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# Distributive and poverty reducing effects of in-kind housing benefits in Europe – with a case study for Germany<sup>1</sup>

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## Abstract

While cash housing benefits are generally included in household disposable income, the effect of social housing is not accounted for. This may provide a misleading picture of the impact of overall housing policies on inequality and poverty, as countries use different policies to help households meet their housing expenses. In this article we present the first comprehensive study of the impact of in-kind housing benefits on income distribution and poverty in Europe. We contribute to two strands of literature, notably the one that aims to quantify income advantages derived from housing and the other that aims to incorporate the value of public services in income. For this purpose we calculate estimates of imputed rent and analyse how these benefits are distributed over the population and how they help to combat poverty. Our estimates are also relevant for the ongoing debate on whether cash or in-kind social transfers are to be preferred in social policy. We illustrate this with a case study for Germany, where we compare the distributive and poverty effect of cash and in-kind social benefits for housing for a longer time period.

**Keywords:** Social housing, Non-cash income, Imputed Rent, Income distribution

**JEL codes:** D31, H4, I31, I32

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# 1 Introduction

While cash housing benefits are generally included in household disposable income in distributive studies, the effect of social housing –as an in-kind benefit– is in general not accounted for. This may provide a misleading picture of the impact of overall housing policies on inequality and poverty, as countries use different policies to help households meet their housing expenses (Gardiner *et al.*, 1995; Whitehead & Scanlon 2007). When, for instance, country A heavily subsidizes social housing, whereas country B has no such provisions at all, this difference will not show up in traditional income distribution statistics, even though the financial implications for the households in the two countries may differ considerably. Hence, this inclusion matters for policy interpretation. In times of austerity measures, this is even more important, as cuts in housing benefits may be compensated by an increase in social housing, or on the contrary exacerbated by cuts in social renting too. In times of economic crisis social housing is increasingly under pressure, which is reflected by increases in evictions, homelessness, a growth in waiting lists for social housing, and increased indebtedness in relation to utilities such as heating and water (CECODHAS, 2012; Frazer & Marlier, 2011).

In this article we present the first comprehensive study of the impact of in-kind housing benefits on income distribution and poverty in Europe, thereby contributing to two strands of literature. On the one hand, we contribute to the research strand that aims to quantify income advantages derived from housing, which are not captured by cash disposable income measures (Stephens & van Steen, 2011). This income advantage can stem from two sources: 1) homeowners do not have to pay rent for the housing service delivered by their own home, thus not depleting cash resources as private market tenants do; and 2) reduced rent tenants (for instance in the form of social housing) pay less rent for their housing than they would have to on the private market. Most studies that look at the income advantage derived from housing have focused on owner occupied housing (*e.g.* Balcazar *et al.* 2014; Frick & Grabka, 2003; Saunders & Siminski, 2005; Smeeding *et al.* 1993). On the other hand, we contribute to the literature that aims to incorporate the value of public services in the household income concept in order to compare redistributive and poverty reducing effects of both cash and in-kind social transfers across countries. In recent years international comparative studies on the distributive implications of publicly-provided services have increased (see *e.g.* OECD, 2008 & 2011; Paulus *et al.*, 2010; Verbist *et al.*, 2012), but most of these studies focus on the larger categories of public services like education and health care. Here, we focus on the in-kind benefit from social housing and estimate the impact of incorporating its benefit on the income distribution across households in Europe.

International comparative studies that look at the value derived from living in reduced rent housing are scarce. There are several country studies that investigate effects of imputed rent for social housing on the income distribution (for an overview of the literature on the United States see Olsen, 2001; examples for the United Kingdom include Gibbs & Kemp (1993) and Hills (1991), and for Flanders (Belgium) Heylen (2013)). In general, these studies conclude that social housing reduces inequality and poverty. However, given differences in data and methodology, the outcomes of these studies are not comparable with one another. As is argued by Törmälehto & Sauli (2013) and Stephens & van Steen (2011) the relative importance of renters' below market rent varies greatly across countries, which justifies the measurement of such incomes in a comparative setting as will be done here.

Hence, we calculate imputed rent for any reduced rent tenants in a systematic way for several EU countries. These estimates will allow providing a more comprehensive picture of social efforts on housing, and thus contributing to the literature on including the value of public services in the income concept and the literature on the income from housing. Moreover, our estimates are also relevant for the ongoing debate on whether cash or in-kind social transfers are to be preferred in social policy and which of the two is more effective in combatting poverty (see *e.g.* Currie & Gahvari, 2008). We illustrate this with a case study for Germany, in which we compare the distributive and poverty effect of cash and in-kind housing benefits; thus, we provide a more complete picture of housing policies in one country and add a longitudinal dimension to our analysis.

In section 2 we compare reduced rent housing benefit systems and user rates in Europe. We then explain how the value of income advantages from housing including social housing is estimated, using the concept of imputed rent (section 3). For 17 EU countries we present in section 4 how these benefits are distributed over the population and how they help to combat poverty. Due to data restriction our comparative study applies a broad definition of social housing, as it includes all reduced rent tenants. Section 5 presents a case study for Germany where in-kind benefit derived from social housing are compared to cash housing benefits; this analysis is more refined in the sense that we are able to distinguish reduced rent due to social housing (hence, a more strict definition of social housing) from reduced rent provided by other third parties. Section 6 concludes.

## **2 In-kind housing benefits in a comparative perspective**

Reduced rent policies are in most countries the major component of a social housing strategy. Social housing refers to housing which is owned and supplied by public authorities; these can be the state

or municipalities, but also independent organisations, such as housing associations or even sometimes private landlords (Andrews *et al.* 2011). While social housing can be provided through favourable provisions for buying a dwelling, in most countries, it generally refers to social rental dwellings, *i.e.* those dwellings typically provided at below-market rents and allocated outside market mechanisms. There is wide variation across countries in terms of conditions of access to social renting. In countries like the Netherlands and Sweden, access is not explicitly linked to individuals' resources<sup>2</sup>, while for instance Belgium and Germany apply a means-test (Andrews *et al.*, 2011). Apart from these forms of social housing, public policies may be in place to affect the private rental market in general, *e.g.* by introducing rent caps as is the case in Germany. However, as no specific income advantage can be derived from these general policies, it falls outside the scope of this paper. Andrews *et al.* (2011) give a classification of social housing systems along two dimensions, namely the size of social housing, and the distinction between broad-based and targeted systems of social housing (see Table 1)(see Kemeny (2006) for a similar classification).

**Table 1: Types of social housing systems, based on eligibility and allocation criteria**

Size: Percentage of social housing in total dwelling stock	Broad-based system		Targeted system	
	No income limit; Waiting list	Income limit, waiting list with some combination of priority groups	Income limits, needs/priority based allocation	
0-5%	Luxembourg	Estonia, Slovak Republic, Spain	Germany, Italy, Portugal, Hungary, Greece	
6-10%		Belgium, Ireland, Poland	Slovenia	
11-20%	Sweden, Denmark		Czech Republic, Finland, France, United Kingdom	
More than 20%	Netherlands	Austria		

Source: Andrews *et al.* (2011), based on OECD Housing Market Questionnaire; size based on CECODHAS (2012).

Broad-based systems operate jointly with the private rental market, with social housing playing a market-regulating role (CECODHAS, 2012). In principle, social housing organized along these lines is open to all citizens, though this does not exclude the possibility that in some countries local governments can reserve part of the dwellings for individuals with special needs (*e.g.* in Sweden and the Netherlands), or that some groups are excluded (Fitzpatrick & Stephens, 2007). Targeted systems of social housing operate separately from the private rental market and apply income thresholds to identify eligible households, assuming that these households are unable to find decent housing on the market. Andrews *et al.* (2011) further distinguish two models within the targeted systems: on the

<sup>2</sup> For an overview of recent policy discussions and developments in the Netherlands and Sweden, see Elsinga & Lind (2013).

one hand housing can be allocated to eligible tenants on the basis of waiting lists, possibly in combination with consideration of priority to specific groups (*e.g.* in Belgium, Poland and Austria), while on the other hand the needs of the most vulnerable households play a greater role than the time on the waiting list (*e.g.* in Italy, Germany and the United Kingdom).

**Table 2: Frequency of different categories of tenure status in EU countries, comparison of EU-SILC with European Social Housing Observatory**

	EU-SILC (2011)				CECODHAS (2012)	
	% of households				Social rental stock as % of	
	Owner	Tenant				
Private market		Reduced rent	Rent free	Total housing stock	Rental stock	
<b>AT</b>	50.0	29.3	<b>12.7</b>	8.0	<b>23</b>	56
<b>BE</b>	66.4	22.6	<b>9.4</b>	1.6	<b>7</b>	24
<b>BG</b>	86.1	2.0	<b>1.9</b>	10.0		
<b>CH</b>	39.0	55.9	<b>3.7</b>	1.4		
<b>CY</b>	65.9	12.8	<b>1.2</b>	20.2	<b>0</b>	na
<b>CZ</b>	77.9	13.9	<b>4.8</b>	3.5	<b>17</b>	na
<b>DE</b>	45.2	47.3	<b>4.4</b>	3.1	<b>5</b>	8
<b>DK</b>	57.5	42.4	<b>0.0</b>	0.1	<b>19</b>	51
<b>EE</b>	79.9	2.8	<b>3.1</b>	14.3	<b>1</b>	25
<b>ES</b>	79.6	12.1	<b>2.8</b>	5.5	<b>2</b>	15
<b>FI</b>	67.9	13.1	<b>17.9</b>	1.1	<b>16</b>	53
<b>FR</b>	60.0	17.4	<b>18.9</b>	3.8	<b>17</b>	44
<b>GR</b>	71.7	21.1	<b>1.6</b>	5.6	<b>0</b>	0
<b>HR</b>	90.7	1.9	<b>1.7</b>	5.7		
<b>HU</b>	88.3	3.4	<b>3.4</b>	5.0	<b>4</b>	53
<b>IE</b>	70.4	13.9	<b>14.1</b>	1.6	<b>9</b>	41
<b>IS</b>	71.9	13.2	<b>11.7</b>	3.2		
<b>IT</b>	71.7	13.7	<b>4.7</b>	9.9	<b>5</b>	28
<b>LT</b>	92.0	1.4	<b>1.2</b>	5.4	<b>3</b>	43
<b>LU</b>	64.0	30.3	<b>3.2</b>	2.5	<b>2</b>	7
<b>LV</b>	81.4	8.3	<b>5.1</b>	5.1	<b>0.4</b>	2.5
<b>MT</b>	77.3	2.3	<b>15.2</b>	5.3		
<b>NL</b>	57.1	42.3	<b>0.0</b>	0.6	<b>32</b>	75
<b>NO</b>	78.2	13.9	<b>0.5</b>	7.4		
<b>PL</b>	79.9	4.0	<b>2.0</b>	14.2	<b>10</b>	64
<b>PT</b>	73.7	12.7	<b>6.2</b>	7.4	<b>3</b>	16
<b>RO</b>	96.4	1.3	<b>0.8</b>	1.5		
<b>SE</b>	62.6	37.0	<b>0.4</b>	0.0	<b>18</b>	48
<b>SI</b>	75.9	6.1	<b>2.8</b>	15.2	<b>6</b>	na
<b>SK</b>	90.1	7.9	<b>0.6</b>	1.4	<b>3</b>	87
<b>UK</b>	66.0	13.6	<b>19.1</b>	1.3	<b>18</b>	54

Sources: Own calculations from EU-SILC (2011); CECODHAS (2012).

The scale of social housing varies considerably across European states (Table 2), with relatively high shares in countries like the United Kingdom, Finland, France and Ireland according to EU-SILC and the European Social Housing Observatory (CECODHAS (2012), <http://www.cecodhas.org/>). For most countries correspondence between both data sources turns out to be reasonable. For a number of

countries, however, EU-SILC seems to seriously underestimate the proportion of households in the social rent sector: this appears to be the case for Austria, Czech Republic and Poland. In some countries there is no clear distinction between market rent and social rent, *e.g.* because (almost) all renters are in social housing, rendering the concept of market rent meaningless. In this case, tenants are all classified in EU-SILC as renting at prevailing or (near) market rent. This is the case in the Netherlands, Denmark and Sweden. For Portugal, on the contrary, the EU-SILC figures report higher shares of social renters. There may be various reasons for these differences. EU-SILC considers only private households (excluding institutionalised households) and the definition of reduced rent tenants includes not only the social housing sector, but also housing provided by other actors at a reduced rate, such as employers. CECODHAS looks at (public) social housing only and as a share of the total housing stock. When it comes to a comparison of the relative level of social housing (*e.g.* budgetary efforts as a share of GDP), unfortunately, no internationally comparative estimates are available. In the following, we use the terms of social housing and reduced rent housing interchangeably as EU-SILC as underlying database does not allow for a more precise distinction.

### **3 Estimating the value of in-kind housing benefits for households in the EU**

Estimating the distributive effect of in-kind housing benefits is difficult, as it requires quantifying the size of the implicit benefits provided. We refer to the concept of imputed rent to provide an estimate of the in-kind benefit households derive from living in reduced rent housing (section 3.1). In section 3.2 we explain how we derive these estimates for a selection of EU countries. Note that in our estimation we abstract from potential second order effects; one needs to bear in mind, however, that broad-based and/or sizeable social housing systems probably affect rents on the private market.<sup>3</sup>

#### **3.1 Estimating imputed rent for measuring the value of the in-kind housing benefit**

A method to take account of the income value households derive from living in a publicly-provided house at lower rent, is to estimate the value of imputed rent<sup>4</sup>. The EU Commission regulation (EC

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<sup>3</sup> There exist also other forms of rent control in various countries (*e.g.* rent caps like in Germany) which may have an effect on the whole housing market. However, a precise derivation of monetary effects of such housing policies is out of the scope of this paper.

<sup>4</sup> Several studies use the so-called 'residual income approach' in order to measure the impact of housing expenses on the income situation of households (*e.g.* Dewilde and Raeymaeckers, 2008; Heylen and Haffner, 2012). This approach tries to calculate what different household types can afford to spend on housing after taking into account other basic needs. As Heylen and Haffner (2012) acknowledge, this

No. 1980/2003 defines imputed rent as follows: “(...) the value that shall be imputed for all households that do not report paying full rent, either because they are owner occupiers or they live in accommodation rented at a lower price than the market price, or because the accommodation is provided rent-free. The imputed rent shall be estimated only for those dwellings (and any associated buildings such as a garage) used as a main residence by the households. The value to impute shall be the equivalent market rent that would be paid for a similar dwelling as that occupied, less any rent actually paid (in the case where the accommodation is rented at a lower price than the market price), less any subsidies received from the government or from a non-profit institution (if owner-occupied or the accommodation is rented at a lower price than the market price), less any minor repairs or refurbishment expenditure which the owner-occupier households make on the property of the type that would normally be carried out by landlords. The market rent is the rent due for the right to use an unfurnished dwelling on the private market, excluding charges for heating, water electricity, etc.”<sup>5</sup>

According to this definition three groups of potential beneficiaries of imputed rent can be identified: owner-occupiers, rent-free tenants and tenants with below-market rent (including social housing and rent-reduction by employers or relatives). Most work on imputed rent until now has focused on estimating the benefits owner occupiers derive from their owning the house (e.g. Canberra Group 2011; Frick & Grabka 2003). Analogously, a measure of imputed rent can be derived for tenants who rent in the public sector at a below-market rent. However, very little conceptual and empirical work has been done on this issue in terms of international comparative studies (cf. section 1).

A general description of the various approaches that can be used to calculate imputed rent on the basis of micro data can be found in Frick & Grabka (2003) and Frick *et al.* (2010). They propose three methods:

1. the **opportunity cost approach** (also known as the ‘rental equivalence method’), which seeks to impute a rental value for all property of potential imputed rent beneficiaries using information from those households living in the private (non-subsidized) rental market. It is often based on a hedonic regression approach, following in principle a two-step procedure. This is the method used in this paper.
2. the **capital market approach**, which starts from the idea of alternative use of capital on the capital market. It focuses on the trade-off between investing in one’s own home or in financial

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residual income approach cannot be used to measure the value of the reduced rent benefit itself. It can only show that government intervention has an impact on housing expenses.

<sup>5</sup> Regulation (EC) No 1980/2003 of 21 October 2003 implementing Regulation (EC) No 1177/2003 of the European Parliament and of the Council concerning Community statistics on income and living conditions (EU-SILC) as regards definitions and updated definitions.



assets that would yield income flows through interests or dividends. A problem is that this approach is based on the homeowner's own estimation of the current market value, which may lead to an overestimation (Frick *et al.*, 2010). Moreover, for rented accommodation, this information is in general not available in survey data (here: EU-SILC), so it cannot be used here.

3. the ***self-assessment*** approach, which is based on the assessment of respondents of the rental value of their home. In EU-SILC owners and rent-free tenants are asked for an estimate of the monthly rent they would have to pay for their dwelling if they would have to rent it. As reduced-rent tenants are not asked what their rent would be if they would rent at market prices, the self-assessment approach is only applicable to owners and rent-free tenants, and not for those living in social housing or by third party provided reduced rental housing.

### **3.2 Estimating imputed rent in EU SILC**

The empirical analyses in this paper are carried out on 2011 micro data from the European Union Statistics on Income and Living Conditions (EU SILC) which is available for 28 EU countries as well as for Iceland, Norway and Switzerland. The income reference period is 2010. EU-SILC distinguish five types of tenure status, namely outright homeowners, homeowners on mortgage, private market tenants, reduced rent tenants and those living rent-free (cf. Table 2). Reduced rent tenants enjoy fictitious income advantages from their reduced rents; they can include those (a) renting social housing, (b) renting at a reduced rate from an employer or relative and (c) those in accommodation where the actual rent is fixed by law. No differentiation between these three types is possible on the basis of the data at hand, which may lead to an overestimation of social housing. When the term 'social renter' is used in the following, this refers to this category of reduced rent tenants.

In principle, estimates for imputed rent should be available for all countries as separate variables in EU-SILC from the 2007 dataset onwards, as all countries are obliged to provide gross and net imputed rent (*i.e.* before and after deduction of relevant housing costs, such as mortgage interest payments). EUROSTAT advises the member states to use a regression approach to derive imputed rent. However, in reality, in the 2011 dataset there are no values of imputed rent for reduced rent tenants in Bulgaria, Germany, Denmark, Iceland, the Netherlands, Norway and the Slovak Republic. Moreover, the documentation on how imputed rent is derived in the individual countries' datasets is very limited and often unclear. In the internal EUROSTAT document "Countries' experience: Imputed Rent (HY030G)" an overview is provided of the construction of variable HY030G and the choice of method for 2007. This document provides a mixture of intentions on how imputed rent will be calculated in a specific country, as well as reports on how it has been done; unfortunately, it is not

clear for all countries how the estimations are done. Juntto & Reijo (2010) and Törmälehto & Sauli (2013) already point to some important issues of comparability for EU-SILC 2007. Törmälehto & Sauli (2013) indicate that there is still lack of transparency for more recent waves of SILC. Based on an analysis of metadata, they describe that, in general, countries report to have made just a few changes in their quality reports since 2007. In addition, if the same methodology is used to derive imputed rent for owners and for reduced rent tenants, it is likely to be inappropriate, *e.g.* because of different types of selection bias for owners compared to social renters.

For all these reasons, we provide our own (harmonized) estimates of imputed rent for reduced rent tenants, using the opportunity cost approach. Using information from those households living in the private (non-subsidized) rental market, a rental value for reduced rent tenants is estimated. As the number of reduced rent tenants may be larger than the size of the social housing sector, results should be interpreted as an upper boundary. As already mentioned all tenants in the Netherlands, Denmark and Sweden are classified in EU-SILC as renting at prevailing or (near) market rent. Consequently, no derivation of imputed rent is possible in these countries, as there is no reference group from which an equivalent rent can be derived. Table 3 provides an overview of the number of cases of private and social renters. No estimates are provided for countries where there are too few cases (here: less than 100) for either private market tenants or reduced rent tenants. This is the case for Bulgaria, Cyprus, Denmark, Estonia, Greece, Croatia, Lithuania, Malta, the Netherlands, Norway, Romania, Sweden and the Slovak Republic. Hence, the analysis is confined to 17 EU countries.

**Table 3: Frequency of different categories of tenure status (tenants, households) and estimation strategy**

	Number of households that rent at		Estimation?
	market rent	reduced rent	
AT	1,672	771	Heckman
BE	1,242	465	Heckman
BG	91	101	No
CH	3,626	261	Heckman
CY	366	34	No
CZ	1167	341	Heckman
DE	5716	496	Heckman
DK	1,407	0	No
EE	117	98	No
ES	1109	361	Heckman
FI	933	1,180	Heckman
FR	1,703	1966	Heckman
GR	765	60	No
HR	77	93	No
HU	383	365	Heckman
IE	535	580	OLS
IS	306	255	Heckman
IT	2252	859	Heckman
LT	39	46	No
LU	1182	196	Heckman
LV	511	329	Heckman
MT	86	646	No
NL	2,982	0	No
NO	458	16	No
PL	460	202	Heckman
PT	649	337	Heckman
RO	73	42	No
SE	2028	21	No
SI	426	187	Heckman
SK	379	30	No
UK	834	1,414	OLS

Source: Own computations from EU-SILC 2011.

We estimate the extent to which tenants in the social rental sector are paying rent below the amount they would pay if they were renting the “same” accommodation in the private market. The opportunity cost approach is used, relying on a hedonic regression estimation of the logarithm of (gross) rent actually paid by main tenants on the private housing market (so excluding social housing and any other reduced rent payments). The covariates are presented in Table 4 and refer to characteristics of the dwelling and its environment, as well as household disposable income and number of household members that are used as a proxy for unobserved characteristics and to control for overcrowding/crowding out.

**Table 4: Covariates used to estimate the imputed rental value from social housing, EU-SILC 2011**

Type of the dwelling: <ul style="list-style-type: none"> <li>• Detached house</li> <li>• Semi-detached house</li> <li>• Apartment/flat in building with &lt;10 dwellings</li> <li>• Apartment/flat in building with <math>\geq 10</math> dwellings</li> </ul>
Size of the dwelling: <ul style="list-style-type: none"> <li>• 1 room in house</li> <li>• 2 rooms</li> <li>• 3 rooms</li> <li>• 4 rooms</li> <li>• 5 rooms</li> <li>• 6 or more rooms</li> </ul>
Quality of the dwelling: <ul style="list-style-type: none"> <li>• Moisture free?</li> <li>• Possible to keep home adequately warm?</li> <li>• Modern comfort present? (bath / shower / indoor flushing toilet)</li> <li>• Dwelling too dark?</li> <li>• Central heating?</li> </ul>
Quality of the neighbourhood <ul style="list-style-type: none"> <li>• Noise from neighbours / street?</li> <li>• Pollution, grime or other environmental problem?</li> <li>• Crime, violence or vandalism in the area?</li> </ul>
Geographical location <ul style="list-style-type: none"> <li>• Densely populated area</li> <li>• Intermediate area</li> <li>• Thinly populated area</li> <li>• Region (where possible a variable based on NUTS2 was included)</li> </ul>
Occupancy in years
Household disposable income (logarithmic)
Number of household members

The possibility of selection bias between private and reduced rent tenants is investigated. Selection bias may result from *e.g.* different housing characteristics for private and social renters. The selection bias is supposed to run along the criteria for eligibility and other factors like social segregation. The variables used in the selection equation are household income, the capacity to face unexpected financial expenses, size of the family, whether or not the family is a lone parent (all of which can be considered as indicators for the eligibility criteria) and whether or not the head of household has a migration background (here: country of birth=non-EU) as an indicator for possible segregation.

For each country a two-step Heckman procedure is applied to predict the logarithm of rent:

*Step 1:* running of a semi-logarithmic regression model with log(gross rent) as dependent variable based on the population of tenants in the private market. The covariates that have been used refer to type and size of the dwelling, quality of the dwelling and the

neighbourhood, occupancy in years, geographical location (see Table 4 for an overview)<sup>6</sup>. Most of the independent variables were recoded into dummy variables, with the most frequent one as reference category (which may differ across countries). A Heckman selection correction is applied to correct for potential selectivity into the rent status.

*Step 2:* application of the resulting coefficients to otherwise similar reduced-rent tenants for each country separately.

If there is no convergence of the estimation, then an OLS-regression is run instead, using the same dependent variable and covariates; this is only the case for Ireland and the United Kingdom (see Table 3).

Next, an error correction term is added in order to maintain variation in the resulting estimates of imputed rent for reduced rent tenants. This error component is randomly chosen from a distribution characterised by zero mean and a variance set equal to the difference between the standard deviation of the actual rent variable and the standard deviation of the predicted imputed rent variable for tenants. A measure of imputed rent is derived by taking the antilog of the estimated monthly imputed rent, deducting from it actual rent paid. Finally, annual amounts are arrived at by multiplying the estimates by 12; as over the year tenants can move and/or change housing status, this is an approximation. Negative values of imputed rent are put to zero. Negative values may arise because of overlapping distribution of social and private renters, *e.g.* because the geographical categorisation used in the regression is too rough<sup>7</sup>.

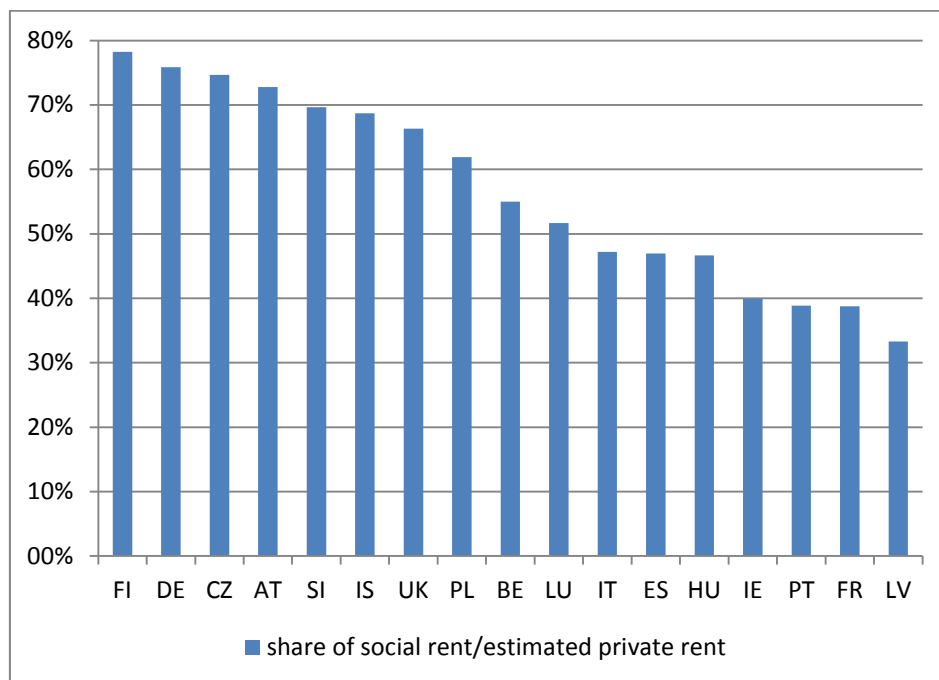
Figure 1 shows the relationship between actual rents paid by reduced rent tenants and the estimated fictitious rent they would have to pay on the private market. There are substantial differences across countries. The impact is relatively modest in countries like Finland, Germany, the Czech Republic and Austria, where the actual rent is more than 70% of what these tenants would have to pay on the private market. In other countries the advantage is much more substantial, as the actual rent paid is 40% or less than what one would have to pay on the private market for a similar dwelling; these countries are Ireland, Portugal, France and Latvia. Interestingly, the only broad-based system among our countries (Luxembourg) has a rather large in-kind benefit of social housing (the actual rent paid is almost 50% of what one would have to pay on the private market).

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<sup>6</sup> Occupancy in years is missing for Finland and Latvia. Geographical location is missing for Slovenia, and has only two (instead of three) categories in Iceland and Latvia.

<sup>7</sup> Due to data protection rules no geographical information on a more detailed level, which might improve estimates of imputed rental values, is available in EU-SILC.

**Figure 1. Rent paid by reduced rent tenants as a share of estimated rent they would have to pay in private market (average per household), 2012.**



Source: own calculations.

#### **4 Distributive impact of including the in-kind benefit of social housing in the income concept**

Previous studies (*e.g.* Gardiner *et al.*, 1995; Saunders & Siminski, 2005) suggest that social housing is probably the category of publicly provided services that benefit the poor the most. We look at this distributive perspective from three angles:

- 1) Where are benefits of social housing located in the income distribution?
- 2) How important is the value of social housing across the income distribution?
- 3) What is the overall impact on inequality and poverty of including imputed rent?

We thus look at the impact on the overall income distribution and at poverty measures, as we aim to indicate to what extent these benefits are received at the bottom of the income distribution and how effective they are in reducing poverty.

As is common in distribution analyses, we use equivalised disposable income, which is household income after inclusion of cash transfers and deduction of taxes. In order to account for household composition, incomes are equivalised by dividing them by the so-called 'modified OECD scale', which assigns a weight of 1 to the first adult in the household, 0.5 to every other adult and 0.3 to each child

(aged below 14 year). For the two first questions we use quintile distributions, which means that individuals are ranked from low to high equivalised cash household disposable income and are then divided into quintiles, *i.e.* five groups of equal size (Q1 is the poorest 20% of the population and Q5 the 20% richest). For the third question we apply standard inequality and poverty indicators. Empirical outcomes are given for the 17 EU countries for which we have been able to estimate imputed rent. Beneficiaries of reduced rent are those individuals in EU-SILC living in a household with tenure status 'reduced rent'; hence, we assume that the tenure status applies to all individuals in the household, or in other words that the housings costs and benefits are equally shared in the household (which is a common assumption in income distribution studies, see *e.g.* Decancq *et al.*, 2014).

Table 5 gives the share of reduced rent beneficiaries in each quintile, while Figure 2 shows how the total mass of social housing benefits is distributed over these quintiles. These outcomes confirm that social housing is often targeted at low income households. In most countries, the share of beneficiaries decreases in all countries when moving up the income ladder. For instance in France 38% of individuals in the bottom quintile lives in social housing. Also in Finland, Ireland, and the United Kingdom, around 30% of the population in the bottom quintile benefits from reduced rent. These are countries with overall high shares of social housing, and apparently these are concentrated among the poorer segments of the population, as intended by the means-test that applies. In most countries, the share of individuals from the top quintile with reduced rent is very small (<2%), though in some it amounts to 5 to 10 % (in Austria it is almost 10%). It may be surprising that social housing is still present in the top quintile, even when eligibility criteria include income ceilings. But often income ceilings apply at the moment of entry; the social renters may meanwhile improve their income position over time without being obliged to move to other housing. Moreover, in some countries (*e.g.* Austria, France and Germany) maximum income ceilings for eligibility are set high enough to encourage income mixing of tenants (CECODHAS, 2012).

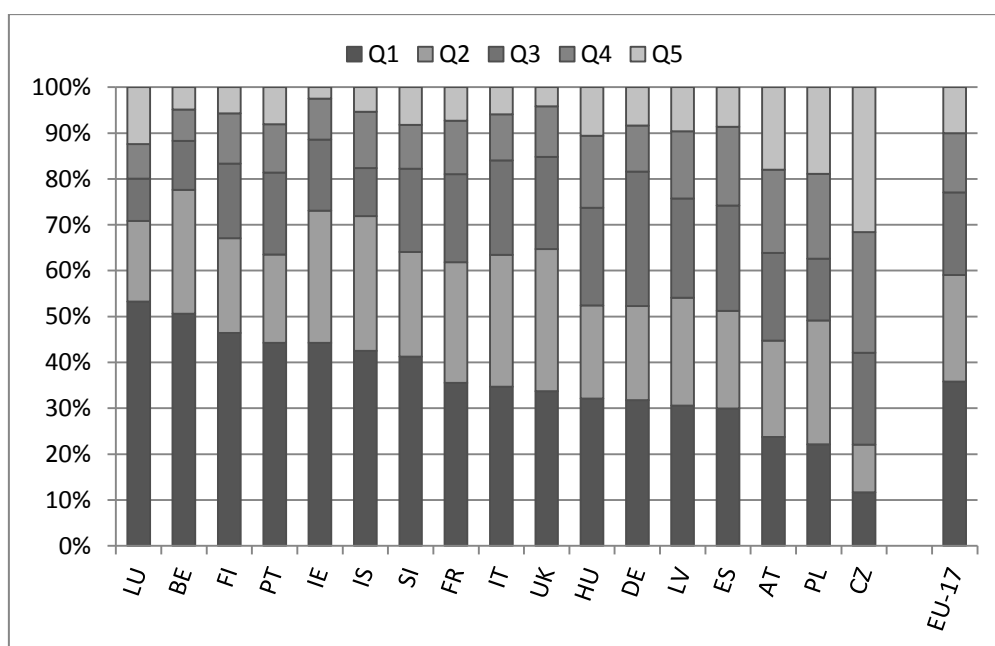
**Table 5. Share of reduced rent tenant per cash disposable income quintile**

	Q1	Q2	Q3	Q4	Q5	Total
FR	38.0%	24.9%	15.8%	9.6%	4.8%	18.6%
UK	34.3%	27.6%	16.3%	7.2%	2.8%	17.6%
FI	31.5%	19.1%	12.6%	7.1%	3.7%	14.8%
IE	30.9%	19.3%	10.1%	6.1%	1.8%	13.7%
AT	9.9%	12.2%	9.9%	12.4%	9.3%	10.7%
IS	17.8%	12.3%	7.9%	4.5%	1.6%	8.8%
BE	19.8%	10.6%	5.4%	2.5%	1.5%	8.0%
PT	10.2%	5.9%	4.2%	4.0%	2.2%	5.3%
LV	10.5%	4.8%	5.0%	3.2%	2.0%	5.1%
IT	8.0%	6.1%	4.5%	2.2%	1.8%	4.5%
CZ	3.8%	3.6%	4.3%	4.3%	5.1%	4.2%
DE	8.1%	4.7%	3.2%	2.0%	1.0%	3.8%
HU	7.2%	3.5%	2.5%	2.0%	1.4%	3.3%
LU	7.5%	2.5%	1.5%	1.1%	1.0%	2.7%
ES	4.2%	3.0%	3.2%	1.6%	1.2%	2.6%
SI	5.1%	2.7%	2.4%	1.2%	0.9%	2.5%
PL	2.1%	2.1%	1.4%	1.1%	1.6%	1.7%
EU-17	14.6%	9.7%	6.5%	4.2%	2.6%	7.5%

Note : countries are ranked from high to low share of SH beneficiaries.

Source: Own calculations on EU-SILC 2011.

**Figure 2. Distribution of social housing benefit over quintiles**



Note: Countries are ranked in decreasing order by share of social housing expenditures in the bottom quintile (Q1).

Source: Own calculations on EU-SILC 2011.

The share of social housing expenditures going to the bottom quintile is on average 35% for the EU-17, whereas the share of the top quintile is around 10% (Figure 2). However, the share going to the bottom quintile exceeds 50% in Belgium and Luxembourg, and is around 20% in Austria and Poland, and even below 20% in the Czech Republic. Belgium, Finland and Ireland have a high share of social



housing in the bottom quintile, and a fraction of this in the top quintile, indicating that the distribution of beneficiaries drives this very pro-poor pattern. In Austria, benefits are more equally distributed over quintiles. Interestingly, the only broad-based system country for which we have data, Luxembourg (see Table 1), is characterised by a very pro-poor pattern, and it differs in outcomes hardly from most other countries that are labelled as ‘targeted’.

**Table 6. In-kind benefit from social housing as a share of cash disposable income per quintile**

	All individuals						Reduced rent tenants only					
	Q1	Q2	Q3	Q4	Q5	Total	Q1	Q2	Q3	Q4	Q5	Total
FR	4.8%	2.3%	1.3%	0.6%	0.2%	1.2%	12.7%	9.4%	8.5%	6.7%	5.7%	7.7%
UK	4.6%	2.6%	1.2%	0.5%	0.1%	1.0%	12.7%	9.4%	7.6%	6.9%	4.0%	6.8%
FI	1.5%	0.5%	0.3%	0.1%	0.1%	0.3%	4.7%	2.7%	2.3%	2.1%	1.7%	2.4%
IE	6.0%	2.5%	1.0%	0.5%	0.1%	1.1%	19.2%	12.7%	10.2%	7.6%	4.8%	8.7%
AT	0.5%	0.3%	0.2%	0.1%	0.1%	0.2%	4.5%	2.1%	1.9%	1.2%	1.0%	1.7%
IS	1.5%	0.7%	0.2%	0.2%	0.1%	0.4%	9.0%	6.1%	3.0%	4.3%	3.6%	4.6%
BE	5.8%	2.0%	0.6%	0.3%	0.1%	1.0%	29.3%	19.2%	11.3%	12.7%	11.4%	14.6%
PT	2.0%	0.5%	0.4%	0.2%	0.1%	0.3%	19.7%	8.7%	8.7%	4.0%	3.5%	6.5%
LV	3.6%	1.5%	1.0%	0.5%	0.2%	0.8%	35.2%	31.6%	19.8%	15.1%	11.4%	18.2%
IT	1.9%	0.8%	0.4%	0.2%	0.1%	0.4%	24.6%	13.5%	9.9%	7.6%	3.5%	8.5%
CZ	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	1.8%	1.1%	1.6%	1.5%	1.1%	1.4%
DE	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	2.0%	1.4%	2.1%	0.9%	1.0%	1.3%
HU	0.8%	0.4%	0.3%	0.2%	0.1%	0.2%	12.5%	10.4%	11.8%	8.7%	5.8%	8.9%
LU	1.0%	0.2%	0.1%	0.1%	0.1%	0.2%	13.2%	8.4%	5.4%	5.2%	5.8%	6.6%
ES	1.3%	0.4%	0.3%	0.2%	0.1%	0.2%	27.1%	13.8%	9.9%	10.8%	4.9%	9.8%
SI	2.3%	0.8%	0.5%	0.2%	0.1%	0.5%	45.6%	31.0%	21.6%	19.8%	13.3%	21.9%
PL	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	5.4%	4.0%	2.2%	2.9%	1.1%	2.4%
EU-17	2.3%	0.9%	0.5%	0.2%	0.1%	0.5%	16.9%	11.2%	8.4%	7.1%	5.0%	8.0%

Note : countries are ranked from high to low share of SH beneficiaries.

Source: Own calculations on EU-SILC 2011.

Table 6 shows the relative size of the benefit of social housing as a share of cash disposable income per quintile. Compared to other publicly provided services, like education and health care, social housing has a much lower distributive impact, because its size is significantly smaller. Social housing represents on average merely half a per cent of disposable income, while for education and health this is around 10%, resp. 14% for these countries (based on Verbist *et al.*, 2012).

Nevertheless, social housing is an important service for the beneficiaries. If the analysis is confined to reduced rent tenants only, including the in-kind benefit of social housing would increase their disposable income by 8% on average, with much higher shares in Belgium, Latvia and Slovenia (more than 10%). Also in other countries (Southern Europe, Ireland and the United Kingdom<sup>8</sup>, France, Hungary and Luxembourg) social housing represents 5 to 10% of disposable income for social

<sup>8</sup> Ireland and the United Kingdom both have private market rent that are market-determined, and are thus characterised by very large differences between private and social rents (Whitehead and Scanlon, 2007).

renters. In general and by design, the income-increasing effect of social housing is largely confined to the lower-income quintiles.

**Table 7. Change (%) in inequality indicators after inclusion of in-kind benefits from social housing**

Income	Gini			MLD		
	Cash	Extended	% $\Delta$	Cash	Extended	% $\Delta$
<b>FR</b>	0.308	0.288	-6.4%	0.165	0.146	-11.5%
<b>UK</b>	0.326	0.320	-1.7%	0.186	0.179	-3.5%
<b>FI</b>	0.258	0.256	-0.7%	0.115	0.113	-1.5%
<b>IE</b>	0.296	0.289	-2.4%	0.159	0.152	-4.9%
<b>AT</b>	0.263	0.262	-0.2%	0.130	0.129	-0.5%
<b>IS</b>	0.233	0.231	-0.9%	0.105	0.101	-3.7%
<b>BE</b>	0.261	0.255	-2.4%	0.122	0.116	-5.2%
<b>PT</b>	0.342	0.340	-0.6%	0.199	0.196	-1.4%
<b>LV</b>	0.347	0.344	-1.0%	0.222	0.217	-2.2%
<b>IT</b>	0.314	0.312	-0.7%	0.194	0.190	-1.7%
<b>CZ</b>	<i>0.252</i>	<i>0.252</i>	<i>0.0%</i>	<i>0.110</i>	<i>0.110</i>	<i>0.0%</i>
<b>DE</b>	0.286	0.286	-0.1%	0.145	0.145	-0.2%
<b>HU</b>	0.268	0.267	-0.4%	0.119	0.118	-0.8%
<b>LU</b>	0.269	0.267	-0.7%	0.123	0.121	-1.4%
<b>ES</b>	0.332	0.331	-0.3%	0.217	0.215	-0.8%
<b>SI</b>	0.238	0.238	-0.2%	0.098	0.098	-0.3%
<b>PL</b>	0.310	0.310	0.0%	0.169	0.169	-0.1%
<b>EU-17</b>	<b>0.288</b>	<b>0.285</b>	<b>-1.1%</b>	<b>0.152</b>	<b>0.148</b>	<b>-2.4%</b>

Note: (1) countries are ranked from high to low share of SH beneficiaries. (2) Extended income=cash+imputed rent of SH. (3) Changes that are not statistically significant at 95% confidence level are in italics (statistical significance calculated as in Goedemé *et al.*, 2013).

Source: Own calculations on EU-SILC 2011.

Finally, what is the impact of social housing on the level and structure of inequality and poverty? Inequality is measured by two widely used indicators, which have different characteristics and hence provide a sensitivity check for the choice of inequality indicator (see *e.g.* OECD 2008, 2011). The Gini coefficient puts more weight at the middle of the income distribution, while the Mean Logarithmic Deviation (MLD) puts more weight on the bottom. The effect of social housing on overall inequality is rather limited for the majority of countries, although the direction is the same for all of them. The Gini coefficient drops on average for all countries with 1% (from 0.288 to 0.285) (Table 7). Notable exceptions are Belgium, Ireland and the United Kingdom, with reductions of around 2% and up to 6% for France; as we have seen, these are the countries that combine a high share of social renters with a relatively large size of the imputed benefit. The inequality effect according to the MLD measure is somewhat more pronounced, though still relatively modest (with the exception of France where *e.g.* according to the MLD indicator inequality reduces with more than 10%).

**Table 8. Poverty rates before and after the inclusion of in-kind benefits, floating poverty line, all individuals and reduced rent tenants only**

	all individuals			reduced rent tenants only			private market tenants only		
	cash	extended	%Δ	cash	extended	%Δ	cash	extended	%Δ
FR	14.0%	11.5%	-18.1%	29.4%	4.4%	-84.9%	21.3%	24.9%	16.9%
UK	16.2%	15.0%	-7.6%	30.4%	21.5%	-29.0%	18.1%	18.3%	1.3%
FI	13.7%	13.1%	-4.4%	30.6%	26.2%	-14.4%	24.2%	24.2%	0.0%
IE	15.2%	13.5%	-10.6%	36.1%	18.5%	-48.7%	19.8%	20.7%	4.7%
AT	12.6%	12.7%	0.1%	12.0%	10.8%	-10.0%	24.0%	24.2%	0.8%
IS	9.2%	9.0%	-2.5%	22.9%	19.4%	-15.2%	21.3%	21.3%	0.0%
BE	15.3%	14.2%	-7.3%	36.2%	16.4%	-54.7%	31.7%	32.7%	2.9%
PT	18.0%	17.7%	-1.8%	35.2%	25.5%	-27.5%	25.2%	25.8%	2.6%
LV	19.0%	18.9%	-0.2%	39.1%	24.1%	-38.5%	25.8%	26.6%	3.2%
IT	19.6%	19.5%	-0.2%	33.9%	24.3%	-28.3%	31.3%	32.0%	2.4%
CZ	9.8%	9.8%	0.0%	8.2%	7.4%	-9.0%	21.6%	21.6%	0.0%
DE	15.9%	15.8%	-0.3%	35.3%	33.0%	-6.4%	24.6%	24.7%	0.3%
HU	13.8%	13.6%	-1.6%	34.7%	26.3%	-24.4%	15.4%	15.5%	0.7%
LU	13.6%	13.0%	-4.2%	44.2%	16.7%	-62.3%	26.0%	26.5%	1.8%
ES	22.2%	22.0%	-0.9%	34.0%	23.2%	-32.0%	37.4%	37.4%	0.0%
SI	13.6%	13.6%	-0.5%	32.1%	29.0%	-9.5%	28.9%	28.9%	0.0%
PL	17.7%	17.7%	-0.1%	24.6%	24.1%	-2.3%	21.6%	21.6%	0.0%
<b>EU-17</b>	<b>15.3%</b>	<b>14.8%</b>	<b>-3.0%</b>	<b>30.5%</b>	<b>21.5%</b>	<b>-27.0%</b>	<b>24.6%</b>	<b>25.1%</b>	<b>2.2%</b>

Note: (1) countries are ranked from high to low share of SH beneficiaries; (2) The poverty line is set at 60% of median income of the corresponding income concept (either cash, or extended (=cash+imputed rent of SH)); (3) Changes that are not statistically significant at 95% confidence level are in italics (statistical significance calculated as in Goedemé *et al.*, 2013).

Source: Own calculations on EU-SILC 2011.

We now turn to the bottom of the income distribution and show the impact of including the in-kind housing benefit in the income concept, thus providing an indicator of the effectiveness of this policy in terms of poverty reduction. Poverty is measured on the basis of the EU-definition of relative poverty using a threshold of 60% of national median equivalent income (see also Decancq *et al.*, 2014); poverty thresholds are recalculated for the different income concepts (*i.e.* cash and extended respectively). The effect of including the benefit of social housing on poverty for all individuals largely confirms the story told by the inequality indicators: the overall effect is rather limited (Table 8). Only in Ireland and France we find significant poverty reductions of 10% and 18% respectively. Also in Belgium and the United Kingdom, the poverty reduction effect is about 7%. When focusing on reduced rent tenants only, poverty reductions are much more substantial. If we look at cash incomes, it becomes clear that reduced rent tenants belong to the more vulnerable segments of society in all countries: reduced rent tenants are in general twice as much at risk of poverty than average in the countries we consider here and they have a higher at-risk-of-poverty rate than private market

tenants. We encounter this much higher poverty risk in almost all the countries. Taking account of the in-kind benefit of social housing considerably closes the gap. Especially in Belgium, France, Ireland and Luxembourg poverty for this group is more than halved and is now lower than that of private market tenants<sup>9</sup>. This shows that inclusion of this in-kind benefit is important to have a better picture of the income position of social renters.

## 5 Housing benefit vs. social housing – the case of Germany

So far we looked at the impact of the reduced rent advantage on the income distribution in isolation. This income advantage is, however, only one policy instrument to support tenants, also cash benefits may be in place. Hence, the question arises which public transfer type is more effective in reducing poverty, direct cash housing benefits or in-kind benefits from social housing? Germany is an interesting case study, as it combines systems of both cash housing benefits and social housing, whereas many other EU countries rather focus on either of the instruments (or none) (Pittini *et al.* 2015). Moreover, the micro data from the German socio-economic panel study (SOEP) allow for an analysis over a time span of almost 30 years, which adds an interesting longitudinal component to our analysis, which is currently not feasible with the EU-SILC data. The SOEP is a representative panel survey of persons living in private households in Germany which started in 1984 and annually collects information on a wide range of socio-economic indicators (Wagner *et al.* 2008). Moreover, SOEP includes more information than EU-SILC about the housing situation and the receipt of benefits. In particular the group of tenants with reduced rent can be clearly differentiated into those living in social housing and those living in accommodation provided by an employer. Using SOEP we compare for Germany the distributive impact of direct cash transfers in the form of housing benefits with the in-kind subsidization in the form of social housing. Note that the distributive effect of cash housing benefits may be overestimated, if landlords discount the housing benefit to some extent in rents; this means that part of the allowance might 'leak away' to the landlords and that part of it is in fact spent on higher rent (see *e.g.* Hills, 1991).

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<sup>9</sup> The change in poverty rate for private market tenants after inclusion of the in-kind benefit of social housing is due to the increase in median income when moving from cash to extended income. When median income increases, so does the poverty line. Hence, more people may be poor, even though their income has not changed (see also Decancq *et al.* 2014).

## **5.1 Social housing and housing benefits in Germany**

As discussed in section 2, social housing usually refers to housing which is owned and supplied by public authorities (the state or independent organisations, such as housing associations). Germany deviates from this practice, as also private landlords can supply social housing. Private landlords can apply for subsidies for construction costs and mortgages at a discount; in return they are obliged to rent out these dwellings below market rents for a fixed period (usually about 15 years; after the landlords have paid back all subsidies they are obliged to rent out the dwellings below market rent for an additional 10 years). German social housing policy was motivated by the high number of displaced persons after World War II and the associated housing shortage. In the 1960s and 1970s social houses were primarily built by municipalities; from the 1980s onwards private landlords were also allowed to build social houses. While in 1987 3.9 million units of social housing were promoted, this declined to 2.1 million in 2001 (the total number of private households in Germany is about 41 million in 2013, with 57 percent or roughly 23 million tenants, see Federal Statistical Office 2015a). Since the 2002 law on social housing, however, the number of social housing tenants continuously decreased by about 100,000 units per year. Also in SOEP we observe a strong decrease in the last 15 years of the number of individuals living in social housing, notably from 3.5 million persons in 1995 to only 1.3 million in 2011 (a decrease of 60%).

Also for cash housing benefits the number of individuals living in recipient households strongly decreased to about 3.2 million (a reduction of 40%). According to German social protection law, housing benefit can be claimed by a single person even if other household members are living in the same dwelling. Thus, based on a household panel such as SOEP it is not possible to restrict the population of interest to recipients only. This also explains why official register data show a pronounced lower number of households receiving housing benefits in Germany. Housing benefit can be claimed by tenant households, but also by owner-occupiers in financial need. In practice, more than 90 percent of all recipient households are tenants (Federal Statistical Office 2015b). The mean housing benefit is roughly 130 Euro/month. The amount depends on the number of eligible household members, living space, gross rent without heating costs and income. A one-person household usually receives about 110 Euro/month housing benefit (2011). This nearly doubles to 207 Euro for a two-person household and then decreases with more household members – presumably because of additional incomes of other household members. Over the last 15 years, the mean housing benefit increased until 2005, when eligibility rules changed with the introduction of the unemployment benefit II scheme in Germany, which restricted access to housing benefits. Since then the mean housing benefit transfer shrunk to the early 2000s level. However, eligibility rules for the

cash benefit were changed again in 2009, as the income and rent threshold were increased. Consequently, the mean transfer rose from 90 to 140 Euro/month.

As in section 3, we measure the in-kind benefit of social housing on the basis of the opportunity-cost approach. A value of imputed rent for social housing is calculated on the basis of a Heckman regression; the dependent variable is gross rent per square meter (without heating costs) for renters in the private rental market (Frick & Grabka 2003). The resulting coefficients are applied to all households with below or zero market rents, *i.e.* owner occupiers, rent-free households, company flats and social renters. For the latter three the difference between the estimated coefficients for the mean market rent and the rent actually paid yields the income advantage from imputed rent (financing costs such as mortgages, depreciation or maintenance which are relevant costs for owner-occupiers do not have to be considered). The mean in-kind benefit from social housing amounts to nearly 120 Euro/month (2011), an amount similar to cash housing benefits. The time trend also follows that of housing benefits, with mean values increasing up to 2005 and then slightly decreasing again. However, before 2005 income advantages from social housing were some 30 Euro/month higher than housing benefits, while after 2005 the mean value is about 15 Euro/month lower (in prices of 2010). This difference can be the result of a different composition of eligible groups, or changes in the transfer level due to *e.g.* changes in the calculation of housing benefits.

**Table 9: Marginal effects from a logit regression (2012) receiving housing benefits vs. living in social housing**

	Coef.	Std. Err.
age of hh-head	-0.0112	0.005 **
age of hh-head squared	0.0001	0 *
West-Germany	-0.2256	0.032 ***
size of dwelling in m <sup>2</sup>	0.0027	0.001 ***
occupancy	-0.0006	0.001
number of hh. members	-0.0219	0.014
number of children 0-14 yrs.	0.0907	0.015 ***
income poor	0.1773	0.039 ***
log(post-gov. income)	-0.1071	0.053 **
condition of the building, in good condition (RF)		
partly in need of renovation	0.0921	0.027 ***
in need of renovation	-0.0808	0.044 *
Educational level: no training degree	-0.1486	0.027 ***
Pseudo R2		0.2757
N of obs.		1088
Log likelihood		-45.91

Source: SOEPv29, persons living in private households. Significance level \* (<0.1), \*\* (<0.5) and \*\*\* (<0.01).

As the outcomes of a logit regression show in Table 9, the two beneficiary groups differ considerably in their composition<sup>10</sup>. Regarding living space persons living in households receiving housing benefit tend to have a somewhat larger dwelling (this is still only three-quarter of the mean flat size of the total population). The higher the age of the household head the lower is the probability that this household receives housing benefit and the higher the probability for living in social housing. This follows from the fact that social housing was very prominent before the millennium in Germany and reduced since then. While the mean household size is for both groups about three (hence the non-significant coefficient), there are 1.5-times more children in households receiving cash benefits, illustrated by a significant coefficient. Also regional spread differs with the majority of persons living in social housing in West Germany, while the housing benefit is much more relevant in the Eastern part with a share that is nearly twice as high as in the western part (Federal Statistical Office 2015b). Cash benefits recipients tend to have a higher probability to live in a building which partly needs to be renovated. Finally, the higher the income the lower is the probability to receive housing benefit compared to those in social housing and thus the lower is the poverty risk rate. This is an indication for the lower accuracy of social housing given that no regular individual means test is needed to benefit from this transfer type, as is the case for the housing benefit (Engels *et al.* 1984).<sup>11</sup> This is

<sup>10</sup> Both groups can overlap, given that individuals can live in social housing and receive housing benefits. This overlap is, however, limited: about 20 percent for all observation years of those living in social housing also receive a housing benefit with a slight tendency of a decrease for recent years.

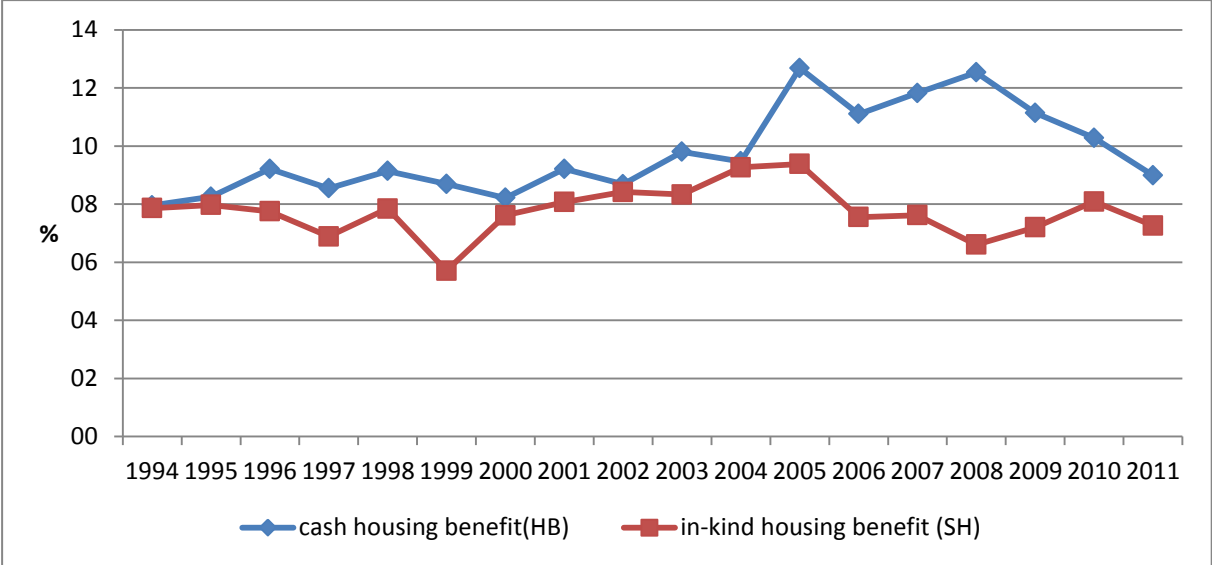
<sup>11</sup> In Germany a household has to be eligible only upon entry into social housing; if income of a social housing household improves there is no need to move out as there is no regular means testing. In the past

motivated by the municipalities' intention to mix low income families with families of the middle class in social housing to prevent segregation. One of the reasons, however, to substantially reduce this type of non-monetary transfer since 2002, is that middle class families are in principle not in need to benefit from social housing.

**5.2 Distributive outcomes of cash and in-kind housing benefits in Germany**

The mean income advantage from the two transfer types is rather similar with somewhat lower values for the cash benefits before 2005 and the reverse thereafter. The share of the transfer in post-government income is roughly 10 percent over all observation years for housing benefit and about 8 percent for social housing (Figure 3). In the last four years this share has dropped for housing benefits, as a result of changes in the eligibility rules.

**Figure 3: Housing benefit and income advantages from social housing as a percent of post-government income**



Source: SOEPv29, persons living in private households. Income years are presented

Mean annual post-government income (including the in-kind benefit from social housing) is in all observation years for social renters at least 20 percent above the value for housing benefit recipients (Figure 4). This can either be the result of a higher share of East Germans receiving housing benefits, as average East German income levels are still lower than in the western part, or it could also be the result of the lower target accuracy of social housing. This better income position of those living in social housing is also reflected in poverty outcomes. The poverty risk rate is about 14 percent for the

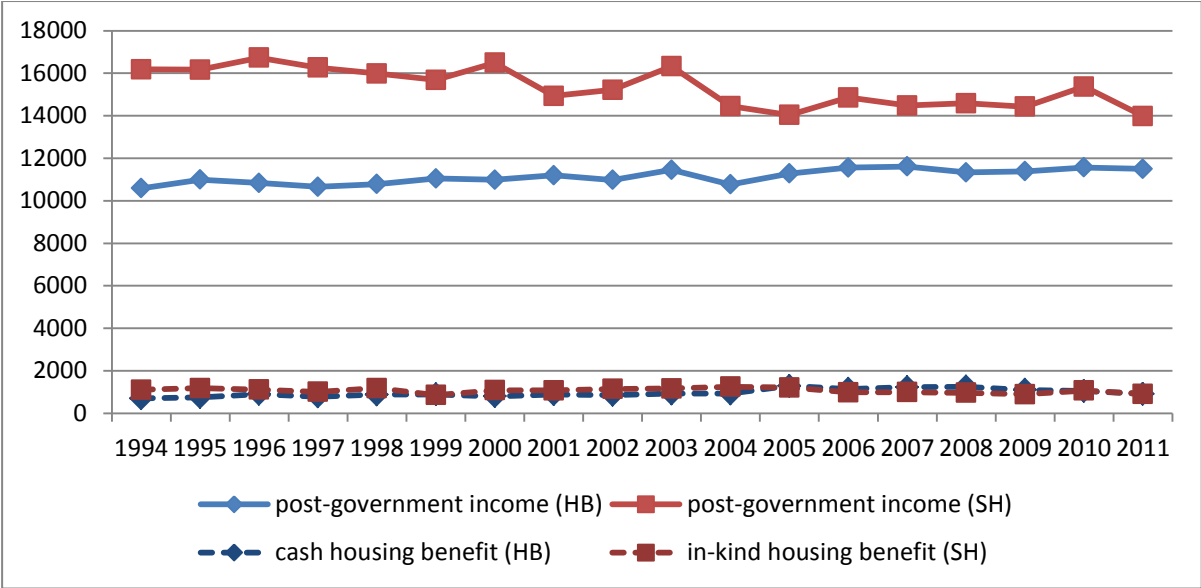
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households exceeding the upper income threshold by more than 20% had to pay compensation; however, this regulation was abolished in several German states in the beginning of the 2000s.



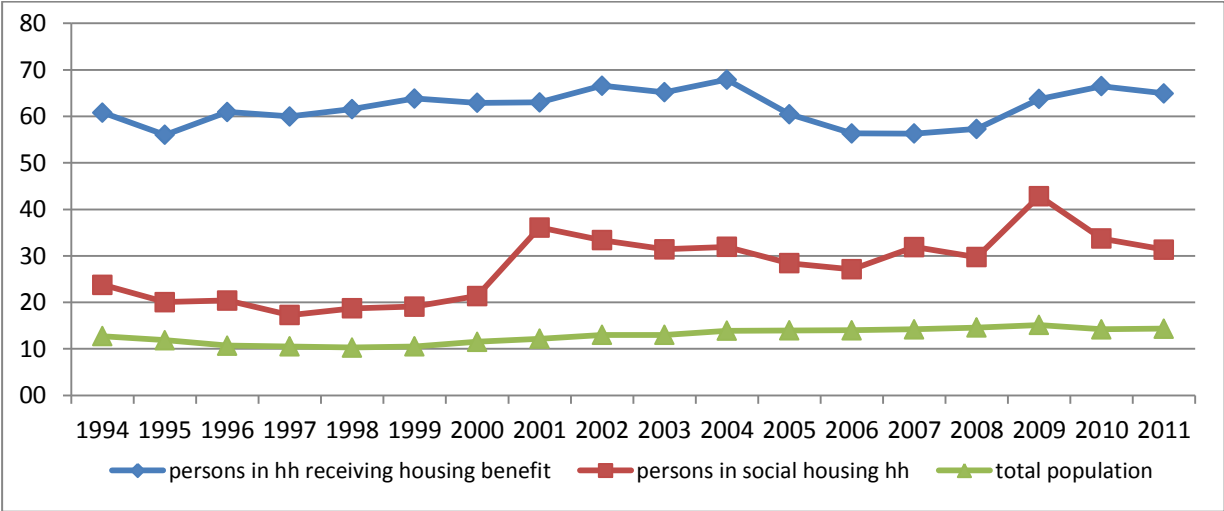
total population in 2011 (Figure 5), with a poverty risk rate of 31 percent for those living in social housing and a much higher rate of 65 percent for those receiving housing benefits.

**Figure 4: Mean post-government income for those receiving housing related transfers**



Source: SOEPv29, persons living in private households. Income years are presented

**Figure 5: Poverty risk rate for the total population and by transfer type (in %)**

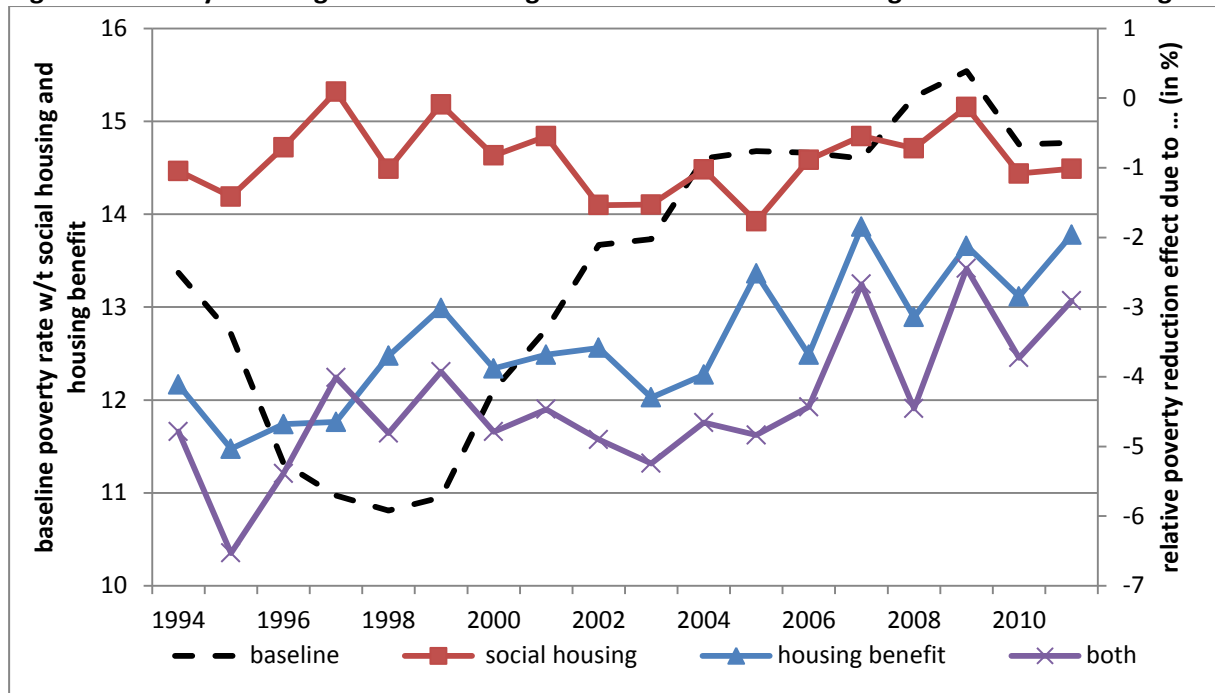


Source: SOEPv29, persons living in private households. Income years are presented.

In Figure 6 we show the impact on poverty, as compared to a baseline poverty rate calculated on post-government income without the cash and the in-kind housing advantage (dashed line). As expected the poverty reducing effect from social housing is smaller than for housing benefits. For social housing we observe a poverty reduction effect of about one percentage point for all observation years. For housing benefit this impact was 4-5 percentage points in the mid-1990s and since then decreased to about 2-3 percentage points. The stronger poverty reducing effect is the

result of a higher targeting accuracy of this transfer type, given that only persons currently in need are eligible for this financial aid.

**Figure 6: Poverty reducing effect of housing benefit and income advantages from social housing**



Note: Baseline poverty rates presented on left hand axis, the effect on relative poverty on right hand axis.

Source: SOEPv29, persons living in private households. Income years are presented

This pattern is confirmed when considering the effect on inequality (Table 10). Inequality reduction is more pronounced when using the MLD, given that this coefficient is more sensitive to changes in the bottom half of the distribution. The time trend, however, differs from the findings of poverty reduction. While social housing has a rather stable poverty reduction effect over time, both social housing and housing benefit lost ground in reducing income inequality. This is the result of a general strong increase of income inequality in the baseline income concept, thus the two transfer types are less effective in reducing overall inequality.

**Table 10: Inequality impact of housing benefit and social housing, Germany 1994-2011.**

	Gini				MLD			
	baseline	inequality reduction in % points			baseline	inequality reduction in % points		
		social housing	housing benefit	both		social housing	housing benefit	both
<b>1994</b>	0.263	-0.4	-1	-1.4	0.124	-1.3	-3.5	-4.7
<b>1995</b>	0.258	-0.5	-0.9	-1.4	0.118	-1.3	-3.3	-4.4
<b>1996</b>	0.253	-0.4	-1.1	-1.4	0.112	-1.3	-3.3	-4.4
<b>1997</b>	0.252	-0.4	-0.9	-1.3	0.111	-1	-1.9	-2.7
<b>1998</b>	0.253	-0.4	-1	-1.4	0.111	-1	-3.1	-4
<b>1999</b>	0.251	-0.3	-0.9	-1.1	0.107	-0.6	-2.6	-3.2
<b>2000</b>	0.257	-0.3	-0.9	-1.2	0.116	-0.9	-2.7	-3.6
<b>2001</b>	0.261	-0.3	-1	-1.3	0.118	-0.9	-3	-3.9
<b>2002</b>	0.271	-0.4	-0.9	-1.3	0.127	-1	-2.8	-3.7
<b>2003</b>	0.273	-0.4	-1.1	-1.5	0.131	-1	-3.3	-4.3
<b>2004</b>	0.278	-0.4	-1.2	-1.5	0.135	-0.9	-3.5	-4.3
<b>2005</b>	0.292	-0.4	-1	-1.4	0.149	-1	-2.9	-3.8
<b>2006</b>	0.288	-0.3	-0.9	-1.2	0.143	-0.8	-2.5	-3.2
<b>2007</b>	0.289	-0.2	-0.8	-1	0.144	-0.6	-2.3	-2.8
<b>2008</b>	0.286	-0.2	-0.9	-1	0.141	-0.3	-2.8	-3.1
<b>2009</b>	0.286	-0.1	-0.7	-0.8	0.142	-0.4	-2.2	-2.6
<b>2010</b>	0.282	-0.2	-0.6	-0.8	0.138	-0.5	-1.9	-2.3
<b>2011</b>	0.288	-0.2	-0.5	-0.7	0.142	-0.6	-1.3	-1.9

Source: SOEPv29, persons living in private households.

## 6 Conclusion

In this paper we have argued that it is important to account for the in-kind benefit households derive from social housing. Firstly, there are theoretical reasons: in-kind benefits also influence the living standards of households and, hence, should be accounted for. Moreover, when comparing policy efforts across countries, taking only account of cash spending might give a misleading picture. This does not only apply for social housing, but also for other categories of publicly provided services. In contrast to education and health care services, the case of social housing has remained understudied in international comparisons.

We have applied the methodology of imputed rent to derive a measure for the in-kind benefit that households derive from reduced-rent for a set of 17 European countries and to analyse the distributive implication of including this in-kind benefit in household income. Both in terms of share of beneficiaries as in terms of size, there is considerable cross-country variation. Especially in Belgium, France, Ireland and the United Kingdom, we find sizeable effects on inequality and poverty, as these countries have a relatively high share of beneficiaries, as well as a large difference between

private market and social rents. Moreover, beneficiaries are strongly concentrated in the bottom part of the income distribution; interestingly, this is also the case for Luxembourg, the only country in our analysis that is characterised as being broad-based (*i.e.* not income targeted).

In a country case study for Germany we put the in-kind benefit of social housing into perspective by comparing it with its cash counterpart, notably housing benefits, and by looking at a longer time span. The prevalence of both cash and in-kind transfer types is still important in Germany, even though it has declined over the last decade due to various legal changes. We found higher targeting accuracy for cash housing benefits given that regular individual means tests have to be passed in order to be eligible. This is not the case for social housing, where eligibility is only checked when a household first moves in, but not regularly afterwards. Hence, mean post-government income for those living in social housing is significantly higher than for those receiving housing benefits and the poverty reducing effect of housing benefit is more pronounced.

In sum, our results indicate that social housing is indeed relevant for poverty research, and we recommend taking this in-kind benefit into account in future studies in order to provide a more complete picture of the distributive impact of housing benefits.

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