

The comparability of imputed rent

2010 edition

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Luxembourg: Publications Office of the European Union, 2010

ISBN 978-92-79-16758-4

ISSN 1977-0375


Doi:10.2785/56068

Cat. No. KS-RA-10-022-EN-N

Theme: Population and social conditions

Collection: Methodologies and working papers

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Eurostat is the Statistical Office of the European Union (EU). Its mission is to provide the EU with high-quality statistical information. To that end, it gathers and analyses data from the National Statistical Institutes (NSIs) across Europe and provides comparable and harmonised data for the EU to use in the definition, implementation and analysis of EU policies. Its statistical products and services are also of great value to Europe's business community, professional organisations, academics, librarians, NGOs, the media and citizens. In the social field, the EU Statistics on Income and Living Conditions (EU-SILC) instrument is the main source for statistics on income, poverty, social exclusion and living conditions.


Over the last years, important progress has been made in relation to EU-SILC. This is the result of the coordinated work of Eurostat and the NSIs, *inter alia* in the context of the EU 'Living Conditions' Working Group and various thematic Task-Forces. Despite these significant achievements, EU-SILC data are still insufficiently analysed and used.

It is in this context that Eurostat launched in 2008 a call for applications with the following aims:

- (1) develop methodology for advanced analysis of EU-SILC data;
- (2) discuss analytical and methodological papers at an international conference;
- (3) produce a number of publications presenting methodological and analytical results.

The 'Network for the Analysis of EU-SILC' (Net-SILC), an ambitious 18-partner Network bringing together expertise from both data producers and data users, was set up as in response to this call. The initial Net-SILC findings were presented at the international conference on 'Comparative EU Statistics on Income and Living Conditions' (Warsaw, 25-26 March 2010), which was organised jointly by Eurostat and the Net-SILC network and hosted by the Central Statistical Office of Poland. A major deliverable from Net-SILC is a book to be published by the EU Publications Office at the end of 2010 and edited by Anthony B. Atkinson (Nuffield College and London School of Economics, United Kingdom) and Eric Marlier (CEPS/INSTEAD Research Institute, Luxembourg).

The present methodological paper is also an outcome from Net-SILC. It has been prepared by Anneli Juntto (University of Eastern Finland) and Marie Reijo (Statistics Finland). Gara Rojas González was responsible at Eurostat for coordinating the publication of the methodological papers produced by Net-SILC members.



It should be stressed that this methodological paper does not in any way represent the views of Eurostat, the European Commission or the European Union. The authors have contributed in a strictly personal capacity and not as representatives of any Government or official body. Thus they have been free to express their own views and to take full responsibility both for the judgments made about past and current policy and for the recommendations for future policy.

This document is part of Eurostat's *Methodologies and working papers* collection which are technical publications for statistical experts working in a particular field. All publications are downloadable free of charge in PDF format from the Eurostat website

(http://epp.eurostat.ec.europa.eu/portal/page/portal/income_social_inclusion_living_conditions/publications/Methodologies_and_working_papers). Furthermore, Eurostat databases are freely available at this address, as are tables with the most frequently used and requested short- and long-term indicators.

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The comparability of imputed rent in EU-SILC 2007 – differences in variable definitions and methods concerning institutional housing

Anneli Juntto and Marie Reijo ¹

Abstract: When assessing the reliability and comparability of imputed rent measurements, one crucial question concerns the private market rental sector in countries. Are the rental markets real and adequately developed as regards the number, the quality and the rent formation of dwellings? Are the differences in dwelling stock and housing standards between countries measurable equivalently that it makes the imputing of rental values feasible? This paper assesses the effects/constraints of institutional factors on existing tenure statuses and, consequently, on determining the rents on market rental dwellings in European countries. In addition, the paper describes the methods which have been used for calculating imputed rental price values for owner-occupied, reduced rental and rent-free sector dwellings. Are there any serious limitations in comparability, and is an additional method of harmonisation of either input or output needed to produce more reliable and comparable income data, or at least more exhaustive metadata to interpret the results.

The paper's findings are based on the EU-SILC 2007 UDB data, accessible metadata in comparative EU quality reports and in a supplement inquiry submitted to countries regarding imputed rent calculations. Because the data is from the first EU-SILC survey year to include imputed rent, weaknesses still exist in comparability. Further harmonisation of definitions as well as methods is proposed to validate imputed rent calculation and to establish its inclusion in the total disposable income for households and EU-wide Overarching Indicators.

Keywords: EU-SILC, comparative study, housing, institutional framework, housing tenures, rental housing, ownership, imputed rent, methodology.

¹ The views expressed in the paper are solely those of the authors

Anneli.Juntto@uef.fi; University of Eastern Finland

Marie.Reijo@stat.fi; Statistics Finland

1. Introduction

The institutional framework for housing is unique in every country. It is a result of historical processes and national cultures. Research, however, has aimed at finding uniform phenomena in housing across countries from various theoretical approaches. In this paper we use theories and views concerning the development of welfare models and regimes as the background for comparisons, selection of variables and grouping of countries according to their housing systems. Although housing policy does not always converge with countries' general profiles in welfare development, welfare regimes explain many of today's national housing conditions, cultures and structures.

Welfare regimes provide a background for national differences in the share of responsibility between the family, state and markets in housing provision, as well as for national differences in the possible polarisation and segregation of the owner-occupied and rental sectors, their respective size, housing quality and the socio-demographic selection of occupants, all of which are important in considering the validity of the imputation of rental value and its inclusion in total disposable household income for owner occupied and reduced rental tenancy households. These are the main themes in the first part of this paper. Within this institutional context, the latter part presents tenure differences and reliability and comparability of imputed rent measurement conducted in the EU-SILC survey. Finally, general findings on comparability and conclusions for further imputed rent method harmonisation are presented.

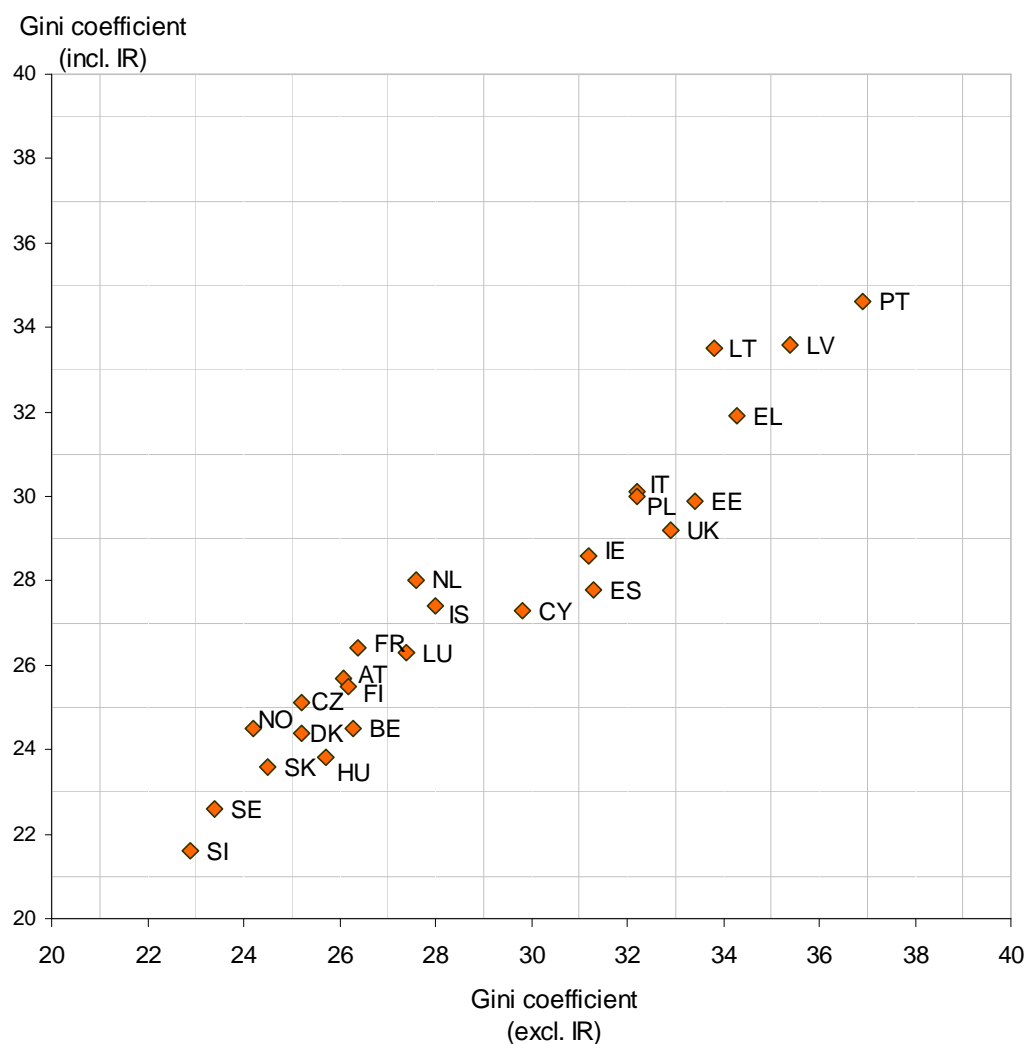
2. Institutional differences: relationships between state, market and family in housing provisions

2.1 Welfare regime typologies and housing

According to one of the most often used welfare regime typologies, that of Esping-Andersen (1990, Esping-Andersen and Myles 2009), welfare state types can be divided into 1) social democratic or Scandinavian (in what follows this model is called Nordic or universalist because Netherlands and Finland are often included in it in research), 2) liberal or 3) corporatist or traditional welfare regimes. The decommodification/commodification dimension referring to non-market state role/market role in providing welfare is a main dimension for the typology. As a special incidence of decommodification, Esping-Andersen has later added to this typology the fourth category of 4) Mediterranean welfare regime, where the family is an especially important provider of welfare besides often undeveloped markets. Different family regimes partly explain regime differences. Family regimes are important in comparing national housing differences, because of resulting different household formations, housing habits, types and sizes. The wealth, economic development and urbanisation of countries are other important factors.

Income distribution is used as one output measure from stratification, the degree of decommodification and welfare differences between regimes in the research which has applied the Esping-Andersen theory, although Esping-Andersen himself concentrates more on welfare state formation and development, not current socio-economic conditions as such. In research analysis, income has been defined as disposable monetary income. Imputed rent and consumption of welfare services (incl. housing services) have not been included in income definitions and measures comparably so far (i.e. adjusted disposable household income). Examined by income distribution, the Nordic, universalistic welfare regimes have been the most egalitarian representing a high degree of decommodification, whereas liberal regimes have been just the opposite. Results from the new EU-SILC data, which includes imputed rent, indicate lower income inequality within and between countries than by the measure based on monetary income, but the main clusters and ranking differences between countries are still clear (Figure 1; Törmälehto and Sauli 2010). The central and eastern European countries (CEE-countries) as newcomers in income comparisons are represented both in lower and higher inequality country groups.

Figure 1: Income inequality by equivalised disposable household income including and excluding imputed rent in EU-SILC countries in 2007, Gini coefficient



Source: EU-SILC UDB 2007–version 2 of August 2009; see more detailed results Törmälehto and Sauli, 2010

Esping-Andersen has not analysed housing in great detail in his research. The connections between the type of welfare regime and housing tenure and policy are complicated and not always consistent. Kemeny (2006) states that great differences can arise between welfare sectors. Besides differences between nations even within the welfare regime groups, there can be regional differences inside countries, like between the north and south in Italy or between states in the German Confederation. Regimes also tend to change in time: the trend has been in the liberal direction in the last few decades. In many countries deregulation processes have recently changed housing policies and the situation to some degree. Yet traces and effects of these historical phases can be discerned in national housing structures and housing provision. Esping-Andersen (2008) finds that these endemic differences complicate comparative empirical research. National housing tenure systems with their long historical

backgrounds are very endemic characteristics and seem to remain as such in spite of recent changes, e.g. the liberalisation of the housing financing markets.

Table 1: Differences in the housing systems of the welfare state regimes

Criterion	Universalistic/ Nordic	Liberal	Corporatist	Mediterranean
Decommodification	High	Low	Quite large	Low, self building and family financing
Srtafication	Low	High (income)	High (social status)	High
Mix of state (public and non-profit private organisations), market and family in housing markets	State dominant/strong in social rental markets, Non-profit organisations, Individualisation	Market parties dominant, Individualisation	Family, Non profit private organisations	Family and kin, Private organisations, Church
Housing policy objectives	Universal. High housing quality level	Residual, complementary	Preserving social stratification, Family and household initiatives on housing market	Marginal
Production subsidisation	Large production subsidies earlier	Means-tested	Specific group segmentation	Little or no production subsidies
Consumption subsidation (social transfers and services) and allocation	State intervention to correct market	Means-tested in small part of housing, selected groups prioritised	According to housing need, means tested	Family, own initiative
Taxation (imputed rent, property, rental income)	Varies	Taxation subsidies support market based occupancy	Varies	Low taxation, informal economics diminish costs
Price setting and regulation	Strong state influence	Deregulation, Market determination	Moderate state influence and regulation	Less regulation
Housing finance	High indebtedness, Market finance is common, developed financing systems	High indebtedness, Market finance is common, developed financing systems	Average indebtedness, Market finance is common, in addition to monetary finance institutions other finance sources, e.g. employers.	Low market finance (family compensates), less developed housing finance markets before

Source: Hoekstra 2003 and 2005 (modified)

Joris Hoekstra has applied the Esping-Andersen theory in analysing housing in the Netherlands and differences in preferred types of housing in the EU countries (Hoekstra 2003, 2005; Table 1). In typologies the dimensions used are decommodification, arrangements between state, market and family, and stratification. Stratification influences allocation of tenure and housing characteristics in housing. Welfare regime typologies in a way pull together and present the essence of relevant institutional differences that have an effect on housing practices in different countries. This makes them suitable tools for reflecting differences and comparability in housing systems, considering this paper’s topic, also in the imputing rent methods used in EU-SILC countries. The

importance attached to differences in stratification in these welfare regime theories also make them suitable reference points in trying to achieve better cross-national comparability in imputing rents.

In liberal welfare regimes, housing policy has been marginal both with regard to legislation and subsidies. It has supported home owning and made it profitable, the social and private rental sectors are kept as separate systems, and private rental is less regulated than in other welfare regimes. Subsidies are mostly means-tested benefits and taxation supports market-based occupancy. Housing and finance markets are well developed and household mortgage indebtedness is common.

A large share of non-profit housing, high public subsidies and regulation of the market have traditionally been connected with the universalistic welfare regime. In the comprehensive universalistic welfare model, housing allocation and subsidies are fairly universal and the non-profit rental and/or co-operative housing sector is large, often without means testing. Nordic countries are commonly grouped to the regime, though Finland and Norway are more loosened from it with the more dualistic or liberal features of the rental sector. The Netherlands is often grouped with the Nordic welfare states. Of the central and eastern European countries (CEE), the Czech Republic's and Poland's housing systems have most of the elements of the universalistic welfare regime.

The group (excl. a.m. CEE countries) includes also strong market elements similar to the liberal regime; these relate primarily to housing production and finance in markets, e.g. a common use of commercial mortgages for a dwelling purchase and high LTV (loan to value ratio). In finance conditions, Euro-area membership makes a difference.

In corporatist or conservative, or sometimes referred to as continental, welfare state regimes, the owner-occupancy rate is also high. Market determination is moderate, family and kin are important in housing provision and financing, and self-building of single family houses is also common. House building is not as highly professional as with the liberal, and especially the Nordic model.

The Mediterranean states can be said to form their own type of welfare state, where family and kin are even more important than in the conservative/corporatist model. Especially in the past, intergenerational dwelling transactions supported by legislation (e.g. inheritance tax on one's own principal home is not levied in Greece and Portugal) and household savings compensated less developed housing finance and the rental market in these countries. The state role, in general, has been marginal in housing.

The CEE countries have often been excluded from earlier welfare regime studies. Countries still undergoing the processes of a transition economy are also difficult to classify. Many of these new EU Member States have the highest shares of owner-occupancy in the EU and usually a very small social rental

housing sector as a result of an intensive privatisation process. Only the Czech Republic and Poland deviate from this, with their relatively high share of social rental housing. Thus, the CEE countries fit in well with the liberal welfare state model. There has been widespread privatisation in many of them, and there have been policies to promote owner occupancy. Yet the private market rental sector is small, market rents are not always applied in the privatised dwelling market, and in practice the former owner may subsidise maintenance costs. Housing trade and finance markets are still relatively undeveloped, although these have recently started to converge with other European countries. Great differences in the dwelling quality compared with other European countries follow from undeveloped markets, which have been prevailing in the CEE countries in the past, and since the privatisation, various problems related to the former state-owned housing stock and a relatively small share of new housing production (Norris and Shields 2007).

2.2. Decommodification creates market imperfections: Subventions, taxation, regulation

With respect to imputed rent computing all factors creating imperfections to rent prices in (perfect) rent markets affect imputed rent measurement, method choices, data reliability and comparability. Subsidies and housing regulations are elements creating a degree of decommodification in housing. Other imperfections and supply side rigidity also exist in housing provision and production.

Both indirect and direct housing subsidies granted for production or consumption affect housing markets. One of the newer general tendencies is the change from production (bricks and mortar) subsidies to consumption subsidies, which Doling (1997) considers one of the tendencies in privatization. Formerly, production subsidies were a more common solution. Housing benefits are not always systematically connected to the type of welfare state. Housing benefits are not universalistic - they do not even exist in every country. Means-tested housing allowances are paid for occupancy of every tenure status in most of the 27 EU countries. The share of households that have received housing allowances is high in the Nordic countries - with the exception of NO, in FR, IE and UK. Both the numbers of those receiving housing allowances and the average allowance are low in the CEE countries, the Mediterranean countries, in BE and DE. (Eurostat 2008; Appendix)

Housing taxation also creates institutional differences in housing markets, favouring home owning or the market rental supply. The main forms of taxation on owner-occupied dwellings are taxation on imputed rent, tax deduction of mortgage interest payments, and taxation on real property.

In neutral taxation countries (e.g. DE, CY, SI, UK) mortgage interest payments are not tax-deductible, and the imputed rents of owner-occupied dwellings are

not taxed either. In modified tax subsidy countries (e.g. BE, DK, LT, LU, NL) mortgage interests are tax-deductible but imputed rents are taxed. This mutuality principle is considered consistent by taxation experts. On the other hand, taxation clearly favours home owning in several countries (e.g. CZ, IE, IT, PL, PT, FI, SE), where mortgage interests are tax-deductible and at the same time imputed rents are not taxed.

The house building is taxed as a real property in most European countries, but not in BE, IE, MT and SI in the Eurozone (ECB 2009). Irrespective of housing tenure, it generates housing costs either directly or indirectly and creates cross-national differences.

Table 2: Forms of taxation on owner-occupied dwellings in EU countries

	Mortgage related interest relief	
	No	Yes
Yes	No tax. subsidies: LV	Modified tax subsidies: BE, DK, LT, LU, NL
No	Neutral taxation: DE, CY, SI, UK	Taxation subsidies on owning: CZ, IE, EL, ES, FR, IT, MT, AT, PL, PT, FI, SE

Sources: ECB 2009 (Eurozone); Housing Statistics in the EU countries 2005-2006 (other countries)

With respect to the cross-national comparability of imputed rents, especially when using the stratification/regression method (chapter 4.1), rent regulation can be expected to have an impact on rental values. However, there is little up-to-date empirical research on rent controls in Europe, although the RICS report (2009) states that “All across Europe there are regulatory controls on rental property. They relate to rents, occupancy and quality”. Rent regulation is thus often a matter of degree. Regulation can be total or partial, which is to say it only concerns part of the rental dwelling stock. Private rents can have a ceiling they should not exceed. Rent increases can be regulated and decided politically or administratively or even be totally forbidden (in crisis conditions).

Table 3: Rent regulation in EU countries

	Rent regulation	
	Yes	No
Old contracts	BE, CZ, DK, DE, ES, FR, IT, LU, NL, AT, PL, PT, SI, SE, UK	BG, IE, LV, HU, MT, RO, FI
New contracts	AT, SI, SE	BE, BG, DE, EE, IE, EL, ES, FR, IT, LV, LU, HU, MT, PL, PT, RO, FI, UK

Sources: RICS 2009; Lux 2006; O Sullivan, *et al* 2007; Housing Statistics in EU countries 2005-2006

The existing rental market stock and the volume of old contracts are the most important factors in the reliability of imputing rental values. The methods and procedures used to regulate rent increases for sitting tenants, and restrict them under the law vary from one country to another. The much-used principle is that rent increases are partly or wholly tied to the rate of inflation, mostly to the consumer price index. Often only partial compensation of market rent increase is allowed to landlords. This model is gaining ground in many countries. It is sometimes called 'the weaker form of rent control' (RICS 2009). A different reliability problem is caused when the annual rent increases are in some, often Nordic welfare type countries like Sweden, tied to the trend in rents in social housing.

In some CEE countries, where the private rental sector is marginal in size, in e.g. Latvia and Hungary, rent setting is very free and after deregulation also in Finland and Ireland. Table 3 shows that countries with regulated rental markets mostly cluster into classes with regulated old contracts and freely agreed new contracts. Some countries like the Netherlands and the UK have a small upper market sector where rents are not regulated.

Not only regulation but the legal rights of tenants like lengths of rental contracts, grounds for giving notice to terminate contracts and of evicting tenants can strengthen the effects of rent regulation. Furthermore, the average mobility of tenants as well as the number of long-term contracts can influence rent levels. Market rents in old contracts tend to lag behind those in new contracts. Tenants' inability to pay higher rents can also lower the market rent level, as is the case, for example, in some CEE countries.

The protection of sitting tenants can diminish the supply of rental dwellings. The consequences of strict rent regulation can be a gradual decrease in the private rental housing stock and also a low standard of quality and maintenance of the rental dwelling stock. With respect to imputed rents, rent control can mean lower gross rent values than in effective market circumstances.

The market production and professionalization of real estate activities and house building and maintenance are a part of the commodification process. On the other hand, self-building has been a way to cut down on housing costs and loans and to diminish market influence. Self-building and family welfare regimes seem to be connected. Somewhat discordantly, market production of housing and the comprehensive welfare state are connected in the universalistic welfare regime. In Sweden, Denmark and the Netherlands, the degree of professionalization in the real estate market is high and the share of those who have become owner occupiers through intergenerational transfer is low. In the middle European, German-speaking countries like Austria, Germany and Switzerland, which are often grouped into the corporatist/conservative welfare regimes, the share of dwellings inherited or donated through intergenerational transfers is also relatively high. (Poggio 2008, p.10.) Underlying factors are industrialisation, urbanisation and the level of wealth in each country.

2.3 Welfare state regimes and housing tenure

Despite certain converging characteristics of housing with other welfare sector developments, and the suitability of welfare regimes for general analysis, there are specific institutionalised features resulting in national housing developments in countries over a longer time, e.g. in housing tenure. For example, Doling (1999) in analysing housing in selected countries (DE, SE, UK) concluded that the basic tenure groups of owners and rentals (rented accommodation) and their specific forms reflect diversified and changing decommodification/commodification in relation to many effective factors (e.g. subsidies, regulation). Even specific decommodification acts (e.g. the state's role in privatisation, consumption and taxation subsidies) may later intensify market-based tenure status, private rental sector tenancy and owner occupancy. Doling measured the degree of decommodification in housing tenures in relation to tenure accessibility and security. They were important dimensions distinguishing and grouping various national forms within basic tenure groups.

Welfare regimes are simplifications and provide a general framework for describing differences in overall housing systems, but e.g. the decommodification/commodification dimension may be inadequate for explaining national specificities. After all, several factors with which commodification/decommodification can also be interrelated, create diversities within welfare regimes. They appear in housing and housing tenure development of countries, such as:

- 1) Level and distribution of income, and wealth due to the accumulation of income which encourages owning
- 2) Degree of urbanisation, which has the opposite effect. Home owning is typical for sparsely populated areas while it is not as common in densely populated and urban areas.
- 3) Household formation and breakdowns
- 4) Needs for asset-based welfare (e.g. the elderly); savings/income accumulation for housing wealth and securing resources for consumption
- 5) National cultural background, practices and rules
- 6) Legislation concerning ownership and tenancy, propriety rights and (rental) contract rights
- 7) Development of housing finance systems: mortgages accessibility, interests rate levels, flexibility of mortgage repayment, security/protecting credit instruments and national legislative systems for debt problems, market shares and family financing

8) Development of social security systems: availability of earnings based benefits in economical risks (e.g. decrease of earnings due to unemployment, sickness) to secure mortgage payments

9) Political decisions on housing, privatization of the social rental stock, as well as decommodification of housing; different regulations or subsidies affecting the housing sector influence tenure choices. Subsidies on the production of social rental sector or consumption (e.g. housing allowances, bricks and mortar subsidies) and their coverage; consumption subsidies also create demand in private rental markets. Taxation (on imputed rent, tax deductions on mortgage interest, rental income and real property) and tax exemptions related to housing also create deviations between countries and are important and endemic elements causing differences in the cost of housing between countries and tenures.

John Doling (1997) has summarised the explanations for national differences in the relative rates of home ownership in particular in the different countries in two groups: 1) home ownership as a result of economic development; this could also be called the modernisation hypothesis, and 2) other theories emphasising the primacy of politics and ideology. The former is called the *convergence* hypothesis, where the development of housing systems is seen as connected with general trends and the economy. The latter, or the so-called *divergence* perspective, emphasises cultural, ideological and political theories as an explanation for differing housing tenure systems (Hoekstra 2005). The starting point for the recently much-used path of dependency theory (Bengtsson *et al* 2005) is that historical institutional arrangements largely determine later national developments, which accentuates the uniqueness and longevity of historical differences, in spite of internationalisation and globalisation. Different historical processes and backgrounds have formed the various kinds of housing tenure and the share of owner-occupied dwellings within the welfare regimes.

Kemeny (1996, 2006) presents a somewhat different point of view on the development and characteristics of the rental market. Corporatist power in welfare regimes is the main factor to explain rental sectors conditions. He divides countries into two groups according to their rental market characteristics: 1) unitary or integrated rental systems, where differences in accessibility, rent levels and quality between social and private rental dwellings are small; both rental sectors are more equal competitors in rental markets and therefore e.g. a rent price increase is lower, 2) dualist rental systems, where differences between social rental and private rental dwellings are more evident and social rental dwellings have been targeted at low-income households. Austria, Germany, France, Sweden and the Netherlands are in the first category, while the UK is an example of the second type. In their social security systems, Finland and Norway both belong to the Nordic regime, although their private rental sectors follow a more liberal model.

Table 4: Private Rental Regimes in European countries, modified

<i>Mediterranean Regimes</i> <i>(Dual)</i> EL, ES, IT, PT	<i>Liberal regimes</i> <i>(Dual)</i> IE, FI, NO, IS, other CEE-countries
<i>Nordic/Social Democratic Regimes</i> <i>(Integrated)</i> CZ, DK, NL, PL SE	<i>Corporatist</i> <i>(Mostly integrated)</i> BE (dual) , DE, FR, AT

Source: Lind 1999; Kemeny 2006

2.4 Differentiated tenures

Considering dualist and unitary tenure systems, tenancy may resemble outright ownership in its occupancy security more in some countries, especially in integrated rental market countries, than in others. In tenure accessibility as well, integrated markets create more equality, because the rental sector is a competitive alternative to owner-occupancy. This means smaller differences between the occupants and dwellings belonging to different tenure types. In addition, tenure accessibility and security, which primarily define the duality/integrity of rental sector, the dwelling characteristics, i.e. quantity, quality and location, can be expected to differ crucially between basic tenure statuses, especially in dualistic housing systems. Household segregation according to tenure at the same time creates differences in the dwelling stock. Within welfare regime dimensions, Hoekstra (2005) speaks about stratification, which is reflected in housing allocation to different housing forms and tenures and to divergent dwelling stock on the basis of national institutional frameworks and forms of housing provision but also the economic resources, life phase, housing needs and housing mobility of households.

If there are deeply differentiated characteristics between tenures, imputing rental values to owner-occupied dwellings and houses may be methodologically difficult. This is especially risky, when housing standards, preferences for consumption and the resources of the occupants within the tenures, are very different and possibly constrained. The validity of market rental values should be at least then questioned, if occupant and dwelling characteristics having significant effect on tenure have not been considered for computing imputed rent.

Tenures in rental and owner sectors can be differentiated by housing standards, such as dwelling size, dwelling type, condition, and also urbanisation. In the background there is the selection or choice of occupants concerning tenures on the basis of age and living phase, mobility, household size and incomes (incl. also future expectations), poverty risk and wealth, among others. By using the EU-SILC 2007 data, more results are presented in Appendix tables. The results support the earlier findings from differences between tenures in household and dwelling characteristics, how strongly they relate to age and life phase, e.g. owner-occupancy (figure 2), promotion, although also cohort experiences lie behind the figures.

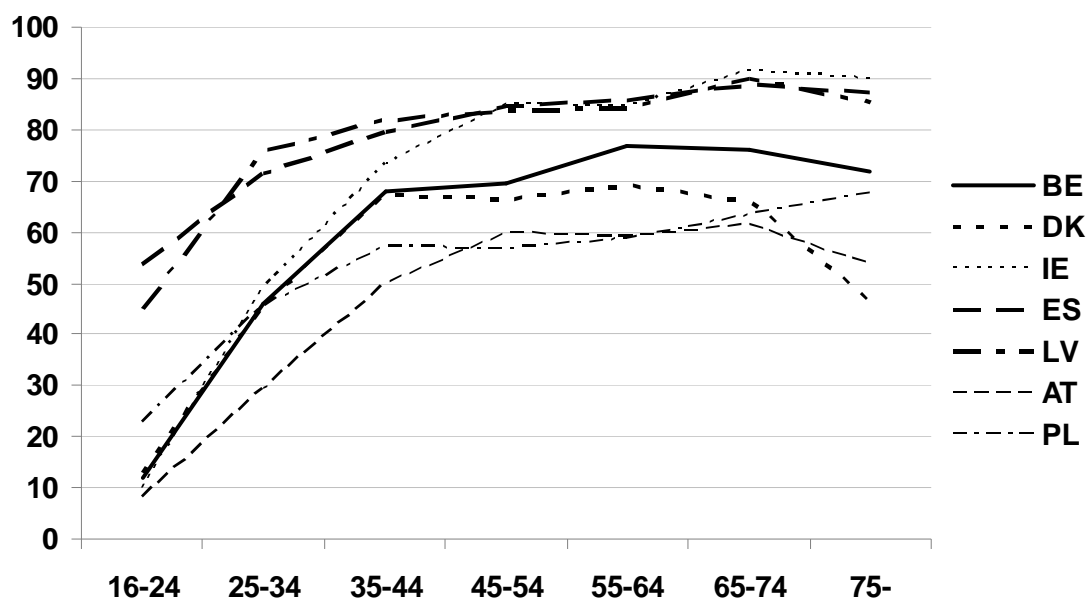
Younger households where the oldest member is under 35 comprise a third or more of all private rental sector tenants' households in half of the EU-SILC countries. Especially high shares of young occupants in rental markets (over 50%) are in EE, HU, IE, LT and NO. The proportion of prime aged households in the age group 35-64 is over third in most countries, whereas the share of market rental occupancy in the older group is clearly smaller, but tends to focus on countries with a large market rental sector in general. (Figure 3).

When comparing the composition of housing sectors, private market rental sector tenants are in many ways closer to reduced rental sector tenants, whereas differences are more marked compared with owner-occupants. Age and life phase-related factors explain many of the differences. As opposed to owners, private market rental sector tenants more often (Appendix):

- live in dwellings in densely populated areas
- live less often in detached houses (except LT), but tend to live in multi-storey dwellings
- live in smaller dwellings on average with regard to room number measured by median (except EL, SK), and experiencing shortage of space in the dwelling more often
- live in dwellings with poor facilities: no bath or indoor flushing toilet (except EL, FR, LT, SK)
- live in dwellings with inadequate installations: inadequate electrical or plumbing/water installations (except HU, SK)
- are one-person households (except IE, SK)
- are in younger age groups, mostly either under the aged 45 (over 50 % except DK, DE, IT, LV, NL, AT, PT, SI, SK, SE, UK) or even under aged 35 (a/m)

- have higher housing costs, measured by median and mean values, compared to outright-owners in particular (except HU), though not to owners with mortgages everywhere (e.g. DK, EL, LV, NL, PT, SI, SK, NO, IS)
- have lower equivalised household disposable income, measured as by median value
- have higher net housing costs in relation to disposable household income; net amounts after housing allowances have been deducted, measured by median (except HU)
- have arrears in housing expenditure
- are in the at-risk-of poverty category (except DK, LT, NL, PL, IS)
- have moved during the last two years

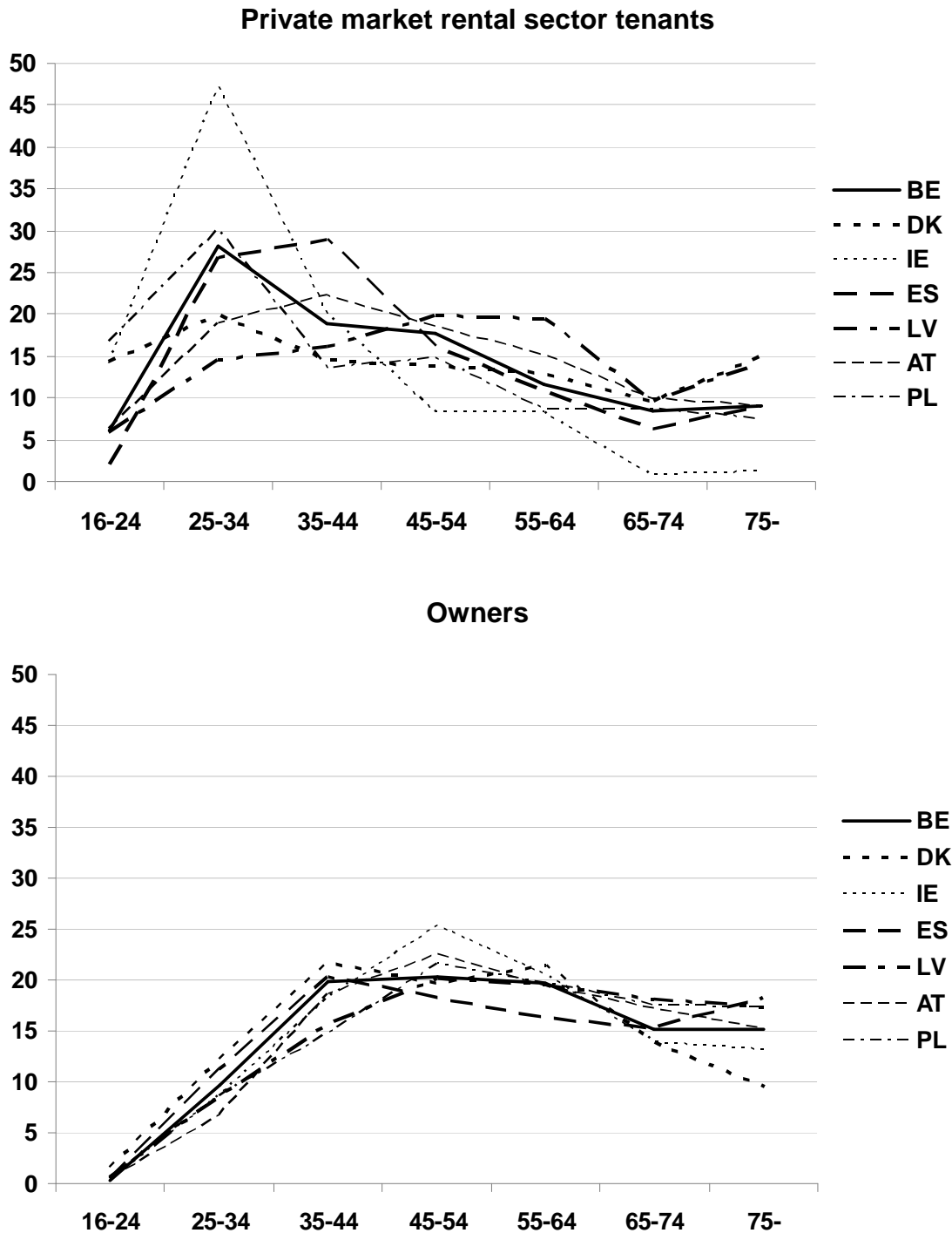
Figure 2: Households occupying owner-occupied dwellings by age in selected countries¹⁾, age refers to age of the oldest household member, % of all households in the age group



¹⁾ Countries represent different welfare regimes (see chapter 2.1)

Source: EU-SILC UDB 2007 – version 2 of August 2009

Figure 3: Distribution of private market rental sector dwellings by age and owner-occupied dwellings by age in selected countries, age refers to age of the oldest household member, % of all households in the tenure form



Source: EU-SILC UDB 2007 – version 2 of August 2009

2.5 Summary: cross national institutional differences seem set to remain in future

National housing systems have both quickly and slowly changing features and elements. Housing finance has lately been converging, but traces of history can, however, be found in differences in indebtedness between countries. Especially the types of houses built, housing tenure systems and legislation regarding them contain permanent elements and strong path dependencies. Buildings and dwellings have long lives, and can last for hundreds of years. The share of newly built housing often accounts for only one per cent of the total housing stock, and long housing loans take 30 to 40 years to mature and include all age cohorts. This sustains differences in national housing stocks.

Welfare state regimes have become less regulated everywhere and the role of the state has diminished but not vanished, and only the means used have changed. General welfare regimes are not very consistent in housing policy and provision, and the housing provision system can differ considerably from the general social security principles in a country. In spite of the growing role of markets, the state influences housing in many ways. The housing market seldom fulfils the conditions set for a perfect market. Some institutional factors deserve special attention in consideration of the methodological difficulties involved in trying to develop the comparability of imputed rent data.

So-called market rents are not determined by a perfect market mechanism, and some degree of rent regulation is still common in EU countries, especially in old rent contracts, which are more decisive in rent formation. Rents in social housing and market housing can affect, and relate to, each other, especially in unitary or integrated rental markets. Again, in countries where dualism and segregation in forms of tenure are strong, the differences in dwelling quality and household characteristics make comparing imputed rents for the owner-occupied housing stock difficult. The market rental sectors are very dissimilar in different countries - and not only as regards their share of the housing stock. The rental markets are regionally unevenly spread and mainly concentrated in large cities. Upper market rental can be for young mobile professionals or the opposite; the most decayed part of the housing stock for occupants with the lowest incomes. In some countries the rental dwelling market is nearly the same size as the owner-occupied market, but it is much smaller in most of the countries. The background causes for this are different renter types, housing needs according to life phase, income, income and consumption expectations and degree of mobility. This subject calls for thorough comparative research.

There are many cross-national differences, such as preferences in types of housing. The housing opinions and preferences of consumers will be all the more decisive in future. National housing cultures, family systems and individual housing preferences differ in practice between countries. For example, the shares of different building types and the dominance of one-family houses vary considerably among the EU countries.

The importance of the role of the state in housing is sometimes underestimated, as also is the role of family and kin in the modern world. The importance of household formation as a result of housing habits and demography should be emphasised in addition to income and finances. Intergenerational transfers of housing wealth are increasing with increased affluence. In future they will probably also generate growing 'hereditary' income and housing inequalities between households with different socio-economic family backgrounds.

Family help and self-building not only come from history but in current crises of housing affordability represent solutions that consumers seek from outside the professional building sector, both to achieve cost savings and to gain more control and say in their own housing arrangements.

3. Housing tenure in EU-SILC: definition and comparison with other sources

A variety of diversified living arrangements exist in European countries (e.g. Karlberg and Victorin 2004). Possible problems in statistical data comparability arise from specific national features which follow from differences in ownership institutions, in practices, rules and legislation concerning ownership, and contract legislation. Housing finance and promotion during occupancy are also creating diversity among other factors. The distinction and classification of several living forms within owner-occupied dwellings and renter dwellings, or indefinite groups between them is difficult. In the EU-SILC statistics, housing tenure is determined by the household member who is responsible for the household's main accommodation. Tenure status (HH020) is classified as follows: 1) owner, 2) tenant or subtenant paying rent at the prevailing or market rate, 3) accommodation is rented at a reduced rate (lower price than the market rate) or 4) rent-free. A new definition in the survey for 2010 breaks down owners into outright and indebted owners.

The definition of the concept of tenure status is not always completely clear and may leave room for operationalisation. Measurement and imputed rent comparability weaken. Imputed rent is calculated for all other tenure forms - except tenants or subtenants paying rent at prevailing or market rent by using tenure specific costs actually paid.

As a statistical concept, tenure status is confused with type of ownership of dwelling (See table 5). Direct ownership equals between the concepts. In this respect the classification of tenure status is fairly unambiguous. In more indirect types of ownership, like a co-operative or the shared ownership of a jointly owned building, and rented sector dwellings, especially of mixed ownership, the classification is much vaguer. Whether or not the household dwelling can be treated as an independent and pure capital/property investment, i.e. (tangible fixed) financial asset for capital formation is important. Formal and legislated property rights under a common and objective framework make tenure status easier to define and apply nationally for statistical purposes. The legislation relates normally to the rights concerning the use and transfer of a dwelling and its use as mortgage collateral.

Table 5: Tenure status of households and classifications of type of ownership according to EU-SILC and Census

EU-SILC: HH020 Tenure status	Census ⁽¹⁾ : Tenure status	Census ⁽¹⁾ : Type of ownership
1. Owner	1. Owner	1. Owner-occupied dwellings
		2. In co-operative ownership
2. Tenant or subtenant paying rent at prevailing or market rate	2. Tenant of all or part of the housing unit 2.1. Main tenant of all or a part of the housing unit 2.2. Sub-tenant of an owner occupier or main tenant	3. Rented dwellings 3.1. Private ownership 3.2. Owned by local or central government and/or by non-profit organisations 3.3. Mixed ownership
3. Accommodation is rented at a reduced rate (lower price than the market rate)		
4. Accommodation is provided rent-free	3. Other form of tenure	4. Other types of ownership

Source: ⁽¹⁾ Conference of European Statisticians Recommendations for the 2010 Censuses on Population and Housing

While the definition of owner occupancy with respect to detached houses is clear, there are differences and definitional problems with dwellings in multiple-dwelling buildings. These dwellings are rarely in direct ownership like detached houses in its precise sense, but usually in shared ownership by the shareholders, mostly occupants, in housing corporations or in the ownership by partners, also mostly occupants, in co-operatives². In these situations shared/shareholder ownership is fairly similar to direct ownership with regard to the scope of the formal rights and obligations of the occupant of a separate dwelling (e.g. use, transfer, collateral for mortgage or other credits). By contrast, the occupants in buildings owned by other types of legal entities, usually non-profit institutions (e.g. non-profit organisations), often have more limited rights to their dwellings. The rights apply primarily to use of a dwelling only, and not for other purposes³. The capital invested by an occupant in a dwelling, if any, could be constant and small in relation to the real market value of the dwelling, and profits from it are not subsequently realised on the housing market. The initial value can only be index linked when the dwelling is sold. The distinction between tenure statuses may then be difficult to make (e.g. in cases where dwelling prices or sales transactions are regulated), but it stands to reason that occupants without extensive rights to their dwelling property are defined as renters rather than owners.

² Co-operatives behave like corporations, but rules rather than the proportion of shares owned by the occupants in the shareholder ownership may have a bearing on their management. The objectives and functions may be specialized, which could also distinguish a co-operative from a corporation.

³ In the past the conditions and prices on giving up or transferring a dwelling could also have been regulated as, for instance, in Swedish co-operative housing.

Recommendations as to how occupants are classified in the borderline cases between renters and owners are difficult to make for the purpose of statistical definitions. In the later EU-SILC recommendations (EU-SILC 065/05.1) the tenure status definition has been specified in accordance with the UN/ECE census recommendations (UN 1998). The recommendations are still rather general and incomplete in both of these statistics, considering the variety of living arrangements in European countries.

An incomplete legal framework for ownership rights and obligations, especially as regards dwelling property in multi-dwelling buildings in the new EU countries, may lead to an unspecified or wrong classification of tenure. Practical examples of such situations are where a private household has received extensive rights that are close to direct ownership to a dwelling property from the public sector, but the maintenance of the building outside the dwelling is the responsibility of the public sector owner, and not been assigned by the owners, e.g. the shareholders in a housing corporation. The households may still define themselves as tenants rather than owners. (See UN/ECE 2006.)

In addition, classification problems relate to distinguishing between rental sector dwellings with prevailing or market rents, irrespective of the housing allowances received to cover them, and those with reduced rent (lower than the market rate), which could include the renting of social housing, renting at a reduced rate from an employer or a relative, or renting at a rate actually fixed by law. Rental market sector dwellings relate to for-profit rental sector dwellings primarily provided by renters in the private sector, whereas rented social housing relates to non-profit rental sector dwellings owned by the local or central government, or by non-profit organisations. If the level of rent is included as an additional criterion for the classification, the distinction of the rental sector according to type of ownership is not so clear any more. Non-profit institutions also involve and operate in the market. The rents of dwellings owned by the local or central government or by non-profit organisations are close to the market level rents in many countries, particularly where the application of social criteria (i.e. means-testing) in selecting low income tenants has been abandoned (UN/ECE 2006). Other criteria, such as tenure security and long-term contracts with restrictions on rent increases or fixed rents could, however, still have to be met in defining dwellings in the social housing sector. Nevertheless, official statistics (e.g. ESSPROS) that use social housing state explicitly the conditions of lower than market rent level, means-testing of selected occupants and ownership of public or private non-profit institutions in the definition.

Private sector rents can thus be at the lower and local social rent level due to the existence of equal social rental sector actors. Rents can also be regulated either by government decisions on permissible rent changes or by rental contracts between tenants and renters (e.g. indexation to consumer prices or other adjustments), which may weaken the operationalisation of the concept of market rent, i.e. rent formation in market conditions, and refer more to the

prevailing or current rent. Especially when long-term contracts include adjustment systems, they can limit market rent increases and rent levels as a result. (ECB 2003). Outside factors, such as a good supply of non-profit rental sector dwellings and affordability of ownership, both also help restrict market rent increases.

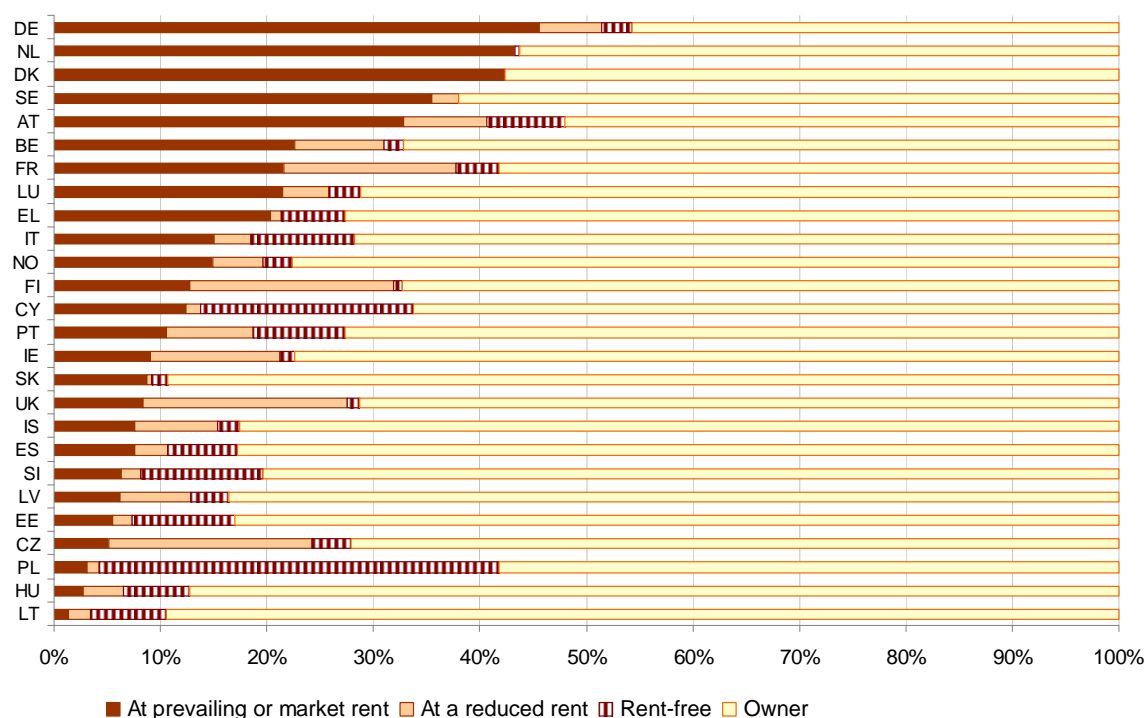
The EU-SILC recommends (EU-SILC 065; EU-SILC 065 (2008 operation)) the classification of renters as tenants or subtenants paying rent at prevailing or market rent if there is no clear distinction between the prevailing/market rental and the reduced market rental sectors, and occupants cannot be empirically distinguished by any criterion. No criteria, e.g. rent level, are given for this. A given example refers to the existence of a social rental sector and non-existence of a market rental sector.

Ownership dominates occupancy over other forms of tenure in all countries, especially in the new central European countries, except for PL, the southern European countries, and IS and NO of the Nordic countries. Tenancy is a more common form of tenure in the old central European member countries than elsewhere. According to the EU-SILC UDB 2007 data (Figure 4), there are single countries in which the rental sector covers tenants or subtenants paying the prevailing or market rents only (DK), or also tenants occupying dwellings on rent-free (NL). With the exception of these countries, the proportion of tenant households occupying market sector rental dwellings is over 10 per cent of all households and higher than that of households renting dwellings at reduced rates or rent-free put together in nine countries (BE, DE, EL, FR, IT, LU, AT, SE, NO). There are 12 countries where the proportion of households renting dwellings at market rental rates is under 10 per cent of all households (CZ, EE, IE, ES, LV, LT, HU, PL, SI, SK, UK, IS). The proportion of tenant households occupying rental dwellings at reduced rates or for free is relatively high, or over 20 per cent of all households, in a few countries (CZ, FR, CY, PL, FI, UK). PL deviates from these countries with a large rent-free sector, mostly comprised of co-operative housing.

The results concerning imputed rent receiver households by tenure revealed that there is a fairly high number of non-receivers in the reduced rental sector in CZ, EE, ES, FR, IT, SK, FI, IS and in the rent-free sector in the NL. Of these countries, imputed rent values have not been included in the reduced rental sector at all in IT and IS. Imputed rent values for dwellings rented from employers (at a reduced rate) are included in the EU SILC target variable of PY020G, non-cash employee income, which explains some, but probably not all, of the 0 values. Because imputed rents are counted for all households in the reduced rental or rent-free sector, it is rather evident that households are wrongly classified in this tenure category, or the relevant characteristics of the dwelling quality have not been measured to define equivalent market rent values reliably. Even by an objective criterion, such as rent, the distinction between the prevailing or market and the reduced rental rate sector is difficult, due to inadequate quality adjusting.

The EU-SILC metadata do not make it clear to the users whether there are other nationally meaningful criteria in the applied classification of tenant status, besides public sector ownership, especially for renting social housing, as the results seem to indicate. Based on the results of separate queries submitted to national statistical institutes, objective criteria other than actually paid rents were not used for the EU-SILC classification. Housing allowances were paid to households, subsidies to landlords/renters, and the rent level could be government-regulated for market sector rental dwellings as well. It turned out that the classification was not always even based on type of ownership of dwelling. Often in these cases the tenant status in the rental sector was defined by self-assessments on the part of households as to whether they were paying prevailing or market rent or reduced rent.

Figure 4: Tenure status (HH020) of households (%) in EU-SILC countries



Source: EU-SILC cross-sectional UDB 2007 – version 1 of August 2009

Tenant status seems to relate in many ways to type of dwelling ownership. It comprises e.g. part-ownership of private households of dwellings owned by local or central government, or by non-profit organisations (e.g. PL, FI, UK) or by other private households (children and parents, e.g. EE).

Households occupy dwellings as members of different types of co-operatives, according to the type of ownership of the dwellings (e.g. DK, SE). The EU-SILC tenure status for these dwellings differs between countries. Besides tenants (incl. partly owned household dwellings), the occupants are defined as owners based on the various living arrangements and occupancy statuses in the countries.

4. Tenure status and methods applied affecting comparability of imputed rent

Where the production of imputed rent values is concerned, the problematic factors that need to be considered for reliable and comparable data and their representativeness are the characteristics of the housing market, such as its composition and differentiation, especially the share of the market rental sector, its size, rent regulations and other factors that have a bearing on the formation of the market rent, in addition to clearly defined and measurable tenure status categories. The institutional characteristics of housing markets for their part have an effect on the classification of tenure status as already mentioned before.

The EU-SILC aims to provide output harmonised data on imputed rent, which means that the target variable is comparable but the method for producing reliable information on it can be chosen according to circumstances in the national housing market and the availability/adequacy of data. Recommendations on applicable methods for achieving comparability and coherence in statistical systems are given in the European System of Accounts (ESA 95) framework (Commission Decision 95/309/EC, Euratom; Commission regulation 1722/2005). Improving the coherence of statistics based on data on households to mirror statistics like the Household Budget Survey (HBS) on the consumption expenditure of households has in certain countries been achieved either by using the same method (e.g. in DE, SI, FI, NO), the same external data source (e.g. FI) or the HBS data as the source for the imputing (e.g. NL, SE). A variety of methods have been used for imputed rent (DOC LC-HBS/07/08/EN) in both surveys - the EU-SILC 2007 survey and the 2005 round of the HBS. When comparing the recommendations of the HBS with those of the EU-SILC, they seem to follow more straightforwardly the ESA95 principles concerning the methods, strata criteria, as well as the minimum number of strata combinations. In the subsequent quality assessment of the HBS across countries, existing weaknesses were still reported in comparability due to different definitions and methods as well as a need to improve imputed rent estimation for the next survey wave. As imputed rent has been provided for several HBS rounds already and mirrors the one for the EU-SILC, the reason for the difference between the surveys in the applied method is unclear.

The principles for estimating dwelling services in the harmonisation of gross national income (GNI) in ESA95 (Commission regulation 1722/2005) state the following concerning the primary use of the stratification method as opposed to other methods, i.e. the user cost method⁴:

- At least 10 per cent of all dwellings are privately rented dwellings
- The disparity between private and other paid rented dwellings does not exceed a factor of three.

The criteria are indicative because it is then immediately stated (aforementioned source) that even when both conditions do not apply, the stratification method can be used if the results are of sufficient quality. When one or none of these conditions are met the stratification method should be used unless it can be demonstrated that the user cost method produces more comparable results. For the primary use of the stratification method, a flexible operationalisation of precise definitions has been allowed to a certain extent (e.g. privately rented dwellings), the use of completing information (e.g. market value of dwelling) or methods (e.g. user cost method in some strata) are recommended.

The regression or stratification method is also prioritised in the methodological recommendations of the EU-SILC⁵. Equivalent market rent is regressed/imputed from a household's primary dwelling with similar characteristics (e.g. location, degree of urbanisation, dwelling quality and size) after which any rent paid is subtracted from this value (i.e. indirect approach). Rents refer to actual rents of unfurnished dwellings covered by all contracts in the private market rental sector, including ones regulated by the government⁶.

⁴ GNI in ESA95 replaced GNP as criterion for own resource purposes from the year 2002. The GNI principles of estimating dwelling services (EC 1722/2005) have been stated more detailed and unambiguously compared with the earlier ones set out by Commission Decision (95/309/EC, Euratom) for compilation GNP.

⁵ Within the NA framework *imputed rent refers to the estimated gross operating surplus for services of owner-occupied dwellings in generation of income account and after subtracting mortgage interests from primary income in allocation of primary income account*. Expenditure on intermediate consumption in the process of production is used for subtracting the value of output from value added in the production account and further taxes on production from gross operating surplus in the generation of income account. By contrast, expenditure on a dwelling (i.e. major repairs or mortgage capital payments of occupants) defined as a tangible fixed asset is counted in gross fixed capital formation in the accumulation/capital account in accordance with ESA. Use of disposable income, e.g. the amount equivalent to gross operating surplus for services of owner-occupied dwellings, of primary income refers to consumption expenditure. In micro statistics, the EU-SILC imputed rent (HY030G-HY100G) equals to the HBS one for owner-occupied dwellings (COICOP 0421101). Compared to HBS, the coverage of the EU-SILC imputed rent is more exhaustive as it is counted for the dwellings rented at prices lower than market prices and rented free of charge. Imputed rent for dwelling rented from employers forms a part of the EU-SILC non-cash employee income (PY020G).

⁶ According to the NA/GNI principles (EC 1722/2005) rentals of publicly-owned dwellings can in exceptional cases be used in the stratification method for statistical reasons (small private market) if they are appropriately increased to serve as proxies for private market rentals.

In the EU-SILC recommendations, the user cost method is allowed as a secondary method⁷ when the market rental sector is small or when the regression method is unreliable. The estimates of the user cost method refer to the net returns on a dwelling as income in the forms of interests and dividends from the market value of the dwelling less any costs actually paid by a household. The recommended third method is self-assessment of equivalent market rent, and the last method is the administrative assessment method, which is generally used for fiscal purposes.

The regression or stratification method based on actual rents was the most commonly used method for computing imputed rent in the EU-SILC⁸ (Table 6). Seventeen EU-25 countries, BG, RO and NO used the regression/stratification method, three EU-25 countries and IS used the user cost method and others (five EU-25 countries) jointly the self-assessment and other method or solely the self-assessment method. In accordance with Törmälehto and Sauli (2010) statement, objectivity vs. subjectivity of estimation would be one important dimension besides other dimensions to group methods and assess imputed rent comparability. By subjectivity is meant a households' perception or self-assessment regarding rent or price of their dwelling in markets instead of an actual price. Self-assessment was one of the main methods; regression and stratification methods also contained subjective elements in a few countries.

Table 6: The imputed rent method according to the EU-SILC 2007 UDB data

Country	Imputed rent method		Market rent definition				
	Main method	External data source	Heckman method	Stratification variables of gross rent (dwelling value in user cost method)	Regulated by government	Subsidised rents	Type of dwelling ownership
BE	R	N	Y	1,2,3,4,5	N	N	2
BG	S	Y: Price statistics, HBS, Real Estate Agencies (E-A).	Y	1,2	..	..	..
CZ	S-A	Y: IRI	..	Na	N	Y	1,2
DK	S	Y: Rent survey	N	1,2	N	N	1,2
DE	S	Y: Micro census	..	1,2,5	..	..	..
EE	U	Y: Real estate sales transactions database	Na	1,2	Na	Na	Na
IE	S	Y: Quarterly National Household Survey	N	1,2	N	Y	1
EL	S / S-A	N	..	1,2,5	N	Y	1
ES	S / S-A	N	..	1,2,5	N(1	Y	1
FR	R	Y: Housing Survey	N	1,2,3,4	N	Y	2

⁷ Imputed rent based on the user-cost method means real income from the costs incurred from home ownership by foregoing the opportunity to invest in financial assets in the form of income from interests and dividends.

⁸ Information about the method used for calculating imputed rents is available for all EU countries except for BG, and TR and CH. Plans for the imputed rent methods are included in the metadata of these countries.

4 Tenure status and methods applied affecting comparability of imputed rent

Country	Imputed rent method		Market rent definition			Regulated by government	Subsidised rents	Type of dwelling ownership
	Main method	External data source	Heckman method	Stratification variables of gross rent (dwelling value in user cost method)	Market rent definition			
IT	R	N	Y	1,2,3,5	..	..	..
CY	R	N	Y	1,2,4	N	N	1	
LV	R	N	N	1,2,5	N	..	..
LT	S / R	Y: Housing Rental Price Survey	..	2	..	..	..
LU	R	N	Y	1,2,4,5	N	N	1,2	
HU	R / S-A	N	..	1,2,3,4,5	..	..	..
MT	S	Y: Population and Housing Census	..	..	..	..	..
NL	R	Y: HBS (Survey of Households Expenditures, National Account Statistics)	..	1,4,5	..	..	..
AT	R	Y: Micro census	N	1,2,4,5	Y	N	2	
PL	R	N	N	1,2,3,5	..	..	..
PT	S / S-A	N	N	1,2	..	..	..
RO	S	Y: HBS	..	..	..	..	..
SI	S	Y: Rent survey	N	1,2	N	Y	1,2	
SK	U	Y: Census, National Accounts, Data of National Bank of Slovakia	Na	1,2	Na	Na	Na	
FI	S	Y: Rent survey, Prices of dwellings	N	1,2	N	Y	1	
SE	U	Y: HBS, Housing Survey	N	1,2	N	Na	Na	
UK	R	N	Y	1,2,4,5	N	Y	2	
NO	S	Y: Rent Survey	N	1,2	Y(2	Y	1	
IS	U	Y: Housing register	Na	5	Na	Na	Na	
HR	..	..	..	..	..	..	..
MK	..	..	..	..	..	..	..
TR	R	N	N	1,2,3,4,5	..	..	..
CH	R	N	Y	1,2,3,4,5	..	..	..

Method: R: Regression method, S: Stratification method, U: User cost method, S-A: Self-assessment method, E-A: Expert assessment method; **Stratification variables:** 1: Region, location, degree of urbanisation, 2: Physical characteristics of dwelling or building, 3: Environmental/neighbourhood characteristics of dwelling, 4: Household member characteristics, 5 Other; **Regulated by government:** (1 Very partially, (2 Rent change regulated; **Subsidised rents:** Direct housing allowances to tenants or subsidies to renters (excl. construction subsidies); **Type of ownership:** Rented dwellings 1: In private ownership, 2: Other : Owned by the local or central government and/or by non-profit organisations, mixed ownership, in co-operative ownership, other type of ownership

Sources: Separate inquiry of Statistics Finland on May 2009 (BE, CZ, DK, DE, EE, IE, EL, ES, FR, IT, CY, LV, LU, HU, NL, AT, PL, SI, SK, FI, SE, UK, NO, IS); CIRCA documents and quality reports, updated on May 2010.

4.1 Regression or stratification method

From the methodological point of view, especially when the *regression/stratification method based on actual rents* is used, a small share of private rental sector dwellings is problematic for the reliability and comparability of imputed rent. There is the risk that the data on rents is unreliable and disparate because of non-inclusion of all the relevant characteristics of the quality and location of dwellings in the estimation of rent for the rest of the dwelling stock, i.e. owner-occupied dwellings and dwellings rented at a reduced rate or for free. The non-inclusion of substantially relevant instrumental variables (e.g. household characteristics) which correlate strongly with dwelling characteristics/location also has an effect. In consequence, the variation in relative prices can be inadequate across the dwelling characteristics or the rent level can be biased. On the other hand, if the information on dwelling characteristics that has been used in the estimation is too detailed, major changes in rental market structures can produce a high variation of imputed rent over the years⁹, which can also mean exceptional prices for the year used as the base year in the price extrapolation, or annual prices in the strata/in the combination of independent variable scales.

Based on the EU-SILC 2007 survey, the share of households occupying rented dwellings at prevailing or market rents among the countries that used the regression/stratification method was between 3.1 - 45.5 per cent. The share was under 10 per cent, which is the threshold proposed for the use of the method in NA and the HBS, in five countries (IE, LV, PL, SI and the UK) and between 10 and 15 per cent in four countries (IT, CY, FI, NO). An external data source was used for the imputed rent value in 10/17 countries + NO, and the rest of the countries (6/17) + (TR, CH) estimated the value from the EU-SILC data by the regression method. One of the countries (LT) used a combination of the stratification and regression methods by focusing them on different household groups. The used external data sources were mostly sample surveys. In addition, a few countries used total aggregates or statistics. For the strata of the regression/stratification methods, the relevancy and statistical significance of the chosen variables were validated nationally in line with the recommendation criterion of 'the correct set of significant explanatory variables chosen in national circumstances' (cf. EC documents). The variable selection is usually based on the elaboration and statistical testing of the regression analysis, or on a within-stratum variance in a tabular analysis¹⁰. A range of variables was wide between countries, often due to the national availability of data. In accordance with the methodological recommendations, the basic strata

⁹ The effect depends on the method used for completing annual data. Extrapolation of the base year figure by appropriate price, quantity, quality indicators is recommended (EC 1722/2005).

¹⁰ A minimum of 30 cells are recommended by at least the size, location and one physical characteristic of the dwelling, and with explanatory power of over 70 per cent of the variable by (multiple) correlation coefficients in NA/GNI.

variables used by the countries were physical characteristics of dwelling and region and location, or degree of urbanisation. Information on the environmental/neighbourhood characteristics of the dwelling was used by a few countries. There was a clear difference between the regression methods based on the EU-SILC data and the stratification methods in the EU-SILC 2007 survey. Content and classifications of information were more detailed, e.g. characteristics of the household members, as continuous variables were used in the regression method.

A few countries had improved the reliability of external data on actual rents with a supplementary method (user cost) or other information because of missing or inadequate data on the dwelling or other important characteristics for the purposes of stratification. One such a method might be to use combined information about the capital value of the dwelling (cf. Commission Regulation 1722/2005). It is assumed to reflect implicitly all the residual physical characteristics of the dwellings which have not been measured. Under the NA/GNI principles, even the use of the capital value of dwellings solely for the purposes of stratification is considered acceptable in small rental markets. From the countries, some (e.g. FI) disaggregated gross rent values to the strata of small and unreliable market areas by using additional information on the market values of dwellings in accordance with the NA principles¹¹. Or rather equivalently in regression methods, a value of dwelling was used as an explanatory variable for market rents (e.g. UK).

The Heckman method was used in at least 4/7 countries to correct selective and biased private market rents of the EU-SILC data in the regression method. None of the countries for which information was available used the Heckman method for an external source. There is no information available on the type of external source (sample survey vs. total data, frequency of survey), or about the sample design if the external data was (originally) based on a sample survey, (whether tenure, usable floor area or other relevant variables were used in the sample selection), or about the estimation methods used (incl. weighting, hedonic regression). Without corrective moves, tenure and rent level might have been determined by tenants with certain characteristics, and by choices of dwellings other than owner-occupied ones or tenancies at reduced rents. This concerns the sample based data for the regression and stratification methods, although the representativeness of the private market rental sector with regard to the basic dwelling stock characteristics had been ensured. The two-step Heckman or equivalent method with probit function in the regression model corrects this type of bias that is due to missing endogenous variables. The statistical significance test by the Mills ratio gives a direct estimate of the selection bias. Otherwise, the validation of the correct set of variables in household characteristics would be rather burdensome.

¹¹ FI: The external total database source on the market value of dwellings was constructed by the smallest administrative regional divisions (municipalities and micro locations by postal codes in the municipalities with the highest population), the same ones which were used as strata for marker rent values.

The measurement of rent price, whether as such or as price/m², and, whether linear or non-linear function (e.g. exponential) has been used to model the relationship between it and independent variables, are crucial factors leading possibly to different results in the price level with the regression method, especially if even the independent variables (e.g. number of rooms¹²) do not adjust the bias effect adequately. This especially concerns imputed rent values estimated for dwellings with large usable floor areas and can result in extreme imputed rent values and outliers in the data. (See Statistics Austria 2008.)

In the regression/stratification methods, imputed rents (IR; HY030G) were based on equivalent market gross rents (GR) from which the dwelling charges (C) actually paid by the EU-SILC sample households were deducted ($IR = GR - C$). The dwelling charges depended on the definition of rent applied. Normally they comprise contract or space rent and minor repairs without other charges¹³. A broader definition (rents with water, electricity, gas or other fuels) is used if the rent items are not separable, as is the case for certain dwelling types like owner-occupied dwellings in housing corporations in the Nordic countries (FI, SE). Being operational costs associated with living in the dwelling, they are not dependent on different treatment according to tenure status and, therefore, should not weaken comparability. For the calculation of disposable household income in the NA framework, mortgage interest is counted as a separate income component which reduces gross income.

4.2 User cost method

With regard to *the user cost method* or the capital market approach method (EE, SK, SE, IS), the comparability of return on the value of capital (constant value and/or one attached to consumer prices) and its change in relation to the imputed gross rent price level essentially determines feasibility of imputed rent between countries using different methods. Problems in the comparability arise in circumstances where, as a consequence of the combination of dwelling values or interest rates (if constant rate for gross value on return is not used, see below), gross rental values are stable or declining, and coexist with market rent price increases, or vice versa. However, it may be difficult to prove the actual changes in practice, and therefore make the choice of method and comparability in any one country questionable. Rents are expected to form in

¹² The selection of variables is usually determined by the availability of data if the share of the private rental market is small. The variable of usable floor area can be more important (in detached houses) if an open class is used for the variable of number of rooms (e.g. 3 and more rooms).

¹³ As an exception, one country (NL) also deducted cost items for capital/accumulation, such as depreciation and major repairs, in addition to the dwelling charges, defined as intermediate consumption/consumption expenditure. In this case the market rents used for gross rent value estimates were based on assessments of real estate agents, not objective information on the actual rent prices. It could be concluded that they did not reflect cost items in the same way as objectively measured market rents are expected to, i.e. depreciation and need for major repairs lower the rent price of a rental market dwelling.

the real market and indicate market prices, which is not often the case if the private rental market is small. Valid conclusions about the comparability of the methods should be drawn in real market circumstances.

In the countries which used the user cost method, the share of the private rental market was under 10 per cent. External sources, e.g. total databases on actual dwelling sales, were used for the determination of market values of dwellings in all countries. Strata by region or degree of urbanisation, and characteristics of the dwelling or building, were used in value imputing for the EU-SILC sample. The gross rental value measuring by return on market dwelling was based on an interest rate as a percentage of the market value of the dwelling in some countries for which the information was available, in line with NA/GNI, taking into account a constant 2.5 per cent of the current net value of the dwelling. The definition of the value of the dwelling stock if household mortgages are included in the value, and the cost items included in the value (operating costs, depreciation) in the method applied for estimating it (e.g. PIM in NA/GNI or equivalent method for depreciation) affect the comparability of the measurement.

All countries have produced information on mortgage interest in the separate EU-SILC target variable HY100G, as also have the countries that used other methods. To obtain data comparable with that from other methods, a broader definition of operational costs and depreciation should be allowed for here than in the regression/stratification method.

The method can be simply expressed as follows, but its application might vary depending on the cost items used in the subtraction.

$$IR = GR - C - D = (r)V - C - D$$

where r refers to gross rental of return on dwelling value (V), and C to operating costs, and D to depreciation.

4.3 Subjective assessment

Subjective assessments and expectations concerning market rent levels often relate to precise and present circumstances, not to the real rental market. These are situations where e.g. the length of the tenure is not included in the subjective assessments made by households. More often because they are the result of systemic measurement errors, rent values are over-estimated even if the charges which are expected to relate to the tenure length have been considered (Doc EU-SILC/162/06). Biased estimates may be caused by non-response as well, which in subjective assessment methods is assumed to be associated with certain household population groups in particular, e.g. elderly households (Frick, etc. 2007).

Where the characteristics of error sources are random rather than systematic, the use of average strata values corrects these types of errors and extreme values compared to unit level values. Of the EU countries, 4/5 (EL, ES, HU, PT) used the *regression/stratification method based on subjective assessment* to estimate the averages or medians of rent values. The EU-SILC was the data source. The characteristics in the strata consisted of region, location or degree of urbanisation and physical characteristics of dwellings or buildings, and the year of contract in all countries, with, additionally, environmental/neighbourhood characteristics in one country.

4.4 Summary of the comparability of the data, possible error sources

National features in housing support many solutions arrived at imputed rent calculations. Nonetheless, some problems concerning the reliability and comparability of the EU-SILC imputed rent data exist. They relate primarily to the definition and classification of tenure, the different methods used to calculate imputed rent values and their diversified application in the countries.

Measurement errors due to the following sources are possible:

- Definition of tenure status: especially the operationalisation of borderline cases between owners and tenants, and tenants in the rental sector
- Characteristics and location of dwelling and characteristics of household
- Size and composition of the private rental market sector, duality of tenures, and therefore validity of rent price values (e.g. prevailing/market rent values, inadequate values, biased values, volatile values)

The comparability problems are associated with the following:

- Use of the regression or stratification method vs. other methods: criteria/validation of the method choice, integration and coherence of the method with other statistics (HBS, NA)
- Different levels in returns from market dwellings and rent prices; subjective or objective basis for price definitions; factors used to calculate imputed rents with the different methods.

Particularly in the regression/stratification method, which is the prioritised method, comparability problems can arise from the following:

- Use of various external data sources for equivalent market rents, their completeness/exhaustiveness and reliability; non-responses of sample surveys compared with total census data; if a sample survey is used as the data source, deficiencies in sampling and weighting, and estimation of representative rent prices.
- Measuring of rent prices: monetary amount or monetary amount/usable floor m²; treating high values and outliers; modelling in regression analysis, if linear or non-linear function of the rent price and explanatory factors is used
- Methods applied in the regression analysis (incl. external data sources): statistical testing of appropriate factors for explaining the overall variation of rent prices; differences in methods (e.g. two-stage regression method (hedonic method)), assessment of tenure selection bias problem in relation to the used method and the variables, testing of bias due to endogenous/ instrumental variables in the tenure selection (e.g. Mills ratio or equivalent confirmation), and treating selection in the regression analysis.

Use of the regression vs. the stratification methods and use of varying numbers and the degree of detail of explanatory/strata variables, often differences in nationally set selection criteria/validity confirmation in the background, result differences in the variation of gross rental values across the strata between the countries, although estimates may, however, be reliable enough nationally. The weakening of the national comparability of imputed rents of households in total (also cf. NA, HBS) may be moderate, provided that the estimates are reliable, but weaknesses may reveal themselves in detailed break downs of households between the countries. Considering income-based indicators (e.g. at-risk-of-poverty rates, Gini coefficient) differences in imputed rent measurement lead to differences in the concentration of imputed rent on income distribution. The sensitivity of comparability relates to the use of very detailed variables/strata and, therefore, the regression method compared with other methods.

- Definitions of actual operational costs and gross rental: possible consistency problems of expenditure items with the definition of rent, differences in the counting of certain cost items in the EU-SILC variables (HH070, HY030G, HY120G) and their possible double counting weaken the comparability.

Finally, differences in the estimation of the EU-SILC data affect the comparability of imputed rents across countries, as also does the treatment of non-response on tenure status and important variables used for calculation. Imputing for item non-response and correcting for unit non-response by weighting (e.g. non-response corrections, calibration) influence the comparability of the final estimates of imputed rents.

The composition of the rental market sector is one of the crucial factors affecting the comparability of imputed rents. Depending on the actors in the rental markets, the realisation of private rental sector rents can be more or less market-oriented. Private rents may be closer to the real market level in dual than in integrated rental markets, but on the other hand the stock of private rental dwellings can then be very small or not represent the whole dwelling stock in terms of its important characteristics, as the occupants can also be selected. Interpretations of the applied rent calculation methods and the results across countries should take into consideration the institutional differences related to tenure status, and especially the formation of the private rental sector in the various countries.

5. Conclusions

The inclusion of imputed rent in disposable household income provides a more exhaustive measure of households' economic resources. It is expected to improve the comparability of data on current income between countries with different tenure structures and between tenures, and between life-phases and age groups, as they are strongly related to tenures.

When the results of imputed rent calculations are compared it is obvious that institutional differences with regard to tenure status, regulations, subsidies and taxation, and the quantity, quality and prices of dwellings all lead to data differentials between countries. Rent prices, and thus imputed rents, can be expected to be higher in countries with dualist rental sectors and within liberal welfare regimes, where markets play a more dominant role than elsewhere. In individual country results on imputed rent there may also be differences in the definitions of the variables used and their operationalisations (e.g. tenure status), in particular if important features are ignored in the variable descriptions, and in the imputed rent methods which effect the results.

Considering the various data sources, methods and variables that countries have used in imputed rent calculations for the EU-SILC 2007, the data can be assumed to show differences in comparability between countries as regards household population grouping by background characteristics. Within multidimensional population groups this is due to the variation of imputed rents bias arising from considerable differences in the methods used, the selection of variables and strata, and the applied selection criteria between countries, even though the estimates would be accurate and reliable enough in the national housing framework. Nonetheless, if there are serious deficiencies in these factors nationally, e.g. in adjusting dwelling stock quality, the weakening comparability of imputed rents may also extend to the total household population due to biased and unreliable data. Statistical data is not equivalently available about important dwelling quality characteristics, and usable for imputed rent calculation in countries. EU-SILC and its ad hoc module on housing provide one base, but in many countries, more reliable data sources on rent prices are available and prioritised instead. So far, the results concerning the total disposable incomes of households and indicators of household poverty according to detailed classifications of background variables should perhaps be interpreted with a some cautious.

The aim in the EU-SILC is to provide output data harmonised with national best practices, which means that common, EU-wide principles with regard to methods are missing to a certain extent, e.g. no criteria have been set for recommendations for basic variables in the regression/stratification methods or the statistical significance of the selected variables. In this respect, the NA/GNI

principles might be a clearly referenced starting point for more specific recommendations/principles for micro surveys. This is true of both the EU-SILC and the HBS. The coherence between statistics needs to be improved in accordance with NA, although the micro statistics have their own specialized measurement targets like household income distribution. Compared with total aggregates (NA), special requirements should be clarified for imputed rent calculations of micro surveys from the comparability perspective, and for consistent data processing at the statistical unit level. The use of the micro data for statistics and scientific research is one crucial aspect here.

Standard and adequate metadata affixed to quality reports on imputed rent calculations help in later evaluations of comparability. Additional variables, e.g. ownership of rental dwellings and imputed gross rental value (before deducting costs actually paid) would be important to include in the EU-SILC micro data. Data on these variables is already being collected in some countries.

The methods used for imputed rent value formations over the years in annual surveys needs to be examined separately. Information is not yet available on this. Imputed rents were added for the first time to the UDB micro data of the 2007 EU-SILC survey.

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Appendix

Table A.1: Household and dwelling characteristics in European countries

	Equivalised disposable household income in 2007			Equivalised consumption expenditures in round 2005			Tenure status of private households % of all households in 2007						
	Average per person, (ppp)	Gini-coefficient	S80/S20-ratio	Average of all exp. per adult person, (ppp)	Average of all exp. per household (ppp)	Average of COICOP A04 per household (ppp)	Owner-occupiers	Tenants at prevailing or market rate	Tenants at a reduced rate	For rent free	Missing	Total	Number of households
BE	18 217	26	3.9	18 831	30 048	7 610	67.2	22.6	8.4	1.8	0.0	100.0	4 543 511
CZ	10 098	25	3.5	6 520	12 142	2 444	72.1	5.2	19.0	3.7	0.0	100.0	4 043 341
DK	18 245	25	3.7	16 199	24 062	7 194	57.6	42.4	0.0	0.0	0.0	100.0	2 677 417
DE	19 787	30	5	18 952	28 501	8 445	45.7	45.5	5.9	2.8	0.0	100.0	39 151 717
EE	8 069	33	5.5	6 531	10 848	3 240	83.0	5.5	1.8	9.7	0.0	100.0	573 296
IE	20 978	31	4.8	20 583	36 373	8 520	77.4	9.1	12.1	1.4	0.0	100.0	1 540 600
EL	13 763	34	6	17 391	30 975	7 442	72.7	20.3	1.1	5.9	0.0	100.0	4 029 722
ES	14 753	31	5.3	13 940	26 028	7 874	82.8	7.6	3.1	6.5	0.0	100.0	16 116 202
FR	17 411	26	3.8	17 523	27 886	7 339	58.2	21.6	16.1	4.0	0.0	100.0	26 306 368
IT	16 725	32	5.5	17 663	28 782	8 512	71.7	15.0	3.5	9.7	0.0	100.0	24 282 485
CY	21 100	30	4.5	17 094	34 208	7 381	66.2	12.4	1.4	20.0	0.0	100.0	263 300
LV	6 823	35	6.3	5 316	10 589	1 810	83.7	6.2	6.7	3.5	0.0	100.0	844 113
LT	7 037	34	5.9	5 892	9 378	1 776	89.3	1.4	2.0	7.2	0.0	100.0	1 309 368
LU	33 539	27	4	32 794	51 932	15 611	71.2	21.5	4.4	3.0	0.0	100.0	185 642
HU	7 369	26	3.7	6 241	10 694	2 073	87.2	2.8	3.7	6.3	0.5	100.0	3 810 232
MT	13 714	26	3.8	15 108	28 605	2 596	..	..	..	..	..	..	..
NL	20 196	28	4	19 018	29 368	7 513	56.3	43.3	0.0	0.4	0.0	100.0	7 190 543
AT	20 280	26	3.8	19 344	30 167	6 732	52.0	32.8	7.8	7.4	0.0	100.0	3 537 022
PL	6 756	32	5.3	5 817	10 594	3 341	58.2	3.1	1.2	37.5	0.0	100.0	13 281 985
PT	11 699	37(p)	6.5(p)	11 674	20 869	5 560	72.7	10.6	8.1	8.6	0.0	100.0	3 850 145
SI	14 388	23	3.3	13 299	23 806	5 483	80.4	6.3	1.8	11.5	0.0	100.0	694 741

	Equivalised disposable household income in 2007			Equivalised consumption expenditures in round 2005			Tenure status of private households % of all households in 2007						Number of households
	Average per person, (ppp)	Gini-coefficient	S80/S20-ratio	Average of all exp. per adult person, (ppp)	Average of all exp. per household (ppp)	Average of COICOP A04 per household (ppp)	Owner-occupiers	Tenants at prevailing or market rate	Tenants at a reduced rate	For rent free	Missing	Total	
SK	7 592	24	3.5	6 517	11 855	3 600	89.3	8.7	0.5	1.5	0.0	100.0	1 909 627
FI	17 099	26	3.7	16 082	24 360	6 614	67.3	12.8	19.1	0.9	0.0	100.0	2 454 999
SE	..	23	3.4	17 414	25 612	8 250	62.0	35.5	2.5	0.0	0.7	100.0	4 309 254
UK	..	33	5.5	20 047	31 959	9 458	71.3	8.4	19.2	1.1	0.0	100.0	25 416 257
NO	..	24	3.7	19 125	29 106	7 633	77.6	14.9	4.7	2.8	1.1	100.0	2 235 517
IS	..	28	3.9	..	..	..	82.6	7.6	7.8	2.0	0.1	100.0	117 873

Source: Equivalised disposable household income Eurostat (6.11.2009) EU-SILC (<http://ec.europa.eu/eurostat>); Equivalised consumption expenditures Eurostat (6.11.2009) HBS (<http://ec.europa.eu/eurostat>); Tenure status, EU-SILC UDB 2007 – version 2 of August 2009

Table A.2: Housing benefits and mortgages

	Housing benefits				Received housing allowances in 2007				Mortgages in 2007			
	Housing benefits as % of GDP in 2005	Households (%) received housing allowances in 2007	Average housing allowance per receiver household (ppp) ¹ 2007	% of owners	% of tenants at prevailing or market rate	% of tenants at a reduced rate	% of tenants for rent free	Residential mortgage ² as % of GDP	% of all households	% of owners	% of owners, oldest person aged 24-35	
BE	0.1	0.8	1 726	0.6	0.7	2.3	0.0	36.8	29.7	44.1	41.1	
CZ	0.1	5.1	230	3.3	11.8	10.9	0.9	15.3	9.2	12.7	20.7	
DK	0.7	21.5	3 181	2.8	47.0	..	..	92.8	43.7	71.5	40.2
DE	0.6p	2.8	1 188	0.6	4.6	6.3	0.5	47.7	..	..	..
EE	0	2.1	185	1.7	3.0	4.8	4.2	36.3	12.0	14.4	33.9	
IE	0.5	30.8	1 904	28.3	25.2	48.5	50.6	75.3	27.6	35.7	43.6	
EL	0.5	1.6	1 352	0.2	6.7	6.9	0.0	30.2	9.7	13.3	10.9	
ES	0.2p	1.3	1 896	1.2	2.1	2.8	0.0	61.6	30.7	37.0	61.1	
FR	0.8p	24.8	2 407	8.1	56.7	48.6	0.0	34.9	18.8	32.3	25.1	
IT	0.0p	1.6	1 323	0.7	6.3	3.4	0.8	19.8	11.9	16.6	24.4	
CY	0.4	3.7	6 086	1.6	15.1	22.8*	2.3	44.8	16.7	25.2	36.9	
LV	0.1p	3.2	89	2.8	7.7	5.9	1.5	33.7	2.5	3.0	12.3	
LT	0.0p	5.4	54	5.7	0.0*	6.1	2.6	33.7	5.1	5.7	18.2	
LU	0.2	5.5	1 682	7.7	0.0	0.0	3.2	38.5	35.8	50.3	43.8	
HU	0.5	7	114	6.8	7.9	11.8	5.7	12.4	12.3	13.8	25.4	
MT	..	..	..	..	..	..	..	..	..	..	..
NL	0.3p	15.2	1 870	0.8	34.0	..	0.0*	100.0	48.2	84.3	51.0	
AT	0.1	4.2	1 484	0.0	10.3	10.9	0.0	23.9	24.7	40.3	29.1	
PL	0.1p	4.9	227	1.5	10.7	6.6	9.7	11.7	3.2	4.7	11.3	
PT	0.0p*	6	485	7.6	3.2	1.1	0.0	62.1	21.4	29.4	44.1	
SI	0.0p	0.9	657	0.0	8.7	18.6	0.1	8.0	3.7	4.6	10.0	
SK	0.0p	0.3	2	0.3	0.4	4.6*	0.0	11.9	4.1	4.6	19.5	
FI	0.3	20.7	2 355	5.3	51.1	56.4	3.0	34.3	32.1	47.7	43.6	
SE	0.6p	11.7	2 834	4.9	23.2	18.6	..	57.0	45.6	74.1	44.7	
UK	1.5	13.1	5 593	0.0	21.0	59.0	0.0	86.3	39.7	55.4	55.2	
NO	0.1	4.4	2 923	2.4	11.2	10.2	8.5	53.3	50.6	66.3	54.0	
IS	0.2	30.1	2 567	29.6	28.9	41.0	15.2*	121	66.5	78.3	67.8	

¹ Values have been converted for EURO and PPS (EU27=1), ² Residential mortgages refer to all residential dwellings (incl. second dwellings); * 20 to 49 observations

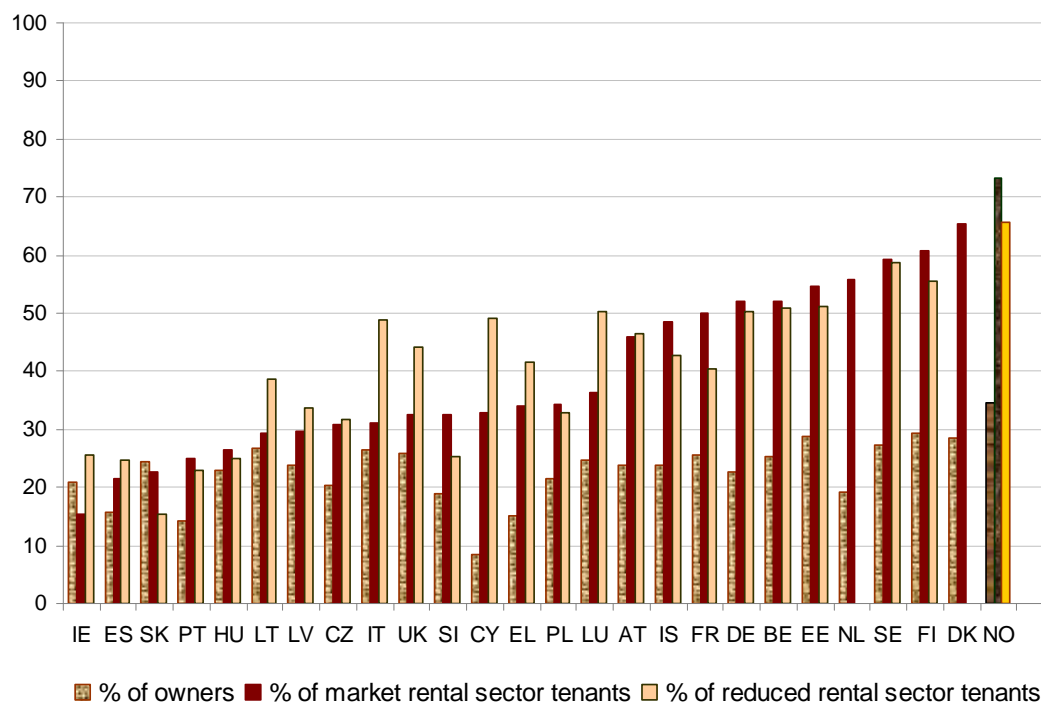
Source: Housing benefits, Eurostat 2008; Residential mortgage of GDP, European Mortgage Federation (EMF <http://www.hypo.org>) using data from Eurostat; Housing allowances and mortgage interest payers, EU-SILC UDB 2007 – version 2 of August 2009

Table A.3: Households by age in tenure statuses in 2007, age of the oldest household member

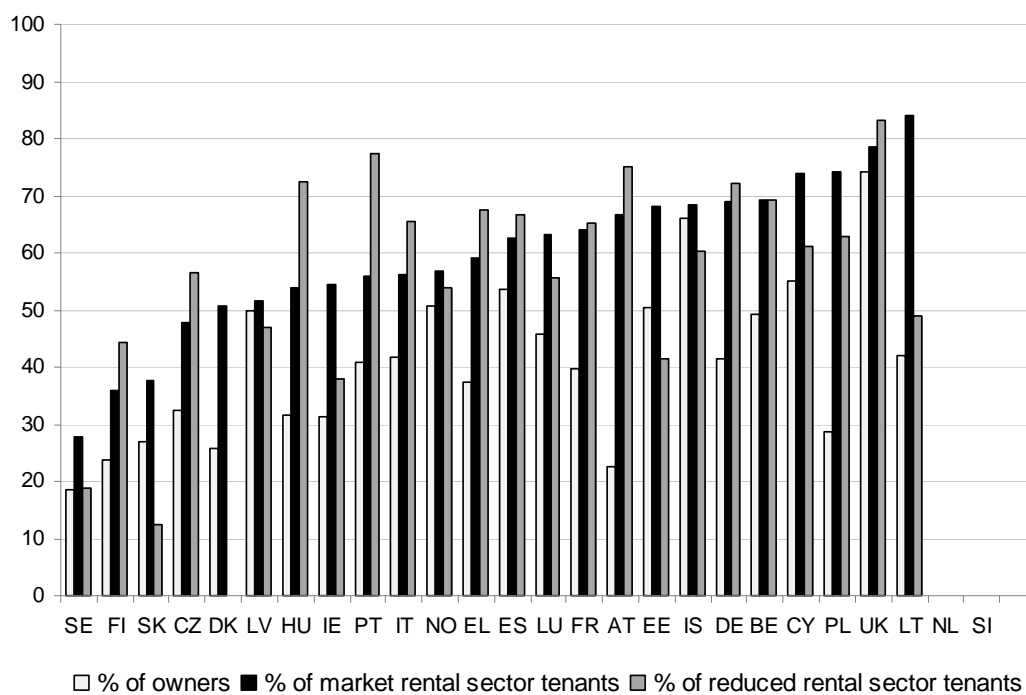
	Owners by age (%)			Tenants at prevailing or market rate by age (%)			Tenants at reduced rate by age (%)			Occupiers for rent-free by age (%)		
	16-34	35-64	65-	16-34	35-64	65-	16-34	35-64	65-	16-34	35-64	65-
BE	10.0	59.8	30.2	34.2	48.2	17.6	13.6	57.3	29.1	20.8	36.3	42.9
CZ	12.3	59.8	27.9	36.7	50.6	12.7	19.0	54.1	27.0	23.6	32.4	44.0
DK	13.7	62.8	23.5	34.2	41.1	24.7	.	.	.	.	.	.
DE	5.1	62.4	32.5	23.6	50.9	25.6	22.7	51.6	25.6	21.1	35.4	43.5
EE	12.7	54.2	33.1	56.4	35.0	8.6	37.9	41.3	20.8	25.4	39.2	35.4
IE	9.0	64.0	27.0	61.5	36.5	2.0	24.1	62.5	13.4	28.3	46.1	25.6
EL	5.2	52.9	41.8	33.0	52.9	14.1	21.0	56.0	23.1	20.2	47.1	32.7
ES	11.6	54.9	33.5	28.8	55.9	15.3	10.2	55.3	34.5	22.6	52.4	25.0
FR	8.7	55.9	35.5	36.7	44.8	18.5	33.7	48.8	17.5	33.6	46.8	19.6
IT	6.9	53.1	40.0	18.5	57.9	23.6	9.9	42.9	47.2	22.5	54.9	22.6
CY	13.6	69.2	17.1	26.3	57.4	16.3	11.5*	55.0*	33.4*	12.0	30.3	57.7
LV	9.3	55.2	35.5	20.5	55.5	24.0	11.7	66.1	22.2	25.9	40.1	34.1
LT	9.7	55.4	34.9	86.5*	11.8*	1.7*	56.2	35.5	8.3	41.1	45.6	13.4
LU	9.7	61.8	28.5	27.7	58.6	13.7	31.6	44.8	23.7	35.3	50.6	14.1
HU	10.1	58.7	31.2	52.9	39.0	8.1	22.8	56.2	21.0	26.7	34.1	39.2
MT	..	..	..	..	..	..	..	..	..	..	..	..
NL	15.4	67.0	17.6	23.5	45.9	30.5	.	.	.	30.4*	47.1*	22.4*
AT	7.2	60.4	32.3	25.2	55.9	18.9	24.9	55.0	20.1	11.1	25.7	63.2
PL	9.2	55.9	34.9	46.9	37.0	16.2	43.5	37.3	19.2	13.6	59.8	26.5
PT	8.9	56.7	34.4	22.0	48.8	29.2	6.4	44.7	48.9	21.6	48.4	30.0
SI	5.3	60.0	34.7	9.6	67.8	22.6	11.6	64.9	23.5	28.8	51.1	20.1
SK	7.0	61.6	31.4	17.3	68.8	13.9	35.6*	41.0*	23.4*	32.0	34.7	33.3
FI	11.6	57.9	30.5	48.9	43.4	7.7	34.6	44.7	20.8	21.3	36.0	42.7
SE	15.1	56.9	28.0	34.6	40.4	25.0	32.5	40.1	27.4	.	.	.
UK	10.2	60.8	29.1	42.0	49.2	8.7	16.8	50.4	32.8	18.2	39.3	42.5
NO	15.7	59.8	24.5	58.6	31.1	10.3	56.2	29.8	14.1	26.5	22.1	51.4
IS	18.1	60.0	21.9	48.0	44.1	7.9	47.7	35.3	17.0	40.8*	33.9*	25.3*

* 20 to 49 observations

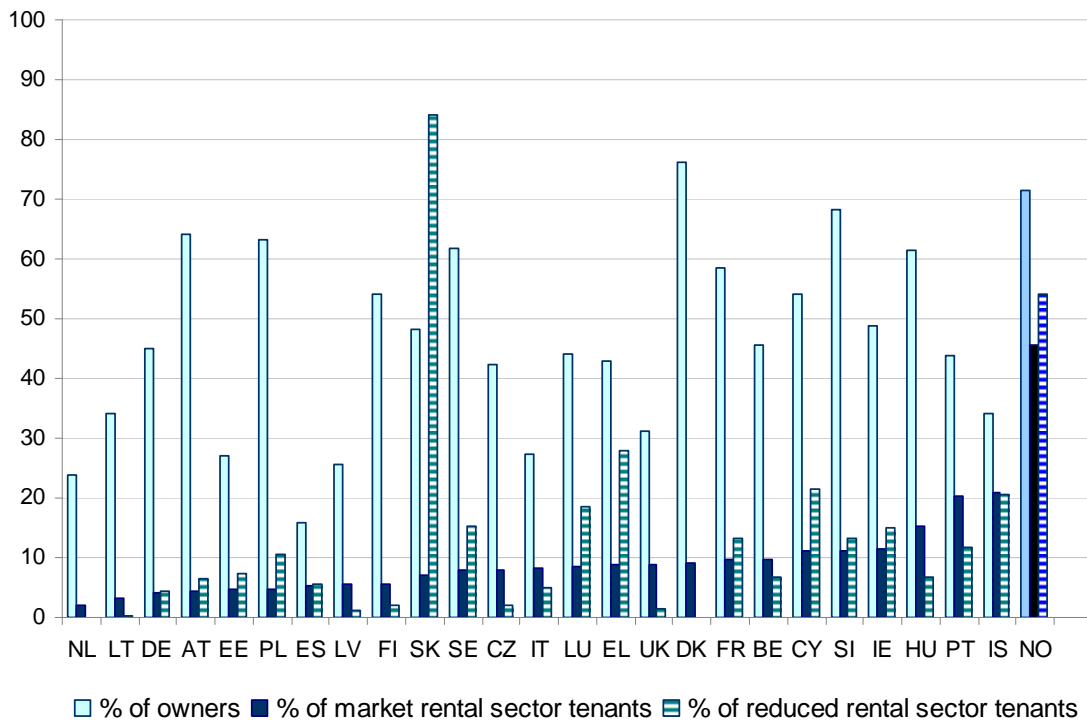
Source: EU-SILC UDB 2007 – version 2 of August 2009

Figure A.1: One-member households in 2007, % of tenure households

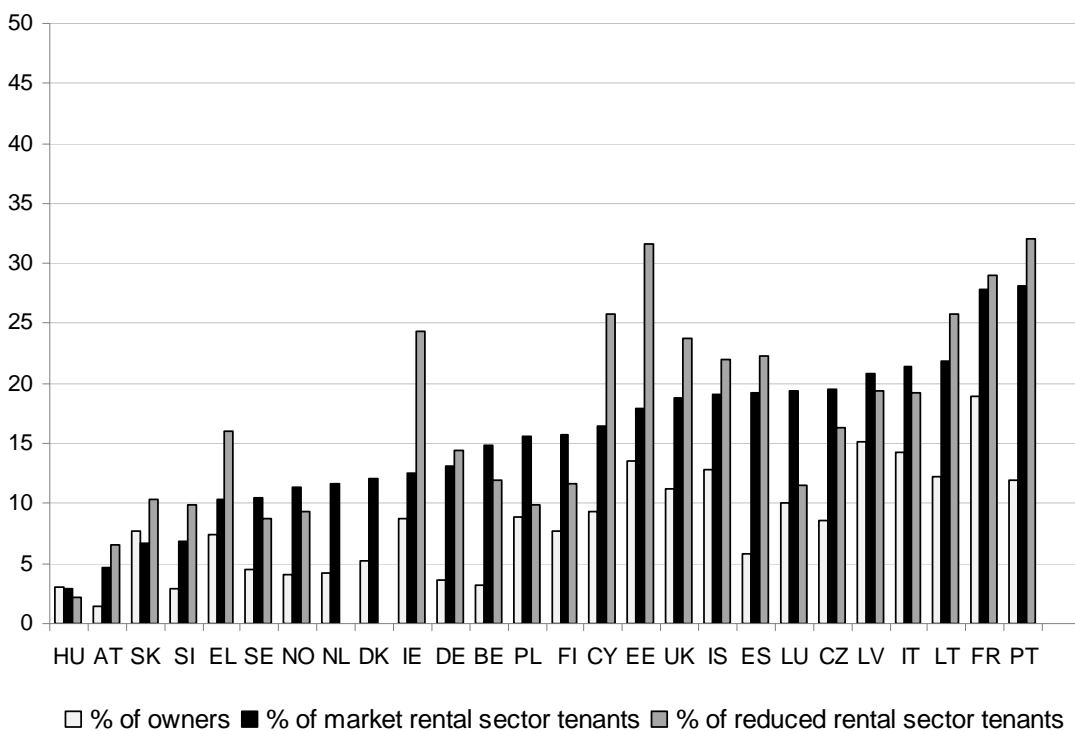
Source: EU-SILC UDB 2007 – version 2 of August 2009

Figure A.2: Dwelling located in densely populated area in 2007, % of tenure households

Source: EU-SILC UDB 2007 – version 2 of August 2009

Figure A.3: Occupying detached house in 2007, % of tenure households

Source: EU-SILC UDB 2007 – version 2 of August 2009

Figure A.4: Inadequate electrical or plumbing/water installations in 2007, % of tenure households

Source: EU-SILC UDB 2007 – version 2 of August 2009

Table A.4: Median equivalised disposable household income, at-risk-of-poverty rate, housing costs and households with arrears in housing costs

	Equivalised disposable household income in 2007, median				At-risk-of poverty in 2007, % of tenure households				Housing costs as % of disposable household income in 2007, median				Households with arrears in housing costs in 2007, % of tenure households			
	Owners	Tenants at prevailing or market rate	Tenants at reduced rate	Occupiers for free	Owners	Tenants at prevailing or market rate	Tenants at reduced rate	Occupiers for free	Owners	Tenants at prevailing or market rate	Tenants at reduced rate	Occupiers for free	% of owners	% of tenants at prevailing or market rate	% of tenants at reduced rate	% of occupiers for free
BE	19 009	14 378	11 805	15 491	9.9	27.2	35.0	23.7	12.8	31.0	26.0	6.5	2.2	11.5	12.0	4.4
CZ	5 607	4 782	4 858	4 361	6.3	25.8	17.4	17.0	19.3	28.0	22.1	15.8	2.8	15.9	8.5	3.4
DK	25 902	19 088	.	.	7.5	20.1	.	.	22.0	30.2	.	.	0.9	6.1	.	.
DE	19 593	15 629	14 444	14 406	9.0	21.9	25.1	26.1	23.4	24.9	22.9	12.6	3.2	6.2	9.2	3.2
EE	4 551	4 430	3 815	3 173	17.5	24.5	34.7	35.0	11.3	25.0	12.2	11.2	4.1	10.3	15.6	3.9
IE	24 164	18 498	14 141	17 969	12.4	24.5	44.8	26.1	7.6	26.4	13.4	3.7	2.9	10.9	28.9	14.2
EL	10 472	9 250	11 251	9 840	19.5	23.2	19.9	21.6	22.2	27.7	8.8	9.6	16.1	32.2	30.6	18.2
ES	12 436	10 323	9 072	10 113	17.6	28.6	39.1	29.9	9.6	30.5	16.0	7.8	4.5	9.4	15.0	4.2
FR	18 251	13 384	14 275	15 848	8.5	23.7	17.9	17.6	7.3	24.8	21.4	6.1	3.4	17.2	14.3	5.3
IT	16 155	11 643	11 017	12 875	15.7	32.0	30.5	29.2	10.9	26.9	20.7	9.2	6.4	23.0	21.3	11.3
CY	16 996	13 870	9 956*	12 430	10.0	26.1	48.1*	33.8	7.6	21.0	18.6*	6.1	12.8	19.5	20.3*	9.9
LV	3 507	3 430	2 568	1 860	18.6	22.1	33.6	58.7	13.2	16.2	13.7	11.9	7.9	12.7	27.0	8.1
LT	3 347	3 218*	2 471	2 653	17.8	10.3*	29.3	34.2	12.1	28.3*	20.7	11.2	7.8	8.3*	37.1	8.6
LU	31 872	24 302	25 202	28 797	8.3	29.4	33.7	18.3	7.1	24.9	28.5	4.3	1.0	6.7	10.0	0.8
HU	3 999	3 552	3 282	3 626	11.2	19.2	24.2	18.6	17.1	15.3	15.4	17.0	13.9	24.7	32.2	16.2
MT	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
NL	20 362	14 409	.	16 835*	6.1	18.5	.	12.7*	24.1	31.5	.	8.3*	1.5	6.4	.	0.0*
AT	19 523	16 213	17 202	16 113	7.8	18.1	16.7	20.4	11.2	21.6	17.7	0.0	1.7	4.8	6.5	1.0
PL	3 406	3 174	3 070	3 726	18.4	19.0	31.1	14.8	17.3	31.0	24.9	20.7	13.8	23.0	24.2	16.5
PT	8 223	6 118	6 068	6 171	15.1	27.6	29.7	25.2	12.1	25.4	14.7	7.5	4.5	10.2	10.4	7.9
SI	10 430	8 033	8 302	9 648	9.4	25.8	22.5	12.6	9.9	24.6	19.0	9.7	9.7	25.6	31.1	8.5
SK	4 004	3 614	3 314*	3 739	9.8	16.5	15.8*	12.3	21.7	32.4	28.0*	17.3	5.1	13.6	7.7*	12.2
FI	20 119	15 474	14 246	12 555	8.6	22.8	26.0	38.4	10.1	23.6	22.3	0.9	4.3	11.8	16.5	2.1
SE	19 956	15 153	15 497	.	6.5	20.2	19.9	.	11.1	27.2	25.6	.	2.6	8.2	0.9	.
UK	23 527	18 218	14 211	17 730	13.8	25.4	38.2	30.2	19.6	35.9	26.3	14.5	2.5	14.3	19.3	1.9
NO	30 338	18 859	22 187	19 597	7.3	40.3	31.1	34.3	16.3	30.9	21.8	5.3	5.6	20.1	13.0	0.0
IS	29 696	25 621	22 760	22 900*	8.4	13.6	20.7	37.4*	15.6	18.6	11.0	0.0*	5.8	12.8	15.0	1.3*

* 20 to 49 observations

Source: EU-SILC UDB 2007 – version 2 of August 2009

Table A.5: Housing conditions, 2007

	Average number of rooms in 2007 median				Lack of bath, shower or indoor flushing toilet in 2007, % of tenure households				Change of the dwelling during the last two years (2007 base year), % of tenure households			
	Owners	Tenants at prevailing or market rate	Tenants at reduced rate	Occupiers for free	% of owners	% of tenants at prevailing or market rate	% of tenants at reduced rate	% of occupiers for free	% of owners	% of tenants at prevailing or market rate	% of tenants at reduced rate	% of occupiers for free
BE	6.0	4.0	4.0	5.0	1.5	4.1	1.8	4.3	5.4	24.8	10.5	14.5
CZ	3.0	2.0	2.0	3.0	1.6	2.5	2.5	5.3	3.0	11.4	3.5	8.7
DK	5.0	3.0	.	.	0.5	2.1	.	.	11.6	28.9	.	.
DE	5.0	3.0	3.0	3.0	1.3	2.1	3.3	5.4	4.9	15.9	12.4	6.7
EE	3.0	2.0	2.0	2.0	19.3	33.0	56.6	39.5	5.1	33.7	23.8	8.0
IE	6.0	5.0	5.0	5.0	1.4	2.5	0.8	4.8	1.6	34.4	7.5	14.5
EL	3.0	3.0	3.0	3.0	4.5	2.3	8.1	4.7	2.8	21.3	15.3	9.1
ES	5.0	5.0	5.0	5.0	0.3	0.5	1.6	1.7	5.0	27.7	7.3	7.5
FR	5.0	3.0	4.0	4.0	1.5	1.0	2.2	4.2	7.3	33.9	22.7	18.3
IT	4.0	3.0	3.0	3.0	0.5	1.1	0.9	0.7	6.7	14.7	6.5	7.0
CY	6.0	5.0	5.0*	5.0	1.6	2.1	1.7*	5.1	7.2	31.1	19.0*	7.6
LV	3.0	2.0	2.0	2.0	20.9	32.1	41.1	55.3	3.3	10.1	5.8	11.4
LT	3.0	2.0*	2.0	2.0	23.2	6.8*	21.1	41.0	3.1	30.2*	17.4	8.2
LU	5.0	3.0	3.0	5.0	0.2	3.6	3.8	2.7	8.1	15.5	8.5	14.0
HU	3.0	2.0	2.0	2.0	7.8	10.5	18.9	11.6	4.9	40.9	14.1	13.8
MT	..	..	..	..	..	..	..	..	..	..	..	..
NL	5.0	4.0	.	5.0*	0.2	0.6	.	0.7*	9.4	13.5	.	43.5*
AT	5.0	3.0	3.0	4.0	1.0	3.5	5.8	3.5	5.6	23.6	15.1	6.5
PL	3.0	2.0	2.0	2.0	9.6	13.2	17.2	8.6	2.7	24.5	17.8	3.7
PT	4.0	3.0	3.0	4.0	3.0	8.4	9.7	11.3	3.0	13.9	1.5	7.7
SI	3.0	2.0	2.0	3.0	1.6	5.4	5.1	1.8	2.4	9.3	9.0	3.5
SK	3.0	3.0	2.0*	3.0	4.2	0.8	7.5*	4.0	2.9	10.3	4.3*	7.9
FI	5.0	3.0	3.0	4.0	2.1	2.3	1.0	10.4	11.5	40.4	31.7	18.8
SE	5.0	3.0	3.0	.	0.7	1.2	0.0	.	14.7	37.0	32.4	.
UK	5.0	4.0	4.0	4.0	0.8	1.4	1.1	1.2	9.5	42.9	12.0	15.3
NO	5.0	3.0	3.0	4.0	0.3	0.5	1.1	1.1	14.9	54.2	39.8	30.7
IS	4.0	3.0	3.0	3.0*	0.1	7.0	2.3	0.0*	21.9	64.8	49.6	52.9*

* 20 to 49 observations

Source: EU-SILC UDB 2007 – version 2 of August 2009

European Commission

The comparability of imputed rent

Luxembourg: Publications Office of the European Union

2010 — 50 pp. — 21 x 29.7 cm

ISBN 978-92-79-16758-4

ISSN 1977-0375

Doi:10.2785/56068

Cat. No KS-RA-10-022-EN-N

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ISBN 978-92-79-16758-4



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