adult is attributed a factor 1, additional children aged less than 14 factor 0.3 and additional adults factor 0.5.