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Housing restitution and privatization: both catalysts and obstacles to the formation of private rental housing in the Czech Republic and Estonia

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Abstract

The return of property expropriated during the communist period to previous owners or to their descendants (property restitution) led to the quick emergence of a private rental sector in those post-communist countries that applied a physical form of property restitution soon after 1990. The Czech Republic and Estonia are examples of such countries. Within just a few years, as a result of property restitution, a private rental sector grew out of almost non-existence to become a significant part of the countries' total housing stock. However, the character of this sector remained different from the private rental sector found in countries with advanced economies – especially owing to specific rent regulation, tenant protection and, albeit indirectly, public housing privatization. This article analyses and compares the genesis of private rental tenure in the Czech Republic and Estonia. Its main goal is to demonstrate how state regulations and interventions have influenced tenure choice, the formation of social norms, and thus the permanent perception of private renting. In both transition countries private renting gradually acquired the character of a transitional and residual form of housing. State interventions early on in the transition were probably the most significant factors behind the fact that private renting did not establish itself as a real tenure alternative to owner-occupied housing.

Introduction

The housing tenure structure in post-communist countries changed dramatically after 1990. The sharp decrease in the share of public rental housing was offset by an increase in the share of owner-occupied housing (Lux ed. 2003; Donner 2006; Lowe, Tsenkova eds. 2003; Struyk 1996; Hegedüs, Tosics 1998). The reason for this was the large-scale give-away privatisation of public rental flats to the ownership of sitting tenants. Moreover, in a few of these countries, such as the Czech Republic and Estonia, property confiscated by the communist regime, including apartment buildings, was also restituted (returned) to the original landlords or their heirs. The massive housing transfer from public to private ownership through privatization and restitution created good conditions for *quantitative* growth of private renting. However, the specific institutional aspects of the reforms became the determinants of how the population viewed the private rental sector (PRS) in the long term. Recently, this *qualitative* aspect of reforms appeared to be the main obstacle to the sustainability of PRS. Housing privatization and housing restitution therefore became both catalysts and obstacles to growth of the PRS in post-communist states.

The article aims to answer the following key questions: (1) what is the role of the PRS in those post-socialist states in which restitution and privatization of public housing quickly created a sufficient 'quantitative' base for its growth? And (2) how did the specific institutional factors of post-socialist housing reforms determine the recent role of the PRS in these states?

Our second research question has clear policy implications. It also addresses a general theory on housing tenures and housing systems. In effect, post-socialist experience provides an informative ‘natural experiment’ in what will happen if a state that decommodified housing and reduced private ownership of housing to a minimum were suddenly to move towards massive support for private ownership of housing. Post-socialism is an excellent example for the study of housing systems because it started out with almost no private renting – one housing tenure found in market economies was missing.

For the purpose of our analysis we selected two post-socialist states that applied the largest housing property restitution in the region – the Czech Republic and Estonia (2-3% of the total housing stock in Estonia and 6-7% in the Czech Republic was restituted in early 1990s). At the same time, these countries differ in terms of the prevailing public housing privatization strategies they adopted. Estonia applied a universal right-to-buy policy but the municipalities in the Czech Republic were free to run the privatization process under their jurisdictions by themselves. Despite the fact that the effect of diverse housing privatization approaches on housing tenure changes differed marginally in the end,¹ the speed and price conditions of housing privatization varied. This country selection therefore helps to control for the influence of differences in privatization strategies in forming the role of the PRS.

At the start of the transition there was a whole universe of options: the PRS could become a stable and significant housing tenure (like in Germany) or it could become a weak, volatile, and residual type of housing (like in Belgium). The future was in the hands of those who were participating in the discourse about ‘new rules of the game’. Unfortunately, as we are going to show, the PRS came to be regarded as residual housing in both post-socialist countries.

We open this paper with a short sketch of the theoretical framework of housing systems and discuss its possible revision. In the next section we describe the main relevant contextual factors, in particular the various regulations/interventions essential for the development of the PRS in the Czech Republic and Estonia. The information presented here relates to the restitution of the housing stock, housing privatization, and rent regulation. The third part of the paper focuses on describing the development of the PRS in selected transition states - the trend in market rents in relation to the trend in house prices, the trend in the return on investments into private rental housing, the social composition of the PRS tenants, and the structure of the PRS housing fund. In the closing section, we answer our key questions outlined above.

Theoretical framework

As outlined in Lux, Mikeszova (2012), the post-socialist system change was not unlike a theatre stage, where the old structures, dressed in new costumes, were still playing the title roles. Nor was it an effort to *imitate* the systems of Western democracies and market economies through the application of a universal ‘cookbook of capitalism’ (Stark, Bruszt 1998). Instead, Lux and Mikeszova (2012) view the earlier period of this structural change, at least in the new (post-2004) EU member states, as a kind of large ‘parliament’² full of

¹ Lux (2009) estimates that, by the end of 2008, 73% of the original public housing stock had already been sold to sitting tenants in the Czech Republic too. In Estonia, 90% of public housing stock was privatized.

² By ‘parliament’ we do not mean only an assembly of elected deputies in a representative democracy. The term ‘parliament’ emerged from the French word ‘parler’ (talk) and therefore we use it here as it includes also the local and regional governments, mass media, informal networks, associations, commissions and also the space for discourse between politicians and ad hoc civic movements.

suddenly liberated people who, after many years of silence, were able to present their own very diverse pictures of the world and humanity and had the will (and the possibility) to convince others to follow their views. Unlike in Western societies, where similar ‘parliaments’ are also present, here the existing institutional structures (weakened by regime change) and the prevailing attitudes (disqualified by former regime) had little power to limit the scope and openness of the discourse. Here the crucial social norms and values that were destined to play a key role in future developments were ‘voted for’. Within this set of fundamental choices were also decisions concerning property restitution, private renting, housing tenures and housing generally.

The limits to the ‘parliament’ discourse did not lie in the subject of the discourse but in a key practical barrier to any discussion – the number of disputants. Although discourse at different levels of decision making became very open, a formal hierarchy ensuing from the division or separation of power was established by the new political system. Those with better access to the ‘parliament’ were in a unique and favoured position allowing them to put their mark on what would later become tradition, a social norm, an accepted meaning. These ‘insiders’ were creating a new network of meanings, interpretations, beliefs, norms, expectations, and values; that is, patterns that have a long-term impact and that under normal circumstances evolve gradually.

The process of such discourse and the legitimization of its results is a central feature of the theory of social constructivism (Berger and Luckmann, 1966). The central question examined by social constructivism is how notions of reality are shaped, how an issue becomes defined as a ‘social problem’, and how collective strategies for solving social problems evolve. Within social constructivism the collective strategy for dealing with societal problems is explored through processes associated with legitimizing institutions, acts, and ideologies. The function of legitimization is to render institutions objectively accessible and subjectively credible; it essentially involves explaining and justifying key elements of the institutional framework. As an open and inclusive public discourse on institutional framework was a specific element of the post-socialist system change, the theory of social constructivism seems to be one of the most useful theoretical approaches for analyzing the causes and consequences of reforms.

In previous housing research Kemeny (1981; 1992; 1995) has used the theory of social constructivism to examine housing systems and policies. Kemeny (1981) distinguished two general types of housing system: home-owning and cost-rental. Using data from several industrialized countries he concluded that there has been an important divergence between countries on the basis of prevailing social ideologies that are reflected in social policy. These broad ideological differences are denoted as collectivism and privatism. Such an ideological framework had an effect on ‘political tenure strategy’. Kemeny (1995) later distinguished housing policy models as being either *dualist* (stigmatizing one type of tenure, namely tenancy, and unilaterally supporting one type of tenure, namely owner-occupancy) or *unitary* (tenure neutral) in nature. The dualist model is strongly associated with policies that discourage cost renting (social housing) and develop it only as a safety net “to take care of those who become the casualties of the workings of the profit market” (Kemeny 1995: p. 9). Unitary models in contrast, encourage cost renting thereby allowing the public and private sectors to compete.

However, Kemeny ignores important contextual differences within the rental housing segment that are crucial for constructing a comprehensive housing policy typology. More specifically, Kemeny does not consider private rental housing and non-profit social rental housing as two

separate housing tenures. This is surprising because from the late 1970s private rental housing in many advanced countries has increasingly become part of a profit-driven market; and for this reason private renting now has more in common with owner-occupied housing than cost renting. According to Kemeny, the dualist policy model favours owner-occupation, while the unitary policy model does not favour any tenure and encourages non-profit renting to compete with the private sector. A housing policy that neither favours any tenure nor supports direct competition between cost renting and the private sector, as is the case in Germany and Switzerland, occupies a ‘middle’ position representing what might be termed a ‘semi-unitary/dualist hybrid.’

However, this type of housing policy is very specific, and lies outside the scope of Kemeny’s (1995) dualistic perspective, rather than lying somewhere in between two ‘ideal type’ policy models. It is a tenure-neutral policy, but, at the same time, it does not encourage state intervention to expand the cost (public) rental housing segment, so it competes directly with the private sector. The purpose of this missing policy model is not to ameliorate the profits of private market actors by encouraging non-profit housing options (Kemeny 1995: pp. 49-50), but to ensure the efficient functioning of markets through competition between small private market actors, in which private investors cannot make inflated short-term profits.

In short, Kemeny’s influential typology undervalues key features of the German and Swiss housing systems, where policy allocates an important role to private renting. The real *essence* and role of private renting are missing from his considerations and his typology remained uncompleted. If private rental and cost rental housing are viewed as two distinct housing tenures, the application of the theory of social constructivism needs necessarily to be extended by the discourse on the role of private landlords and tenants and rent control. Without this extension it is impossible to understand the cleavages within the rental housing segment itself. The implicit tenure dichotomy that has overwhelmingly dominated housing research - cost (social) renting versus owner occupation – conceals the significance of private renting and thus hides other ‘ideal’ type of policy that could be relevant for post-socialist housing reforms. The failure of social constructivism applied in housing studies to take into account this perspective may be one of the reasons why the effects of housing policy reforms on the significance of private renting in post-socialist countries have not been fully examined to date.

Housing restitution and privatization: the institutional context

Table 1

Table 1 summarizes comparative socio-economic and demographic data for selected post-socialist countries – the Czech Republic and Estonia. The contextual differences may explain potential differences in the significance of the PRS between countries. The Czech Republic’s population size is eight times that of Estonia, its per capita GDP is slightly higher, and its unemployment rate, income inequality, and poverty rate are significantly lower. Estonia has a larger share of older people in the population, a smaller average household size, and a higher share of singles in the population. Both countries struggle with low birth and total fertility rates; the situation is slightly worse in Estonia than in the Czech Republic. Also, owing to demographics, both countries have a relatively high level of physical availability of housing stock: the number of dwellings per 1,000 inhabitants is especially high in Estonia. In both countries, owner-occupied housing is the prevailing form of housing tenure (co-op housing has the character of owner-occupied housing in the Czech Republic – see Lux 2009), but in

the Czech Republic public housing makes up a larger portion of the housing stock. The share of the PRS is of comparable size in both countries.

Housing tenures under socialism

Following Estonia's 'forced' incorporation into the Soviet Union in 1940, privately owned real estate properties from the pre-Soviet era were nationalized. The financing, construction and allocation of housing were determined by central planning, and there was very little new private housing construction (Kõre et al. 1996). Like in Estonia, a few years later (in 1948) Czechoslovakia's economy also moved to a system of central planning and the state began to centrally control housing construction. Most private apartment buildings built during the pre-WWII construction boom were expropriated. State rental housing gradually became the dominant tenure in the urban centres of both countries.

The key principle of socialist housing policy in both countries was to allot public (state) flats for free 'according to people's needs' and the level of rent was set very low, so the costs of maintaining and regenerating the housing stock had to be subsidised from the state budget. Tenants who were allotted flats by the state obtained unlimited occupancy rights in the form of a 'deed' to the flat. No one spoke about 'renting', but about the 'personal use' of a flat. 'Personal use' became an institution separate from that of rental tenure: it could be inherited or transferred to relatives or exchanged with some other holders of user rights. This was later called 'quasi-ownership of housing' (Lux ed. 2003) and became the main pillar of the so-called East-European Housing Model (Hegedüs, Tosics 1998).

The legitimacy of housing restitution

After 1990, both Estonian and Czech politicians placed property restitution at the top of their agenda. In Estonia, the extensive property nationalization, large-scale deportations, emigration, and forced evictions that took place between 1940 and 1953 generated an outrage that supported the justification of restitution at the beginning of the 1990s (Feldman 1999, p. 167). The renewal of Estonia's political independence in 1991 was interpreted as an enforcement of historical justice. "The symbolic restoration of the original 'authentic' Republic of Estonia was paramount in the political agenda; it was to be accomplished by de-sovietization, i.e. the maximum possible abolition of the Soviet legacy" (*ibid.*) The quick and easy introduction of property restitution (by two legislative acts passed in 1991) is explained by the force of the moral norms of the new society and the enthusiasm following the collapse of the Soviet empire. Property restitution became a part of the explicit general de-sovietization policy; a part of the consensual meta-narrative about the return to democracy and authentic Estonian traditions. "The continuation of Estonian state and statehood is directly related to the continuation of the ownership" (Leppik 1996).

Previous owners or their descendants could reclaim their property if at least 50% of the original building was preserved. In other cases compensation vouchers were issued, irrespective of the value of the property. By estimation, restituted dwellings accounted for 2.6% of the total dwelling stock and involved 47,200 tenants, i.e. 3% of the total population (Eesti Konjunkturiinstituut 1998). Protections pertaining to the term of running rental contracts were preserved for a certain period: first, the lease expiry date was set as July 1, 1997, but the deadline was later extended by an additional five years (and another five years if the tenant respected all the rules set in the rental contract). The Act on Dwellings (1992) also gave some protection to tenants against rent increases: the fixed rent levels were set by

municipalities. However, in 2004 rents were deregulated and in 2007 the maximum prolongation term of the original rental contract expired. Since then property owners have made extensive use of the legal opportunities to increase rents to their market values (Õmbus 2009, p. 71-73).

In the Czech Republic, the process of property restitution also started very soon after regime change – already in April 1991 – and it applied to that part of the housing stock that was expropriated between February 1948 and January 1990. It appears that two prevailing myths were at the root of the influential and almost consensual social construct that property restitution was a necessity (Lux, Mikeszová 2012). First, there was the myth of moral atonement, the need to atone for the wrongs of the past. Second, there was the myth of the ideal free market mechanism without regulations, the existence of which necessarily required the spread of private property. The restitution process was thus quickly and consensually legitimized as the best way to proceed - the property would be fairly returned to its original owners, become private property, and continuity with the pre-communist (pre-Soviet) past would be established. Amidst the elementary changes occurring at the start of the 1990s it is no surprise that no one was much concerned with the question of how appropriate the new legislation was and what possible social tensions housing property restitution could create.

In the Czech Republic, approximately 6-7% of the housing stock was affected by restitution. Here, the state not only left the protections accorded to tenants unaltered, but also preserved the central type of rent regulation ('free market' rents were allowed only for new and vacated flats). Deregulation of controlled rents started in 1992 and the maximum regulated rent was set in relevant government decrees. However, since 1999, when regulated rents were still several times lower than market rents, the maximum regulated rent allowed by the government stopped rising in real terms and since 2002 also in nominal terms (so a decrease in real regulated rent values occurred after 2002). The process of rent deregulation was not restarted until 2007. Until 2007, Czech politicians kept intact the relatively extensive protections granted to tenants who concluded their contracts before 1992 (concerning rents and term of contract). Rental housing retained the same status it had under socialism, a status defined as 'quasi-ownership', wherein most of the disposal rights attached to the flat were still held by someone else than the actual owner. Private landlords consequently used the phrase 'fictitious restitution' to describe their situation (Filer et al. 1995), as they did not regain their ownership rights in full. However, the policy changed in 2007 and the current government plans to deregulate rents to market levels by 2012.

The legitimacy of housing privatization

In Estonia, the radical and immediate privatization of residual state property into the ownership of sitting tenants was also preferred from the very beginning (Kein, Tali 1995). This preference was part of an overall faith in neoliberal market reforms promoting the withdrawal of the state from the functioning of the housing market. Apart from the political-ideological aims, privatization was expected to cut public housing subsidies and improve the maintenance of the buildings (TPÜ 1997); it was supposed to be an instrument that would help create an efficient market economy (Kein, Tali 1995, p. 142). There were legal opportunities for local municipalities to set restrictions on privatization, yet, in reality, owing to the strong pressure in favour of privatization, they seldom used this right.

The Act on the Privatization of Dwellings (1993) stipulated the principles governing the transfer of state-owned property first to municipal, and then to private ownership. The

privatization of dwellings to sitting tenants (from 1994 to 2001) was carried out under extremely favourable terms for sitting tenants. For the most part, apartments were purchased using national capital vouchers (NCVs): everyone permanently residing and working in Estonia were entitled to NCVs, which were distributed free-of-charge and based on how long a person had worked in Soviet Estonia (i.e. between 1945 and 1992). The idea behind the calculation of the basic amount of NCVs was that a household of average size and age structure should be able to buy an average-sized flat with the allocated NCVs (Kein, Tali 1995, p. 161). Dwellings could also be purchased in cash, with vouchers issued as compensation for illegally expropriated property (i.e. compensation vouchers), or with employment shares issued to collective farm workers. The direct financial costs of privatization for sitting tenants were low and consisted mainly of legal fees for the transaction (UNDP 1996). Only a marginal number of households could not obtain enough NCVs to purchase their apartments in privatization. If the sitting tenants in a flat did not exercise their privatization right to it, other persons or legal bodies could buy it instead; thus an important aspect was the fear relating to the insecurity of future tenure. Within a few years, the homeownership rate increased from 30.8% in 1992 to 85.6% in 2008.

In the Czech Republic, right-to-buy legislation (giving tenants the direct right to buy the properties they live in under similar conditions and terms) was not passed and public housing privatization was left open as an option for the municipalities. It is reasonable to ask at this point: were the effects of this policy different to that observed in Estonia? Factors such as insufficient fiscal decentralisation, a large inherited debt arising from housing maintenance costs, and rent regulation created strong incentives for housing privatisation among Czech municipalities. Consequently, municipal flats were again sold to sitting tenants at low prices, though price conditions along with the scale and speed of the sale varied from one municipality to the next. In the Czech Republic, it is estimated that, by the end of 2008, 73% of the public housing stock transferred into municipal ownership in 1991 had already been sold to sitting tenants (Lux 2009). The Czech Republic therefore does not represent any real exception from the perspective of the public housing privatization effect on tenure structure change.

Property restitution and housing privatization contributed to the fact that a sufficient quantitative base for the growth of the PRS was created very quickly. The legislation allowed 'free market' rents to be charged on vacant and newly built flats (new tenancies). State regulation in either country set no limits on the term of the contract, the initial rent level, or the subsequent rent review for new tenancies. Both small amateur landlords (owners of one flat purchased from housing privatization) and bigger 'professional' landlords (owners of whole apartment buildings get from restitution of property) suddenly appeared in the housing markets. However, the speed of change may have influenced negatively its long-term sustainability. Quantitative institutional change was not accompanied by necessary qualitative institutional changes and this policy failure formed the main obstacle to a sustainable tenure-neutral policy in the future.

Impact of institutional aspects of housing reforms on the significance of the PRS

Once the initial rents for vacated flats could be set freely, and while there was a shortage of rental housing for new households, a large number of small investors appeared in the market offering just one or two inherited or privatized flats. The share of the PRS out of the total housing stock thus increased very quickly compared to advanced countries, from zero in 1990 to 2-3% in Estonia and 6-7% in the Czech Republic in 1993 as a result of the property

restitution, and to 13% in Estonia and 13% in the Czech Republic according to estimates in 2008. In Estonia the PRS is fully deregulated now and resembles the liberal systems found in the UK or Ireland. In the Czech Republic, given that each year a certain portion of the regulated segment of the PRS (restituted flats) is freed up and the new PRS supply after 1993 represented only flats leased for market rents, between 1993 and 2007 the share of flats rented for market rents grew from zero to an estimated 65% of the PRS.

Table 2

Rent deregulation helped to stabilize market rents and gradually improved the market affordability of the PRS compared to the alternative of buying housing. Table 2 shows the index of the average flat price and the average market rent for the Czech Republic and Estonia.³ While the average flat price between 2000 and 2009 in the Czech Republic increased by almost 174%, the increase in the average market rent was much more gradual – it grew only by 62%. The gap in the evolution of prices and rents is also visible in Estonia, where flat prices were rising much more substantially than rents until 2007 (a 239% increase in the average price until 2007 followed by a 41% drop by 2009, compared to a 52% rise in average rent until 2007 followed by a 38% of decline by 2009 in Tallinn).

Table 3

Table 3 shows the development of the price-to-rent ratio (P/R) for regional capitals in the Czech Republic and the two largest cities in Estonia. In both Prague and Tallinn (between 2000 and 2009 in Prague and 2002 and 2009 in Tallinn) the ratio doubled. A comparison of the indicator's inverted form, the R/P (yield), with the yield from state bonds (five-year maturity)⁴ would show a substantial decrease in the differences for all the cities: in Prague in 2009 this difference was negative (thus yields on state bond investments would exceed yields on residential real estate investments), while in Tallinn it was negative in 2008, but became positive in 2009 owing to a decline in the interest rate. The yields on investment into residential real estate thus decreased substantially during the 2000s.

These positive 'quantitative' outcomes (growing supply, increasing competitiveness, increasing financial affordability and comparative financial advantage to owner-occupation) has been, however, contrasted with 'negative' perceptions and expectations concerning the PRS among the population. Despite measures to protect tenant rights and to provide additional forms of tenant support in Estonia (such as the legal obligation of municipalities to provide tenants in restituted housing with a municipally owned apartment of comparable quality and size if the tenants are forced to relocate), tenants in restituted houses had a sense of a social injustice occurring, as public tenants had the opportunity to privatize their dwellings for give-away prices (Kährik 2000, Õmblus 2009). Not only did they receive much smaller (or no) economic gain from the housing reform, but the PRS came to be associated with high insecurity – due to the harassment of tenants by landlords (forcing tenants to relocate), rent level insecurity (since 2004), and the term of contract insecurity (since 2007).

³ The Czech price/rent data were taken from the Institute of Regional Information's (IRI) index, available since 2000, using the bidding rents and prices for selected 335 Czech municipalities. Estonian data are based on statistics gathered by Statistics Estonia on the price of property sales (data available since 2002) and average monthly rents (data on larger urban centres available since 1999). This includes all transactions that were mediated by real estate agencies.

⁴ In the case of Estonia the comparison was made using the weighted average annual interest rates of Estonian kroon time deposits (over one-year deposits).

By 1999 one-quarter of tenants in restituted housing had been relocated and about 40% of tenants were registered as applicants for municipal housing in Estonia (Eesti Konjunkturiinstituut 1998). Tallinn applied special municipal and semi-public housing construction programs in 2002-2009 to target this group of households (Tallinna linnavalitsus 2002).

Compared to Estonia, Czech politicians kept intact the relatively extensive protections granted to tenants who concluded their contracts before 1992, and it is also due to this fact that the state did not offer the tenants in restituted housing any other public support (such as preferential access to municipal housing or the voucher compensation offered in Estonia). However, even here tenants in restituted flats felt aggrieved as a result of the way the restitution process was set up because they gained nothing from public housing privatization and because they were subject to harassment by landlords (who wanted to vacate the flats and rent them out for higher free market rents).

Despite the differences in property restitution, its consequences were quite similar in both countries: the formation of a conflict between ‘aggrieved’ tenants and private landlords (Estonia) or ‘aggrieved’ private landlords and tenants (the Czech Republic), and relatively widespread medialization of these conflicts. The PRS quickly came to be associated with ‘tensions, problems, insecurity’. Moreover, it cleaved into two segments (with stronger division line in the Czech Republic): ‘privileged’ and ‘non-privileged’ rental housing (depending simply on when the contract was signed). Tenants in the ‘non-privileged’ segment often received no form of protection on rent review or on the term of the contract; they paid several times higher market rents than tenants in the ‘privileged’ segment paid for a similar dwelling, and they were not provided with an effective housing allowance that would reflect their higher housing expenditures. This social injustice additionally decreased the popularity of the PRS among new tenants.

The form of ‘dispersed’ privatization of each apartment to the ownership of sitting tenants (instead of the privatization of whole houses into the ownership of professional investors, like in former East Germany) also influenced the character of the new PRS supply. It is known from advanced countries, that small landlords are sensitive to short-term market changes, their investment horizon is not as long as large landlords, and their weak financial standing makes them very risk-averse (tenant default can have a disastrous effect on their household budgets). Consequently, they prefer to conclude only short-term rental contracts with their tenants. The instability of supply of PRS made by small landlords, short terms for rental agreements, and black market practices (when landlords try to avoid taxation by opposing written legal contracts) added to the unattractiveness of the PRS in both post-socialist states.

While Estonia introduced a central right-to-buy policy and quickly transformed its housing system into the ‘homeownership model’ (Lux 2003), the Czech Republic did not apply central right-to-buy legislation and the pace of privatization was much slower. Despite these differences, the *qualitative* consequences of housing reforms were rather similar: owner-occupied housing grew in importance and the new PRS became to be perceived as residual and unpopular housing tenure.

To assess the recent significance (role) of the PRS we used statistical analysis on merged datasets from the EU-SILC surveys. The main advantage for using data from these large representative surveys of living conditions is the fact that they were conducted under the same survey methodology and with the similar questionnaires in both countries (using the same

variables, so that the results of the analysis are comparable across countries). For the Czech Republic we used merged datasets from 2007 and 2008⁵ and for Estonia we used merged datasets from 2005 to 2008⁶ (because the number of private tenants included in single-year survey samples was too small). We estimated the significance of the PRS through a comparison with its main substitute - owner-occupied housing tenure. We analysed the differences both in the structure of the housing stock and in the social structure of inhabitants of distinctive housing tenures.

The best methodological approach for our analysis was the regression model which not only shows the different role played by the PRS between countries, but, when compared to simple descriptives, it also gives information about a hierarchy of factors that statistically significantly distinguish the PRS from owner-occupation; and consequently, it also shows the differences in the factor hierarchies among countries. The dichotomous character of the dependent variable (PRS versus owner-occupation) requires the application of a binary logit model. Altogether, we tested five models:

- I. model on dwelling characteristics – PRS versus total owner-occupied housing;
- II. model on dwelling characteristics – PRS versus owner-occupied flats;
- III. model on household characteristics – PRS versus total owner-occupied housing;
- IV. model on household characteristics – PRS versus owner-occupied flats;
- V. model on household characteristics – PRS with market rents versus owner-occupied flats (only for the Czech Republic).

The fifth model was only tested for the Czech Republic, where a substantial number of tenants still pay regulated rent (for Estonia, all PRS tenants pay market rent) – this model included only PRS tenants paying market rent and thus is better comparable with results for Estonia. We tested for the significance of influence of many independent variables on differences in both house and household characteristics. It is clear from the tables below that the explanatory power of the models with dwelling characteristics as a dependent variable is much higher than that of the models with household characteristics as a dependent variable.

Tables 4 - 6

The most important characteristics of the PRS dwelling stock (when compared to owner-occupied tenure), next to regional/location dummies, are the following variables (models I, II; Table 4): total housing costs (continuous), type of house (apartment and other), construction period, number of rooms, and the technical standard of a flat; higher total housing costs, fewer rooms, construction before 1946 (in the case of Estonia) and lower technical standards (in the case of the CR problems with humidity and insufficient light, in the case of Estonia the lack of a shower/bath) are associated with a higher chance that the flat will belong to the PRS. As an additional crosstab analysis confirmed, the PRS flats in both countries are in worse technical condition than owner-occupied housing. This may be a consequence of property restitution, which concerned only the older apartment housing stock. However, the lower technical standards may be offset by better in-urban localization (which was not, unfortunately, surveyed by EU-SILC). It is also interesting to see that the PRS in the Czech

⁵ The sample consisted of 9,675 households in 2007, 11,294 households in 2008; 582 (6% of all households, 27% of tenant households) in 2007, and 664 (6% of all households, 28% of tenant households) were PRS tenants.

⁶ The sample of merged datasets consisted of 19,689 households, of which 373 (2%) were PRS tenants.

Republic, unlike the case in Estonia, is not concentrated in the most developed cities – in the least developed Czech regions (typically with low salaries, low house prices and a high unemployment rate) the chance of a flat being part of the PRS is much higher than it is in Prague. In Estonia the highest concentration of the PRS are found in Tartu – the city with typically a high share of university students.

The models on household characteristics have much less explanatory power than the models on dwelling characteristics (models III, IV, V; Tables 5, 6). Net household income per consumption unit is a statistically significant factor that distinguishes PRS tenants from owner-occupiers in the Czech Republic only. In both countries, the age of the household head and the type and size of the household are significant variables: the lower the age of the household head and the smaller the size of the household, the higher the chance that the household will live in the PRS. The impact of income on the odds of being a PRS tenant differs between the CR and Estonia. Whereas for the Czech Republic it holds that the higher the income per consumption unit, the lower the odds of being a PRS tenant (and this also applies to tenants paying market rents), this conclusion does not apply to the situation in Estonia. Interestingly, in the case of Estonia, ethnic Estonians have greater odds of becoming private tenants than other (mostly Russian-speaking) ethnic groups. However, the models are too weak to make fully reliable conclusions.

The PRS tenant is ‘typically’ associated with lower occupational categories or unemployment (Czech Republic), low per capita income (Czech Republic), a young age, being single or small-sized household. The PRS dwelling is ‘typically’ associated with high total housing costs (see the contrast with the low income of tenants in the Czech Republic!), a small number of rooms, low technical standards/few amenities, and location in older (pre-1946) buildings. The results of tenure choice models (with insufficient fit statistics) showed that the PRS in the Czech Republic and Estonia achieved the character of expensive transitional and residual housing with relatively low technical standards rather than the character of a qualitatively standard, stable, life-long housing alternative to owner-occupation. The transitional character of the PRS is a slightly more typical for Estonia (with a very significant age factor) and the residual character of the PRS is slightly more typical for the Czech Republic (with age and income factors both significant).⁷

⁷ The following are some statistically significant differences between the PRS and owner-occupied housing: 60% of private tenants in the CR (and 87% tenants in Estonia) live in flats with two or fewer rooms (compared to 25% of homeowners in the CR and 45% of homeowners in Estonia); 25% of PRS tenants in the CR (35% in Estonia) have less than one room per person (compared to 13% of homeowners in the CR and 24% of homeowners in Estonia); 24% of private tenants in the CR (13% in Estonia) complain about the high level of humidity in their flat (compared to 13% of homeowners in the CR and 11% of homeowners in Estonia); 9% of private tenants in the CR (14% in Estonia) complain about how dark their flat is (compared to 3% of homeowners in the CR and 6% of homeowners in Estonia); in the CR 25% of private tenants complain about noise (compared to 16% of homeowners), 25% about the dirtiness of the flat (compared to 14% of homeowners), and 19% about vandalism (compared to 10% of homeowners). Despite the smaller size and poorer technical conditions of their dwellings, 59% of private tenants in the CR (68% in Estonia) pay total housing expenditures equal to an amount figuring in the highest tercile of housing expenditure distribution (compared to just 27% of homeowners in the CR and 33% of homeowners in Estonia) and 33% of PRS tenants claim that for them housing costs represent a significant financial burden (25% in Estonia).

The most typical characteristics pertaining to the tenants themselves are household size and age of the household head: 29% of PRS tenants in the CR (38% of ‘non-privileged’ private tenants) and 64% (!) of PRS tenants in Estonia are under the age of 34 (compared to 12% of homeowners in the CR and 20% of homeowners in Estonia); 66% of PRS households in the CR and 72% of PRS households in Estonia have fewer than two members. Estonian PRS tenants typically have a middle level of education, relatively higher incomes (only 22% of them belong to the lowest tercile of equalized household income distribution), and are of Estonian ethnicity (82% of PRS tenants compared to 65% of homeowners); conversely, Czech PRS tenants typically have relatively

Conclusions

In this article we posed two key questions: (1) what is the role of the PRS in those post-socialist states in which restitution and privatization of public housing quickly created a sufficient 'quantitative' base for its growth? And (2) how did the specific institutional factors of post-socialist housing reforms determine the recent role of the PRS in these states? By institutional factors we meant especially the specific form of housing privatization, restitution and rent regulation. We selected two post-socialist states with relatively high share of restituted and privatized properties – Estonia and the Czech Republic. While property restitution in both countries proceeded in very similar way, the privatization approaches and rent regulation/deregulation strategies differed.

At the beginning of the 1990s, the conditions were generally favourable for the development of the PRS in the form of a stable life-long housing like that found in Germany. In 1990 most of the urban population of both countries lived in rental housing, so obtaining life-long rental housing 'free-of-charge' and without a high debt commitment was already an established social norm. Neither country faced a physical housing shortage – instead the number of dwellings per 1,000 inhabitants was even higher than in some advanced countries. Supply-side subsidies connected with centrally planned public housing construction de facto disappeared and market-based housing finance emerged only very gradually – new households were thus confronted with a rental housing shortage.

Both countries restituted properties quickly at the beginning of the transition and in both of them there was a general political consensus that this was the right way to address the injustices of the past. This policy quickly created the first private landlords, who, albeit in a distorted market environment, held 2-3% of the housing stock in Estonia and 6-7% of the housing stock in the Czech Republic. However, this quickly and not very well prepared process of property restitution also generated a number of unintended social tensions. While Estonian tenants in restituted housing faced insecurity over the term of the contract and the level of rent, the Czech rental market was deeply segmented into 'privileged' and 'non-privileged' parts.

The shift in the role (significance) of rental housing is obvious from the results of our statistical analysis – from being a life-long public housing tenure to a residual and transitional form of private rental housing. Despite significant contextual differences relating to the rent regulation/deregulation and public housing privatization, the PRS in the Czech Republic and Estonia is more alike than different nowadays. The supply of the PRS has quickly increased, but this growth proved to be unsustainable in the long term. The PRS came to represent a form of residual (especially in the Czech Republic) and transitional (especially in Estonia) housing which does not represent a real substitute to owner-occupation.

If the main contextual differences in housing privatization and rent regulation did not lead to different effects on the role of the PRS, what institutional factors of post-socialist housing reforms then determined the recent role of the PRS, more or less similar in both states? This dramatic change in the role and meaning of rental housing has probably been caused by the forms of state interventions in the area of property restitution, housing privatization, and rent

low income (40% of them belong to the first tercile of equalized household income distribution, and the same applies to the subset of tenants paying market rents).

regulation, that were shared among the countries selected for our analysis, such as the quasi-ownership status of rental housing under socialism, low protection of tenant rights for new tenancies after the regime collapse, especially given the lack of protections attached to lease terms, the uncertainty attached to rent reviews, the absence of an effective housing allowance, and the dominant role assigned to small, highly risk-averse private landlords on the market. The quick *quantitative* increase in PRS supply occurred in direct interconnection with the quick *qualitative* change in rental housing demand. The conditions unilaterally supporting the quick supply of new private rental dwellings at the same time stifled demand for them. The policy that favoured rental housing segmentation (the different conditions and rules in the 'privileged' and 'non-privileged' rental segments) over generally reforming tenancy rules to make them more like the German policy model (universal tenant protection rules) is - when compared to the general context of the 1990s – very likely one of the main reasons why the PRS acquired the character of just a residual and transitional form of housing. Finally, it is necessary to note that Kemeny's theoretical studies of housing systems underestimate the role of the PRS and do not explain why the role of the PRS varies in different environments. Our case studies show that each housing system analysis must include a thorough analysis of the role of the PRS and rent regulation regimes.

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Table 1: The socio-economic, housing and demographic contexts

	Estonia		Czech Republic	
GDP per capita in PPS (EU-27 average =100)	67.4	(2008)	80.4	(2008)
Growth of real GDP per capita (constant prices)	-3.5	(2008)	2.0	(2008)
Comparative price levels (EU 27 average=100)	76.7	(2008)	72.4	(2008)
Inflation rate (annual)	0.2	(2009)	0.6	(2009)
Unemployment rate	15.5	(2009m12)	8.0	(2009m12)
Population	1,340,021	(2010)	10,506,813	(2009)
Proportion of population aged 25-49 years	34.9%	(2008)	37.1%	(2008)
Proportion of population aged 65 and over	17.2%	(2008)	14.6%	(2008)
Number of households	583,700	(2007)	4,043,341	(2007)
Average household size	2.28	(2007)	2.52	(2007)
Share of single (one-person) households	34.4%	(2008)	24.8%	(2008)
Share of urban population	69.5%	(2009)	62.3%	(2009)
Crude birth rate (per 1000 inhabitants)	11.955	(2008)	11.470	(2008)
Total fertility rate	1.65	(2008)	1.50	(2008)
Number of dwellings per 1,000 inhabitants	463	(2004)	438	(2004)
Average useful floor area per dwelling (m2)	60.2	(2003)	76.3	(2001)
Average useful floor area per person (m2)	27.7	(2003)	28.7	(2001)
Structure of housing stock according to size:				
- one-room dwellings	15%	(2000)	13.6%	(2001)
- two-rooms dwellings	36%	(2000)	30.6%	(2001)
- three-rooms dwellings	30%	(2000)	35.5%	(2001)
Residential mortgage debt to GDP ratio (%)	39.2	(2008)	10.8	(2008)
Growth in mortgage debt (%)	10.3	(2008)	16.7	(2008)
Per capita mortgage debt (in thousands of euro)	4.64	(2008)	1.54	(2008)
Tenure structure:				
- owner-occupied detached and semi-detached housing	26%	(2000)	36%	(2001)
- owner-occupied flats in apartment buildings	51%	(2000)	11%	(2001)
- public rental flats	4%	(2000)	17%	(2001)
- private rental flats	10%	(2000)	12%	(2001)
- co-op flats	4%	(2000)	14%	(2001)
- others	5%	(2000)	10%	(2001)
Income distribution: Gini	0.309	(2007)	0.253	(2007)
Income distribution: Income quintile share ratio*	5	(2008)	3.4	(2008)
Poverty rate	19%	(2008)	9.1%	(2008)
Welfare regime	Liberal		Liberal/Conservative	
Housing system	Dual		Dual/Unitary	

Source: Statistics Estonia, Czech Statistical Office, EUROSTAT, European Mortgage Federation, own calculations.

* The ratio of the total income of the 20% of the population with the highest income (top quintile) to that of the 20% of the population with the lowest income (lowest quintile). Income means equivalized disposable income.

Table 2: Index of average flat prices and market rents, 2000-2009 (2000=100 for the Czech Republic; 2002/2000=100 for Estonia)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Flat prices										
Prague	100.0	107.4	123.2	158.1	159.1	155.1	175.6	215.9	280.3	277.3
Czech Republic	100.0	102.0	113.5	140.8	154.2	154.2	172.3	228.4	286.6	274.0
Tallinn			100.0	148.2	180.7	222.9	310.8	338.6	303.6	198.8
Estonia			100.0	124.7	167.1	205.5	282.2	304.1	275.3	187.7
Market rents										
Prague	100.0	106.0	118.9	144.4	139.4	129.7	128.7	130.3	147.5	148.5
Czech Republic	100.0	102.1	110.9	130.3	135.5	131.6	133.0	142.0	163.7	162.2
Tallinn	100.0	106.8	114.8	118.2	123.9	120.5	137.5	152.3	130.7	94.3
Estonia*	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

*Comparable data not available.

Source: IRI, Statistics Estonia (<http://www.stat.ee/real-estate>), authors' calculations.

Table 3: Price-to-rent in regional capitals, 2000–2009

<i>Price-to-rent</i>	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Czech Republic										
Brno	12.5	12.7	13.1	13.7	12.8	12.4	14.2	19.0	22.0	20.8
České Budějovice	11.9	11.9	12.3	12.4	13.1	13.1	14.1	16.3	19.5	20.4
Hradec Králové	12.5	12.7	13.1	13.7	15.0	15.7	17.7	22.7	24.5	23.8
Jihlava	12.2	12.0	12.4	12.9	13.8	13.5	15.0	19.3	20.4	18.2
Karlovy Vary	12.3	12.2	12.8	13.4	14.6	14.2	15.0	18.3	19.7	21.4
Liberec	10.9	11.2	11.7	12.6	12.2	12.7	16.2	22.3	22.3	21.3
Olomouc	11.6	11.4	12.1	13.1	13.2	14.6	15.2	22.4	24.7	20.8
Ostrava	8.9	8.6	9.2	10.2	10.7	10.4	10.4	12.7	14.6	13.6
Pardubice	11.8	12.0	12.2	13.1	15.5	14.7	16.7	20.0	21.7	20.4
Plzeň	12.0	11.9	12.3	14.1	15.1	15.9	18.4	19.8	21.8	21.2
Prague	13.7	13.9	14.2	15.0	15.6	16.4	18.7	22.7	25.9	25.5
Ústí nad Labem	8.2	7.9	8.3	9.2	9.8	10.4	9.5	11.3	11.9	12.7
Zlín	12.2	12.5	12.7	13.0	13.9	14.8	15.9	19.1	19.2	19.3
Estonia										
Tallinn			6.8	9.9	11.5	14.5	17.8	17.5	18.3	16.6
Tartu			7.8	9.0	11.6	13.6	19.6	14.9	15.2	15.9

Source: IRI, Statistics Estonia, authors' calculations.

Table 4: Logit regression - models I, II

	PR versus OO total						PR versus OO flats					
	CR*			Estonia**			CR***			Estonia****		
	B	Sig.	Exp(B)	B	Sig.	Exp(B)	B	Sig.	Exp(B)	B	Sig.	Exp(B)
Total housing costs (continuous)*****	0.001	0.000	1.001	0.001	0.000	1.001	0.001	0.000	1.001	0.001	0.000	1.001
<i>Other type – ref.</i>												
Apartment house	1.478	0.000	4.385	1.731	0.000	5.646	-	-	-	-	-	-
<i>Construction after 1945 – ref.</i>												
Construction pre-1946	-	-	-	1.625	0.000	5.077	-	-	-	1.624	0.000	5.072
<i>Shower or bath available – ref.</i>												
Shower or bath not available	-	-	-	-	-	-	3.533	0.000	34.229	0.572	0.002	1.771
Number of rooms (continuous)	-1.083	0.000	0.339	-1.203	0.000	0.300	-0.930	0.000	0.394	-1.107	0.000	0.330
Humidity	1.178	0.000	3.247	-	-	-	1.460	0.000	4.305	-	-	-
Insufficient light	0.718	0.000	2.050	-	-	-	0.916	0.000	2.498	-	-	-
<i>Prague – ref.</i>												
Středočeský region	-0.794	0.000	0.452	-	-	-	-0.603	0.001	0.547	-	-	-
Jihočeský region	-0.102	0.584	0.903	-	-	-	0.136	0.490	1.146	-	-	-
Plzeňský region	-0.037	0.831	0.963	-	-	-	0.057	0.752	1.058	-	-	-
Karlovarský region	-0.949	0.000	0.387	-	-	-	-0.974	0.000	0.377	-	-	-
Ústecký region	0.683	0.000	1.980	-	-	-	0.644	0.000	1.905	-	-	-
Liberecký region	0.498	0.004	1.645	-	-	-	0.611	0.001	1.842	-	-	-
Královéhradecký region	-0.082	0.665	0.922	-	-	-	0.083	0.681	1.086	-	-	-
Pardubický region	-0.215	0.280	0.806	-	-	-	-0.145	0.485	0.865	-	-	-
Vysočina region	-0.650	0.008	0.522	-	-	-	-0.452	0.083	0.636	-	-	-
Jihomoravský region	-0.125	0.449	0.882	-	-	-	0.104	0.554	1.110	-	-	-
Olomoucký region	-0.058	0.731	0.944	-	-	-	0.145	0.415	1.156	-	-	-
Zlínský region	-0.447	0.025	0.640	-	-	-	-0.250	0.226	0.779	-	-	-
Moravskoslezský region	0.233	0.100	1.263	-	-	-	0.331	0.027	1.392	-	-	-
<i>Estonia without Tallinn and Tartu region – ref.</i>												
Tallinn region	-	-	-	-0.049	0.714	0.952	-	-	-	-0.172	0.207	0.842
Tartu region				0.820	0.000	2.271				0.686	0.000	1.987
Constant	-3.403	0.000	0.033	-3.687	0.000	0.025	-2.217	0.000	0.109	-2.189	0.000	0.112

Source: authors' computation, EU-SILC 2007-2008 (Czech Republic), EU-SILC 2005-2008 (Estonia).

* Nagelkerke R Square 0.429; prediction accuracy 93% (31.3% for PRS)

** Nagelkerke R Square 0.271; prediction accuracy 98% (6.4% for PRS)

*** Nagelkerke R Square 0.338; prediction accuracy 83% (39% for PRS)

**** Nagelkerke R Square 0.243; prediction accuracy 98% (8.3% for PRS)

***** Based on years 2005-2007 in case of Estonia due to different methodology of computation of costs in 2008

Table 5: Logit regression - models III, IV

	PR versus OO total						PR versus OO flats					
	CR*			B	Estonia**		B	CR***		B	Estonia****	
	B	Sig.	Exp(B)		Sig.	Exp(B)		Sig.	Exp(B)		Sig.	Exp(B)
<i>Low total net household income per consumption unit – ref.</i>												
Middle total net household income per consumption unit	-0.255	0.001	0.775	-	-	-	-0.216	0.014	0.806	-	-	-
High total net household income per consumption unit	-0.391	0.000	0.676	-	-	-	-0.357	0.000	0.700	-	-	-
<i>Housing costs do not represent significant financial burden to household – ref.</i>												
Housing costs represent significant financial burden to household	-	-	-	0.489	0.000	1.630	-	-	-	-	-	-
<i>Low education – ref.</i>												
Middle education	-	-	-	-	-	-	-0.324	0.003	0.723	-0.069	0.660	0.933
High education	-	-	-	-	-	-	-0.339	0.015	0.713	-0.512	0.006	0.599
<i>Two parent family – ref.</i>												
Lone parents	0.556	0.000	1.744	-	-	-	0.470	0.000	1.599	-	-	-
Other type of household	0.967	0.000	2.631	-	-	-	1.370	0.000	3.934	-	-	-
Single – man	0.766	0.000	2.151	-	-	-	0.982	0.000	2.670	-	-	-
Single – women	0.681	0.000	1.976	-	-	-	0.582	0.000	1.789	-	-	-
<i>Age of head 65+ ref.</i>												
Age of head 18-34	1.275	0.000	3.580	3.310	0.000	27.374	0.853	0.000	2.348	2.911	0.000	18.375
Age of head 35-49	0.636	0.000	1.890	1.848	0.000	6.350	0.496	0.002	1.641	1.612	0.000	5.012
Age of head 50–64	0.071	0.571	1.074	0.508	0.057	1.662	0.180	0.176	1.198	0.520	0.057	1.682
Size of household	-0.205	0.000	0.815	-0.586	0.000	0.557	-	-	-	-0.452	0.000	0.637
<i>Lower-level employee – ref.</i>												
Self-employed	-0.274	0.027	0.761	-	-	-	0.069	0.642	1.071	-	-	-
Higher-level employee	-0.035	0.684	0.966	-	-	-	0.040	0.777	1.040	-	-	-
Pensioner with EA household members	-0.613	0.014	0.542	-	-	-	-0.434	0.101	0.648	-	-	-
Pensioner without EA household members	-0.485	0.001	0.615	-	-	-	-0.340	0.031	0.712	-	-	-
Unemployed	1.035	0.000	2.816	-	-	-	0.925	0.000	2.521	-	-	-
Others	0.568	0.008	1.766	-	-	-	0.466	0.061	1.593	-	-	-
Ethnicity – Estonians	-	-	-	0.807	0.000	2.240	-	-	-	1.253	0.000	3.501
Constant	-2.244	0.000	0.106	-4.935	0.000	0.007	-1.491	0.000	0.225	-4.653	0.000	0.010

Source: authors' computation, EU-SILC 2007-2008 (Czech Republic), EU-SILC 2005-2008 (Estonia)

* Nagelkerke R Square 0.110; prediction accuracy 91.3% (1.6% for PRS)

** Nagelkerke R Square 0.176; prediction accuracy 97.9% (0.0% for PRS)

*** Nagelkerke R Square 0.102; prediction accuracy 77.7% (9.3% for PRS)

**** Nagelkerke R Square 0.185; prediction accuracy 96.4% (0.0% for PRS)

Table 6: Logit regression – model V*

	B	Sig.	Exp(B)
<i>Low total household income per consumption unit – ref.</i>			
Middle total household income per consumption unit	-0.341	0.003	0.711
High total household income per consumption unit	-0.505	0.000	0.604
<i>Two parent family – ref.</i>			
Lone parents	0.260	0.051	1.297
Other type of household	1.255	0.002	3.508
Single – man	0.865	0.000	2.376
Single – women	0.713	0.000	2.039
<i>Age of head 65+ - ref.</i>			
Age of head 18-34	1.462	0.000	4.315
Age of head 35-49	0.882	0.000	2.416
Age of head 50–64	0.302	0.116	1.353
<i>Lower-level employee – ref.</i>			
Self-employed	0.412	0.017	1.510
Higher-level employee	0.142	0.439	1.153
Pensioner with EA household members	-0.192	0.588	0.825
Pensioner without EA household members	-0.423	0.052	0.655
Unemployed	1.011	0.000	2.748
Others	0.710	0.010	2.033
<i>Low education – ref.</i>			
Middle education	-0.349	0.017	0.705
High education	-0.570	0.003	0.565
Constant	-2.345	0.000	0.096

Source: authors' computation, EU-SILC 2007-2008

*Nagelkerke R Square 0.139; prediction accuracy 86.0% (6.0% for PRS).