International Journal of Housing Policy

The impact of housing tenure in supporting ageing in place: exploring the links between housing systems and housing options for the elderly

Martin Lux[a] & Petr Sunega[a]

[a] The Institute of Sociology, Academy of Sciences of the Czech Republic, Prague, Czech Republic
Published online: 28 Feb 2014.

Click for updates

PLEASE SCROLL DOWN FOR ARTICLE

Routledge
Taylor & Francis Group

The impact of housing tenure in supporting ageing in place: exploring the links between housing systems and housing options for the elderly

Martin Lux* and Petr Sunega

The Institute of Sociology, Academy of Sciences of the Czech Republic, Prague, Czech Republic

The aim of paper is to reveal the link between the scope of housing aid designed to support ageing in place and the housing system. The main research question is whether the structure of the housing stock according to housing tenure has an impact on diversity and innovations in the supply of public housing subsidies and the housing options available to the elderly. The research is conducted on a sample of eight European countries that substantially differ in terms of their housing and welfare system: Austria, Germany, the Czech Republic, Hungary, Poland, Slovakia, Slovenia and Italy. These countries were represented in the international project HELPS that primarily focuses on implementation of innovative pilot actions in selected EU states that would increase the autonomy of vulnerable people. After controlling for the effects of several external factors, the results show that the tenure-based structure of housing stock may have a significant impact on the dependent variable, which is the diversity and innovativeness of housing subsidies and options for the elderly. Specifically, in countries with a lower homeownership rate and a higher share of rental housing there is also a greater probability that the supply of housing subsidies and options available to the elderly will be wider and will involve more innovative features.

Keywords: housing system; ageing in place; population ageing; housing policy

Introduction

Over the past three decades population ageing has become an increasingly more prominent issue in policy research. Importantly, 'ageing in place' has become one of the most discussed concepts in ageing research (Vasunilashorn, Steinmann, Liebig & Pynoos, 2012). Ageing in place means the enabling of seniors to continue living in their own homes for as long as they possibly can or making such adaptations to their homes that will allow them to do so. There are three main reasons why this concept has recently become so popular: (1) the onset of rapid population

*Corresponding author. Email: martin.lux@soc.cas.cz

ageing in many developed countries; (2) the widespread preference among the elderly to remain in their homes for as long as possible (Pastalan & Schwarz, 2001); and (3) the reduction in public expenditures generated by ageing in place as the elderly spend less time in the hospital and enter institutional care later (Heywood, 2001; Lansley et al., 2004; Pleace, 2011).

In the field of housing, support for ageing in place is inextricably tied to public support for housing affordability and accessibility. Public policy tools frequently used to make housing more affordable for the elderly include housing (income) benefits, below-market (social) rents, and the various subsidies aimed at improving the energy efficiency of housing and thus helping seniors save on costs connected with housing. Support for housing accessibility mostly involves making architectural or structural adaptations to housing and the use of flexible designs.

While there is an extensive literature on ageing in place in reference to domicile and institutional care, formal and informal care, social inclusion and innovative housing adaptations, no study has yet examined the influence of the housing system on the range of available housing options for the elderly that support ageing in place or living in other standard housing forms. In other words, a housing system may theoretically predetermine the real possibility that the elderly have to remain either in their own homes or in another independent housing form for as long as possible. This fact has important policy implications: if the housing system (context) determines or limits the supply of housing options available to the elderly, presumably the measures and practices that prove effective in one housing system need not necessarily be effective in another housing system. Additionally, in some housing systems the scope of housing options available to the elderly may be systematically restricted due to the nature of the housing system itself.

A housing system is largely defined by the tenure structure. Consequently, the main research question addressed in this paper is whether the tenure-based structure of the housing stock has an impact on the range of options increasing housing affordability and accessibility that enable the elderly to remain either in their own homes or to live in other independent housing forms for as long as possible. In other words, we ask whether the homeownership rate in a society has an impact on the range of available housing options (housing subsidies, housing forms) that help the elderly to stay in their recent housing, and/or to move to other standard (non-institutionalised) housing forms.

The paper is structured as follows. Our preliminary consideration of the literature and framing of the study is followed by a brief description of the housing systems in three Western European countries (Austria, Germany and Italy) and five post-socialist states. We then outline the sources of data used in the analysis, our hypothesis and our methodology. We then present a discussion of our findings, and the paper closes with a summary of the main conclusions.

Housing tenure and welfare

The goal of our research relates to the discussion on the cause–effect mechanism between the housing system and welfare (Castles, 1998; Doling & Elsinga, 2012; Doling & Horsewood, 2011; Kemeny, 1981, 2005), but welfare is strictly limited to housing-related issues in our analysis. Kemeny (1981) argued that policy emphasis on homeownership has an impact on general welfare provision because young homeowners, financially hard-burdened by mortgage repayments and child rearing, resist paying high taxes for public welfare provision. However, later he also wrote (Kemeny, 2005) that in societies with 'poor public welfare provision for the elderly, households are forced to make private provision for the old age' (Kemeny, 2005, p. 62) and therefore become homeowners to minimise the threat of poverty in older age. The specific homeownership rate in a society can be, according to him, thus both the cause of specific public welfare provision and the effect of such welfare provision. He tested his thesis on the mutual association between housing tenure and welfare on a small sample of eight countries, but did not conduct any meaningful statistical tests. The results, nonetheless, suggested a negative relationship between homeownership rates and welfare provision.

Kemeny's analysis was further elaborated by Castles (1998) using both a larger dataset of countries (20 countries) and historical data (from 1960 to 1990). Castles computed the correlation coefficients between homeownership rates and different indicators of public welfare in each decade. He confirmed Kemeny's earlier findings by demonstrating a statistically significant (though weakening in time) negative relation between welfare and homeownership, which he called 'a really big trade-off': countries with high homeownership rates tend, at the same time, to have smaller public spending on social protection and pensions. However, again he could not distinguish what was the cause and what was the effect in the mutual relation; nor could he test whether there is any cause–effect mechanism at all. Moreover, the works of both Kemeny and Castles did not include a control of other relevant external factors to prevent the situation known as spurious correlation. The level of public spending on social protection and pensions is associated with a range of different economic, cultural, religious, political, institutional and policy factors other than simply the housing system itself. If other significant associations are controlled for, the association between the homeownership rate and public spending on social protection may become much weaker or may even prove to be a spurious reflection of another association.

Doling and Horsewood (2011) used the Granger technique to address more properly the question of causality. They operationalised the cause–effect mechanism between housing and welfare into the question of whether periods of high (low) house price inflation lead, subsequently, to a reduction (increases) in state pension provision. House price appreciation represented a proxy for the investment nature of homeownership stressed both by Kemeny and Castles. They tested their

hypothesis on data for 17 old-OECD countries and for the time period from 1980 to 2003, and they found a significant impact of changes in house price appreciation on changes in state pension provision. By acknowledging the limits of their research they conclude that 'homeownership causes pensions' (Doling & Elsinga, 2012, p. 17). However, like Kemeny (1981) or Castles (1998), Doling and Horsewood (2011) did not include a statistical control of the influence of external factors in their analysis, and the time sequence could also be caused by other systematic or compounded factors. This means that the findings from the above-cited studies remain hypothetical and the threat of a spurious or false correlation was not eliminated.

In our research we did not seek to analyse the influence of the housing system on state pensions or total welfare spending. Nor did we wish to examine the impact of the housing system on the whole range of social care options for the elderly. In our analysis, we used a similar 'independent variable' as Doling and Horsewood (2011), i.e. the tenure structure of the housing stock. However, due to methodological limitations discussed above, the 'dependent variable' in our cause–effect equation was restricted only to available housing options for the elderly, i.e. different subsidies and options that increase the affordability (financially) or accessibility (physically) of *standard housing forms* for the elderly. Consequently, we wanted to find out whether the supply of *housing* (options, subsidies) can be explained by *housing* (system); and it was not our ambition to find out whether general *welfare* or the whole range of *social care for the elderly* could be explained by *housing* (system). Limiting the scope of our analysis to a housing-to-housing impact substantially reduces the number of necessary control variables and, consequently, by itself decreases the threat of a spurious or false correlation.

Like Doling and Horsewood (2011), we think that the question of causality is an important part of the analysis of the mutual link between housing and welfare. However, in our analysis we do not employ the Granger technique and instead use a qualitative comparative analysis (QCA). QCA is relatively new methodological tool that makes it possible (1) to analyse causal conditions in small cross-section samples; and (2) to control for the effects of relevant external factors, which minimises the threat of spurious correlations. Despite the fact that some factors may still be omitted from the analysis, this approach may offer another methodological step with which to analyse the mutual relation between housing systems and welfare provision.

As the values of our 'dependent variable' could not simply be acquired from existing surveys or international statistics, it was necessary to conduct comparative research evaluating the range of housing options for the elderly in different housing systems. We used the opportunity that we, together with other colleagues,[1] coordinated comparative research activities under the HELPS project (Housing and Home-Care for the Elderly and Vulnerable People and Local Partnership Strategies

in Central European Cities).[2] The project focused on the implementation of several innovative pilot actions in selected EU states that would increase the autonomy of vulnerable people by allowing them to remain in their recent or, at least, standard forms of housing for as long as possible. The international partner collaboration established under the HELPS project created an opportunity to obtain necessary data for the research goal of this paper in the following eight European countries: Austria, Germany, the Czech Republic, Hungary, Poland, Slovakia, Slovenia and Italy. Each local partner (or local housing expert hired by a partner) participating in the project was required – among other tasks not strictly related to the topic of this paper – to fill in a semi-standard questionnaire on housing subsidies and options for the elderly in the given country.

As we are going to show in the next section of this paper there are substantial differences between the housing (and welfare) systems in the above-named European countries and that diversity is well suited to analysis aimed at answering our key research question. Moreover, this sample makes it possible to fill in the gap in existing research by introducing the specific post-socialist context into the discussion of ageing in place. As noted in a study of Genet et al. (2011), the information on post-socialist countries is scarce and limited. Our sample of countries contains three old EU member states and five new (post-socialist) ones.

Despite the contextual differences among the countries included in the analysis, the sample of countries under investigation is still not large enough for us to be able to obtain fully reliable results. This is especially due to the fact that countries with other specific combinations of housing and welfare systems like Norway or the UK did not take part in this comparative research project. These countries were not excluded intentionally but only because of the nature of the project's funding: the Central Europe programme strictly defines the list of countries that can participate in any comparative research supported by the programme. We argue, nonetheless, that the diversity in the housing and welfare systems of the countries included in the analysis allows for a generalisation of the findings (and contrasts to previous studies, in which new EU members states have been under-represented). However, the results need to be verified in relation to a larger sample of countries in future comparative research. Additional data for our analysis were obtained from Eurostat statistics and European Union Statistics on Income and Living Conditions (EU-SILC) surveys.[3]

When we analysed the data from the participating countries in the project we found that after controlling for the effects of other factors, the housing system does indeed have a substantial impact on our dependent variable, i.e. the range of housing subsidies and options that support ageing in place or living in standard housing forms for the elderly. Specifically, in countries with a lower homeownership rate and a higher share of rental housing there is also a higher probability that the supply of housing subsidies and options available to the elderly will be wider and more innovative in nature.

A brief description of housing contexts in the selected European countries

Some common trends can be observed among the housing systems in Western Europe in recent decades including the increasing liberalisation of housing provision and the decentralisation of housing policy (Boelhouwer & van der Heijden, 1992; Donner, 2000, 2006; Ghekiere, 1992; Whitehead & Scanlon, 2007). Nevertheless, owing to the diverse institutional contexts in which national housing systems have independently evolved, in-group diversity is an important distinguishing feature of West European systems compared to post-socialist ones. The three Western European countries in our sample – Germany, Austria and Italy – demonstrate this fact.

Germany ranks among the countries that deregulated private rents to close-to-market levels and were the first in Europe to introduce means-tested housing benefits: it introduced a housing allowance back in 1965 and adopted deregulation to a comparable rent system in the early 1970s. German housing policy shifted very early on from subsidising supply to the means-tested support of persons (housing allowances) and the housing system began to base itself on stable and long-term private rental housing: more than 40% of German households live in private rental housing. In Germany, a very specific notion of social housing developed: instead of a permanent social housing stock, Germany applied the approach of temporary 'publicly subsidised housing', i.e. housing built with the help of public funds rented out for social rents and purposes (under restrictive allocation rules) for only a pre-specified contractual period (usually 20–30 years). The stock of social housing has also recently begun to decrease each year: subsidised housing now amounts to only about 10% of the total German housing stock. As Figure 1 shows, Germany also ranks among countries with relatively high housing costs and a high average housing cost/income ratio, where, consequently, housing allowance plays an important role (Donner, 2000, p. 163).

In the Austrian housing system social rental housing occupies an important place. Social housing makes up 25% of the total Austrian housing stock (in the capital of Vienna it is 48% of the city's housing stock); the limited-profit sector (housing associations) own 15% of dwellings, while 10% are publicly owned (Reinprecht, 2007, p. 35). Austrian housing policy did not follow the policy shift away from supply-side housing subsidies to demand-side housing subsidies witnessed in Germany. Private renting is also an important form of housing tenure in Austria: it accounts for 18% of the total housing stock. The large share of social housing in the Austrian housing system and its conservative rent policy are the main reasons why average housing costs are relatively low; and the housing benefit is a less important aspect of housing policy. Austria has one of the lowest average housing cost/income ratios among senior households in our sample of countries (see Figure 1).

In Italy, the homeownership rate grew quickly from 59% in 1981 to 75% in 2008 and 19% of the housing stock is still rental housing. Public rental housing
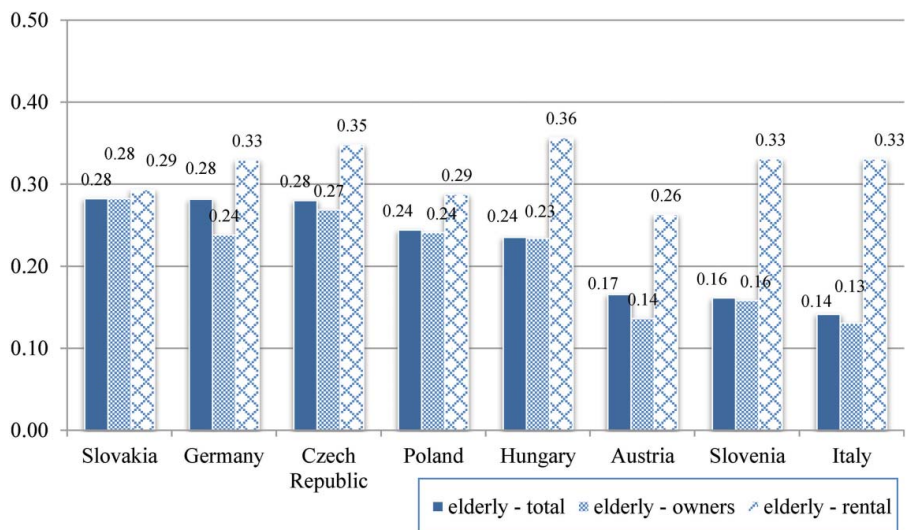
Figure 1.   Average housing cost/income ratio among the elderly in selected EU countries.
Note: the ratio is calculated as total household housing expenditures in relation to net household incomes (after social transfers) – for households of the elderly only. Housing allowances were added to household incomes; the results would be different if they are discounted from housing costs.
Source: Pfeiferová et al. (2013), EU-SILC 2009.

(also called 'subsidised'), meanwhile, makes up only 4% of the Italian housing stock, i.e. much less than in Austria. The Italian housing system is a 'mixed' system with a very small share of social housing but a still significant private rental segment. Another feature of the Italian housing system is that housing costs are relatively low: the average housing cost/income ratio of Italian senior households is the lowest in the sample of eight Central European countries (see Figure 1). One of the reasons is that the Italian rental sector is traditionally subject to a relatively conservative and rigid rent control regime. Low housing costs have made the role of the housing benefit marginal, as it is in Austria: housing benefit was introduced relatively late and never really came to be significant (Donner, 2000, p. 337).

When compared to Western European countries, post-socialist states have exhibited more similarities in the development of their housing systems in the last two decades. The main reason has been the process of economic transformation from central planning to a market economy that all such countries went through. In housing this was reflected in the introduction of the large-scale, giveaway privatisation of public housing, with sitting tenants receiving a form of right to buy, i.e. a centrally guaranteed right to buy public dwellings occupied by them with very

advantageous price terms. With giveaway privatisation, public housing almost vanished entirely in most post-socialist states within a short period. As a result, home-ownership rates increased substantially, with levels often exceeding 90% of the total housing stock (Lowe & Tsenkova, 2003; Lux, 2009).

There were a few exceptions to this general trend. For example, in Poland and the Czech Republic, public housing privatisation was left up to the municipalities (Lowe & Tsenkova, 2003), and both countries opted to keep pre-1990 type of conservative rent control. However, with their hands tied by rent control, the municipalities started to sell public housing voluntarily. Again, public flats were mostly sold to sitting tenants at low prices. According to estimates (Hegedüs et al., 2012), in the Czech Republic the share of public housing decreased from 39% in 1991 to an estimated 10% of the total housing stock by 2010. Similarly, for Poland the respective figures are 32% in 1991 and 8% in 2011.

The largest share of public and not-for-profit rental housing out of the total housing stock among post-socialist countries in our sample was still to be found in Poland and the Czech Republic (20% and 10%, respectively). In Slovenia it only made up 5% of the housing stock, in Hungary only 3% and in Slovakia less than 3% (Table 1). There are four post-socialist countries in our sample, i.e. the Czech Republic, Slovakia, Poland and Slovenia, where new social/public housing construction was reintroduced after 1995 and new output built between 1995 and 2010 can be considered substantial (Lux & Sunega, 2012). Hungary had only marginal new social housing output after 1990 built under the temporary Szechenyi programme. Private rental housing, a thoroughly new institution established after the change of regime, is typically considered an insecure and expensive form of tenure. With the exception of the Czech Republic, most part of private renting sector is operated in the shadow zone of economy.

Table 1.   Housing tenure structure, around 2010.

Country	Owner-occupied and 'owner-cooperative'	Private rental	Public rental, social rental, non-profit rental and 'rental-cooperative'	Other tenure
Austria (AT)	53	18	25	4
Czech Republic (CZ)	66	12	10	12
Germany (DE)	38	43	11	8
Hungary (HU)	94	3	3	–
Italy (IT)	75	15	4	6
Poland (PL)	68	9	20	3
Slovakia (SK)	95	2	3	–
Slovenia (SI)	93	1	5	1

Source: Housing Statistics in the EU and the HELPS survey.

Table 1 shows the tenure structure in the eight sample countries in the years around 2010. Based on these figures, we categorised the eight housing systems into the four following categories:

- Social-market (Germany): most of the population lives in private rental housing and social housing forms a small and temporary housing segment operated through special public–private contracts;
- Social-democratic (Austria): a substantial part of the urban population lives in social rental housing provided by municipalities or limited-profit organisations, and a substantial part of overall housing construction is also subsidised from public sources;
- Mixed (the Czech Republic, Italy and Poland): housing tenure is mixed with a substantial and increasing share of owner-occupied housing; however, rental housing (in the CR and Italy mainly private rentals, in Poland mainly public, non-profit and co-op rental housing) still makes up a significant share of the housing stock;
- Liberal (also super homeownership) (Slovakia, Slovenia and Hungary): the housing system is based on one tenure, homeownership – the homeownership rate exceeds 90% of the housing stock, social housing is marginal in scale, and private rental is unstable and mostly part of the black market; people have generally little choice other than to become homeowners.

The welfare regimes also substantially differ among countries included into our sample. However, it is very difficult to present the precise classification because the welfare regimes in post-socialist states do not match the traditional Esping-Andersen (1990) typology. According to Fenger (2007), the post-socialist welfare states do not fit any of Esping-Andersen's types; nor is there any empirical evidence, however, that these countries form a distinctly specific type of post-socialist welfare state. Moreover, housing is a specific policy field, which can significantly differ from the conceptualisation of general welfare states (Lennartz, 2011).

Nevertheless, in view of our main research question we can use the typology created by Pfeiferová and Havlíková (forthcoming), who define welfare state regimes for all the European countries in our sample in reference to their social care systems for the elderly. Milligan (2009) distinguishes four such types of regime – social-democratic, conservative, liberal and neo-liberal – according to who has the primary responsibility for ensuring the provision of social care for the elderly, the source of funding of care and the most common type of provider of social services. Pfeiferová and Havlíková (forthcoming) use Milligan's typology to rank Austria and Germany as conservative regimes and Poland as a neo-liberal regime; Hungary and Slovakia, according to them, resemble social-democratic regimes, while the Czech Republic and Italy resemble neo-liberal regimes.

Therefore, diversity in welfare provision for the elderly is again relatively high among countries in our sample, as it is for housing systems themselves.

However, the dependent variable in our analysis is specifically the range of housing options and subsidies increasing housing affordability and accessibility that enable the elderly to remain either in their own homes or to live in other independent housing forms for as long as possible. It was not possible to make an exhaustive quantitative assessment of all housing-related subsidies and housing options in all eight European states because this would require an enormous amount of information and details on each of the different programmes. We were only able to make a qualitative categorisation of countries according to how the supply of different measures aimed at increasing housing affordability and accessibility for the elderly, targeting ageing in place, and extending independent forms of housing, varies and thus how much it permits eligible people to choose from different options.

By doing this kind of qualitative assessment, we assume that the possibility to choose is a sign of a developed model of housing support because a greater selection of options increases the likelihood that measures will be able to meet the diverse needs and preferences of eligible households. The possibility to choose between different subsidies and options respects the elderly as dignified human beings with their own individual rights and diverse preferences. Next to diversity, the existence of innovative schemes is also included in our categorisation. Schemes deemed innovative are those that (1) evolved in a local environment or were substantially shaped by the local context (i.e. assume a more effective saturation of specific local needs), and (2) involve a number of stakeholders from both the public and private housing sectors (cost and management sharing) making it financially and administratively sustainable in the longer term.

The data on the diversity and scope of innovations in subsidies supporting ageing in place and the supply of standard (independent) housing options for the elderly were gathered from partners participating in the HELPS project. Each local partner (or country expert hired by a partner) was required to complete semi-standard questionnaire on housing options for the elderly in the given country. The aim of the questionnaire survey was to enhance the reliability and completeness of our international comparison. The data were collected, clarified (in the case of misunderstanding) and summarised by us. Finally, the results of the comparison were confirmed by country experts in their comments and conclusions were discussed among partners. The survey was conducted during 2011–2013.

The diversity and innovativeness of housing subsidies and housing options for the elderly were researched in the following three modes: (1) a brief description of all housing-related subsidies and housing options available for the elderly; (2) a description of the hypothetical choice of subsidies and options in the pre-defined life situation of elderly people; and (3) a detailed description and evaluation of two innovative best practices serving the elderly: one in the field of housing affordability and one in the field of housing accessibility.

Choice in a particular life situation (point 2) was described in relation to the following life situation: a 72-year-old woman lives alone in a private, for-profit rental dwelling. Rent is relatively high. She has felt her age for several years, but recently her osteoarthritis has worsened considerably. She has found that using the bathroom has become difficult for her, as the dwelling has only an old bath with no handles. She feels that without the help she will soon no longer be able to live in her home.

Based on data from questionnaire surveys, we categorised the diversity and scope of innovations in the supply of housing subsidies and options for the elderly in selected countries into the following four categories:

- Developed model (Germany and Austria): this model is characterised by a variety of measures and housing options, often locally shaped, both in the field of housing affordability and housing accessibility. Many of the housing options are innovative in terms of both their content (technical and architectural innovations) and their management (innovative management schemes involving different stakeholders from private and public sectors). The subsidies and options include rent control contracts, occupancy commitment contracts, retirement provisions, age-appropriate conversions, technology-assisted housing, multi-generational homes, a housing benefit, adaptations of existing flats, co-housing or lifetime homes in Germany; adaptations of existing flats, the housing benefit, social rents, senior flats, supervised flats, special retiree dwellings, flat-share communities, senior-living communities or integrated (mixed) housing in Austria.
- Semi-developed model (Italy): this model is characterised by a limited variety of subsidies and housing options to increase housing affordability and accessibility and thus a limited selection of alternatives for eligible households. However, the supply also includes innovative schemes in terms of both content and management, such as collaborative housing, protected housing, municipal supports for flat adaptations or municipal guarantees.
- Basic model with the re-introduction of supplying social housing (Slovakia, Poland, Slovenia and the Czech Republic): this model is characterised by a limited selection and more or less standardised supply of housing subsidies and options for the elderly, most often centrally determined and funded, with little local variation and few innovative schemes (very limited cooperation and co-financing between public and private sectors). The not-for-profit and private rental segments are too weak to become relevant partners (with the exception, to some extent, of Slovenia and Poland). However, in post-socialist countries ranked in this category, governments have re-started support for social (public) housing construction soon after the regime change. Part of this newly built housing stock serves to meet the housing needs of the elderly.
- Basic model (Hungary): this model is characterised also by a limited and most often centrally determined supply of housing subsidies and options for

the elderly with very little local variation and few innovative schemes. More-over, new social housing construction was not revived after the regime change, though there were some temporary and financially limited government attempts to do so.

External data and methodology

We aim to reveal whether the tenure-based structure of housing stock (main inde-pendent variable) has an impact on diversity and innovations in the supply of hous-ing subsidies and options supporting ageing in place for the elderly (dependent variable). The typologies of both dependent and our main independent variable were presented in previous section of the paper.

The two welfare models categorised as 'developed' are in countries that have a social-market and social-democratic housing systems (Germany, Austria), i.e. in countries with a substantial share of either private or social rental housing out of the total housing stock. The semi-developed model was found in a country with a mixed housing system (Italy), while the basic model was found only in countries with a mixed (CR, Poland) or a liberal (Slovakia, Slovenia, Hungary) housing sys-tem. This may hypothetically be a sign of a link between the housing system and the diversity and scope of innovations in the supply of housing subsidies and options for the elderly. However, the specific welfare type of a country may be determined by factors other than housing tenure, such as the country's macro-eco-nomic situation or demographic ageing.

The major source of data for other external factors that may hypothetically impact on our dependent variable, and therefore should be included in our analysis as control variables, was Eurostat statistics on macro-economic performance (such as the real GDP growth rate and GDP per capita in purchasing power standards, PPS), on incomes and income inequalities (the at-risk-of-poverty rate among elderly people, the median relative income of elderly people,[4] income inequality among older people,[5] the aggregate replacement ratio[6] and the aggregate replace-ment ratio including other social benefits,[7] gross pension replacement rates by earn-ings,[8] and net pension replacement rates by earnings[9]), on social expenditures (social protection benefits as a percentage of GDP, social benefits other than social transfers in kind paid as a percentage of GDP, social contributions as a percentage of GDP,[10] and expenditure on pensions as a percentage of GDP), on demographic data (the share of elderly with low educational attainment, natural increase per 1000 inhabitants, the balance of migration per 1000 inhabitants,[11] the total fertility rate,[12] life expectancy at birth, the share of the population aged 0–14, the share of the population aged 15–64, the share of the population aged over 65, the share of the population aged over 80, the old-age-dependency ratio,[13] the share of single households, the share of elderly people with low educational attainment[14]) and on housing availability (the number of dwellings per 1000 inhabitants around the year

2000). The final source of data was the EU-SILC 2009 survey, from which we obtained data on housing costs, the housing cost-to-income ratio[15] among elderly and inequality in this ratio.[16]

Table 2 presents an international comparison of the eight countries in our sample according to several external factors. It is clear from Table 2 that the higher the GDP per capita (country economic wealth), the higher the old-age-dependency ratio (the acuteness of the problem of population ageing), the greater the inequalities in incomes and housing expenditures among the elderly (the gap between poor and rich seniors), the greater is the chance that the country's model of housing subsidy and options for the elderly is assessed as 'developed'. Table 2 clearly demonstrates how important is the inclusion of control variables (external factors) into the cause–effect analysis between housing and welfare, and how important it is to consider these to decrease the threat of false or spurious correlation.

Our main hypothesis, developed from the research question mentioned above, is the following: the housing system (the tenure-based structure of housing stock) has a significant impact on diversity and innovations in the supply of housing subsidies that support ageing in place and the supply of independent housing options available to the elderly in the sample of selected countries, after controlling for the effects of other external factors.

Two methods were applied to perform our analyses. It was necessary to deal with the small number of cases (only eight surveyed countries), so we chose to use multidimensional scaling (MDS) and QCA. Despite the selection of methods recommended for use in qualitative (or a low-sample) data analysis we should note that any quantitative analysis on such a small sample of countries is affected by sample bias, and consequently, the results should be taken with caution.

MDS falls within the more general category of methods that are used for multivariate data analysis, so it is closely related to other statistical methods such as principle components analysis, correspondence analysis and cluster analysis. MDS allows researchers to gain insight into the underlying structure of relations between entities (countries in our case) by providing a visual (geometrical) representation of these relations. MDS is characterised 'by the generality of the type of observed relations which can be submitted to the data analysis on the one hand, and by the specificity of the type of geometrical representation of these relations on the other hand' (Van Deun & Delbeke, 2000).[17] The advantage of MDS is that it allows for the analysis of any kind of distance or similarity matrix. In comparison to factor analysis it does not require that the underlying data are distributed as multivariate normal and that the relationships are linear. Factor analysis tends to extract more factors (dimensions) than MDS. As a result, MDS often yields more readily interpretable solutions.

We applied MDS using a PROXSCAL algorithm, which is considered to be more reliable than an ALSCAL algorithm. The degree of correspondence of the distances between points (in our case countries) implied by the MDS charts and the original matrix of distances is measured with a stress function. The higher the value

Table 2. The basic macro-economic, demographic and other selected indicators of the surveyed countries.

Country	GDP per capita in PPS (EU 27 = 100)	Social protection benefits as a % of GDP	Old-age-dependency ratio	Income inequality among the elderly	At-risk-of-poverty rate among the elderly	Average housing affordability among elderly households	Inequality in housing affordability among elderly households	Number of dwellings per 1000 inhabitants around the year 2000
Austria (AT)	125.0	29.9	25.7	3.5	15.1	16.5	14.5	405.0
Czech Republic (CZ)	82.0	19.8	20.9	2.3	7.2	28.0	13.1	427.0
Germany (DE)	116.0	30.1	30.9	3.7	15.0	28.2	20.5	467.0
Hungary (HU)	65.0	23.0	23.8	2.6	4.6	23.5	12.2	399.0
Italy (IT)	104.0	28.4	30.6	4.7	19.6	14.1	11.2	479.0
Poland (PL)	61.0	19.4	18.9	3.4	14.4	24.4	13.8	307.0
Slovakia (SK)	73.0	18.3	16.7	2.4	10.8	28.2	12.9	310.0
Slovenia (SI)	87.0	23.8	23.6	3.5	20.0	16.1	12.0	358.0

Gross domestic product (GDP) is a measure of economic activity. It is defined as the value of all goods and services produced less the value of any goods or services used in their creation. The volume index of GDP per capita in purchasing power standards (PPS) is expressed in relation to the European Union (EU-27) average set to equal 100. If the index of a country is higher than 100, the country's level of GDP per capita is higher than the EU average and vice versa. Basic figures are expressed in PPS, i.e. a common currency that eliminates the differences in price levels between countries allowing a meaningful volume of comparisons of GDP between countries. Please note that the index, calculated from PPS figures and expressed with respect to the EU-27 = 100, is intended for cross-country comparisons rather than for temporal comparisons.

Social protection benefits are social benefits (other than social transfers in kind) paid by the general government.

The old-age-dependency ratio is defined as the number of persons aged 65 and over expressed as a percentage of the number of persons between the ages of 15 and 64.

Income inequality among elderly (persons aged 65 and over) is the ratio of the total income received by the 20% of the population with the highest income (top quintile) to that received by the 20% of the population with the lowest income (lowest quintile). Income must be understood as equivalised disposable income.

The at-risk-of-poverty rate among elderly is the share of persons with an equivalised disposable income, before social transfers, below the risk-of-poverty threshold, which is set at 60% of the national median of equivalised disposable income (after social transfers). Retirement and survivor's pensions are counted as income before transfers and not as social transfers.

Average housing affordability among elderly households is the average ratio of household housing expenditures to net household incomes.

Inequality in housing affordability among elderly households is the difference in the ratios of household housing expenditures between elderly households with the highest income (5th quintile) and the lowest income (1st quintile).

Source: Eurostat statistics, EI-SILC 2009, Housing Statistics in the EU, and the HELPS survey.

of the stress, the higher the degree of distortion of the visual distances between objects (countries) and the original distance matrix. The so-called Kruskal Stress (or Stress-I) is probably the most frequently used stress measure. Kruskal Stress values are considered excellent (i.e. minimum distortion) if they are in the range between 0 and 0.025, good if they are in the range between 0.025 and 0.05, and admissible in the range between 0.05 and 0.1. If the Kruskal Stress value is greater than 0.2, the MDS results should not be used.

Two important facts about MDS figures should be emphasised. First, the interpretation of axes in resulting figures is not straightforward[18] and the orientation of the picture is arbitrary. All that matters is the distance between points in the figure. In other words, the results from the MDS figure are interpreted based on the number and content of the clusters. Clusters are groups of items or points (countries in our case) that are closer to each other than to other items or points in the figure. Second, MDS does not measure causality, but only an association between different variables. The results of MDS cannot therefore answer our research question but only confirm or refute the existence of associations between housing system and housing-related welfare for the elderly.

QCA is a new method used in comparative qualitative sociology or comparative politics. QCA attempts to bridge the worlds of quantitative and qualitative (case-oriented) researchers. It allows causal conditions to be studied even if the causality is very complex and involves different combinations of causal conditions capable of generating the same outcome. It is a powerful tool for theory testing and allows elaboration of new assumptions or theories (Rihoux, 2006). QCA can be applied to research designs of small or intermediate size, such as samples between 5 and 50 cases. The disadvantage of using QCA is that, for a small sample research design, the number of logically possible combinations and conditions quickly overwhelms the number empirically observed combinations (Rihoux, 2006). Besides, there could be many combinations of independent variables entering into the model, for which the value of the dependent variable is not known (outcome value). Such combinations are then omitted. As a result, the number of independent variables has to be limited.

With the 'crisp-set' QCA (csQCA), the original application of QCA, the variables can only have two values: 0 and 1 (a binary variable). Unfortunately, in its original form the technique cannot be used to assess the effect of the relative strengths of the independent variables (as they can only have two values). To overcome the issue of binary variables and enable use of continuous variables (but not, however, categorised variables), extended forms of QCA were developed: multivalue QCA (mvQCA) and fuzzy-set QCA (fsQCA).

QCA tries to overcome the small sample problem by analysing all logically possible combinations of independent variables. The independent variables should be defined according to the theory being examined. Possible combinations of independent variables are contrasted with empirically observed outcomes (the values of the dependent variable) and the number of combinations leading to the same output is

then reduced using the rules of Boolean algebra. QCA rests on combinatorial rather than additive logic. The goal of QCA is to identify which combinations are crucial for distinguishing one outcome from another (Soulliere, 2005). Due to the limited number of cases (surveyed countries) we decided to apply csQCA.

It is important to stress that neither MDS nor QCA are methods designed for statistical testing of a hypothesis (or at least not in the form familiar in other quantitative methods, such as ordinary least square (OLS) analysis). However, we can use MDS to find clusters of countries that do or do not correspond to the categories of our dependent variable. QCA was employed to uncover possible combination(s) of independent variables and the relationships between them that would result in the expected state of the dependent variable.

Additionally, we performed a sensitivity analysis: when using MDS we started with the 'basic' variable and we successively added further variables to see whether and how the newly added variables altered the 'map' (clusters of countries and distances between countries) created by MDS analysis. If the impact was negligible, then the variable was omitted from further analysis (the same held for variables whose addition led to meaningless results, i.e. with which it was impossible to identify any clusters of countries). A similar sensitivity analysis was conducted with the use of QCA.

Main findings

In this section we present the main findings from our complex analyses aimed at finding whether the tenure structure of the housing stock has a significant impact on the diversity and scope of innovations in subsidies promoting ageing in place and the supply of independent housing options available to the elderly in the surveyed countries, after controlling for the effects of other relevant external factors.

In the first step, we ran MDS analysis using the following variables: GDP per capita, the old-age-dependency ratio and income inequality among the elderly. We assumed that these variables (the economic wealth of a country, the acuteness of the problem of population ageing and the degree of need to mitigate income inequality among the elderly) have the biggest influence on the scope and innovativeness of the supply of subsidies and housing options for the elderly.

Second, we tried to replace each variable with another one of the 'same kind' (e.g. GDP per capita in PPS with other variables measuring economic performance like the GDP growth rate, public debt as a percentage of GDP, the unemployment rate, HICP, the median relative income of elderly people, etc.) to obtain a lower Stress-I test value. However, none of these replacements produced a better solution.

Figure 2 shows that the resulting clusters of countries do not correspond to the ranking of countries into different models according to the diversity and innovativeness of their housing subsidies and options for the elderly as specified above (i.e. developed, semi-developed and basic model). However, when we added a
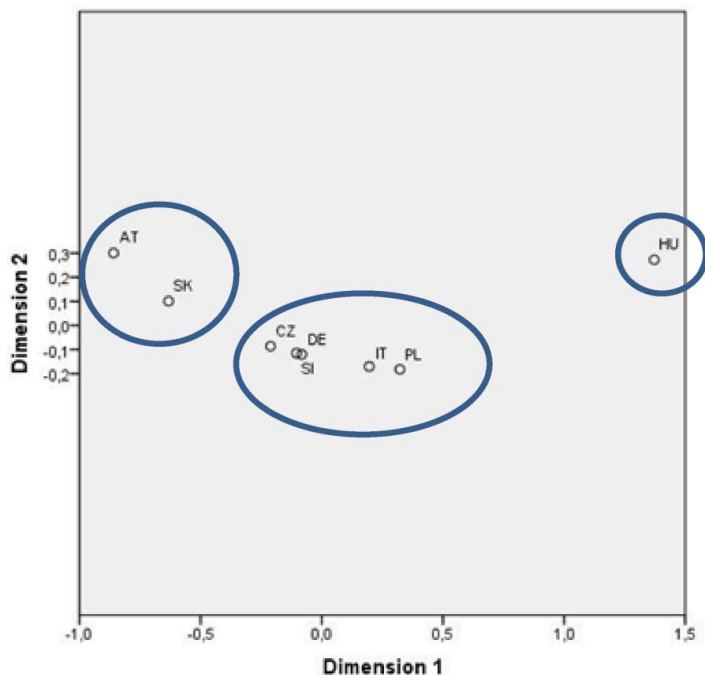
Figure 2.   Groups of countries according to GDP per capita in PPS (EU 27 = 100), the old-age-dependency ratio and income inequalities among the elderly.
Note: multidimensional scaling, PROXSCAL procedure in SPSS, Stress-I = 0.03042.
Source: Authors' calculations, Eurostat statistics, EU-SILC 2009 and HELPS survey.

variable representing the housing system (homeownership rate)[19] to the existing set of variables the situation changed substantially (Figure 3). We were able to identify one cluster consisting of Austria (AT) and Germany (DE) and a cluster consisting of Hungary (HU). Clusters of countries between these two 'poles' slightly differ from our categorisation: Italy (IT) and the Czech Republic (CZ) represent one cluster instead of Italy (IT) being treated as a separate cluster; and Slovakia (SK) probably represents a separate cluster rather than being in one cluster together with the Czech Republic (CZ), Poland (PL) and Slovenia (SI). However, the housing system variable significantly re-shaped the clusters of countries, and the new cluster results are more consistent with our pre-specified categorisation. Moreover, after including a variable representing the housing system the Stress-I test value of the MDS solution was lower than it was with the previous solutions.

Finally, we conducted a sensitivity analysis by replacing the homeownership rate with each of the remaining independent variables mentioned above that had the potential to improve the cluster solution. In almost every case, the other solutions
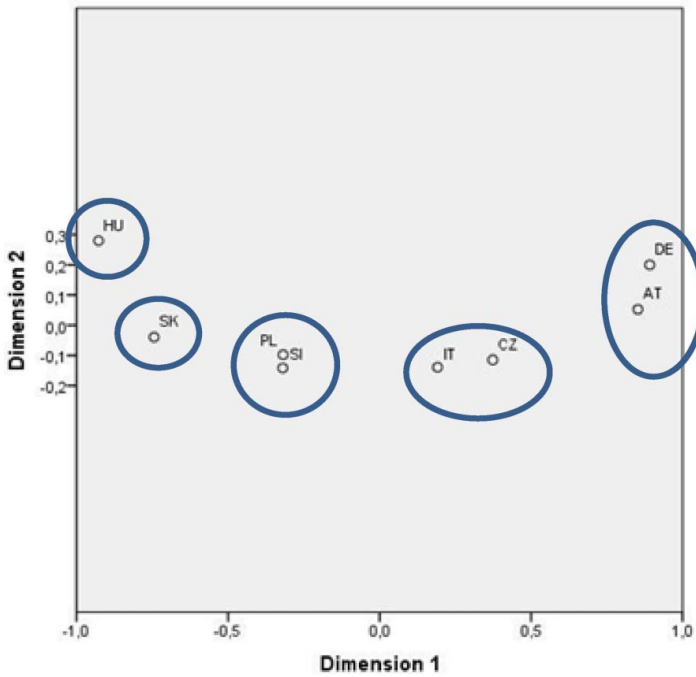
Figure 3.   Groups of countries according to GDP per capita in PPS (EU 27 $=$ 100), the old-age-dependency ratio, income inequalities among the elderly and housing tenure (homeowner-ship rate).
Note: multidimensional scaling, PROXSCAL procedure in SPSS, Stress-I $=$ 0.02146.
Source: Authors' calculations, Eurostat statistics, EU-SILC 2009 and HELPS survey.

did not match the lower Stress-I test value than the solution with the housing tenure variable, and/or they resulted in the clusters being less consistent with our categorisation of models. However, there was one important exception: the share of elderly people living as single adults. We ran the MDS on GDP per capita in PPS, the old-age dependency ratio, income inequalities among the elderly and the share of elderly living as single adults. This combination of variables: (1) led to a significant improvement of the Stress-I test values and (2) brought the resulting clusters of countries even closer to our pre-specified categorisation than the solution with housing tenure (Figure 4). Consequently, despite the positive effect of housing tenure on the 'expected' MDS clustering of countries, we were unable to make any final conclusion and had to employ QCA.

Our hypothesis was tested using csQCA. Both the dependent and independent variables were entered into the analysis as dummies (1 – true; 0 – not true). For our dependent variable, countries were sorted into two groups. The first group consisted
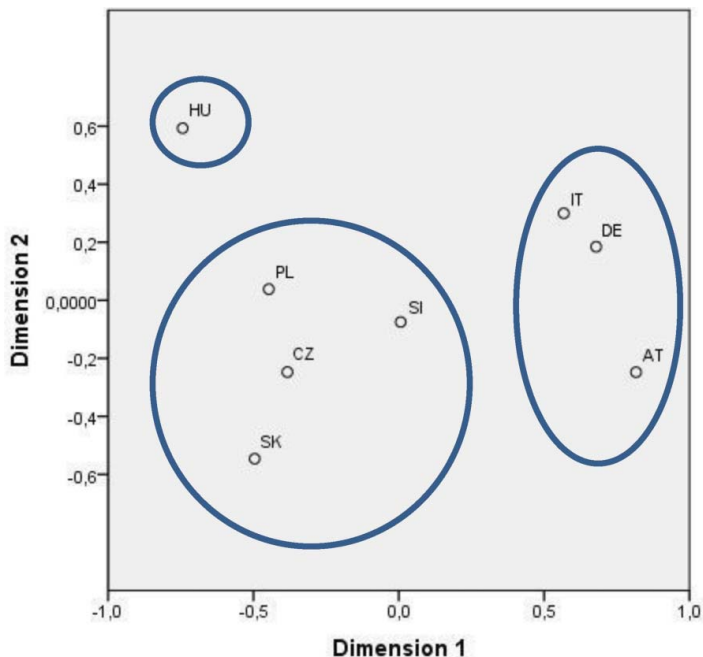
Figure 4.   Groups of countries according to GDP per capita in PPS (EU 27 = 100), the old-age-dependency ratio, income inequalities among the elderly and the share of elderly living as single adults.
Note: multidimensional scaling, PROXSCAL procedure in SPSS, Stress-I = 0.01197.
Source: Authors' calculations, Eurostat statistics, EU-SILC 2009 and HELPS survey.

of countries with a developed model (AT, DE), the dependent variable having a value equal to one, and in the second group of countries (the rest of the surveyed countries) the value of the dependent variable was equal to zero. GDP per capita was assumed to be one in AT, DE and IT, and zero in the other countries. Similarly, the old-age-dependency ratio was assumed to be one in AT, DE and IT, and zero in the other countries. Income inequality was assumed to be one in AT, DE, IT, PL and SI, and zero in the other countries. The old-age pension in PPS per capita was assumed to be one in AT, DE and IT, and zero in the other countries. The share of elderly living as single adults was assumed to be one in AT, CZ, DE, IT and SI, and zero in the other countries. The liberal housing systems (HU, SK and SI) obtained a value equal to one; the other countries obtained a value equal to zero.[20] For the initial solution we selected those independent variables that were supposed to be associated the most with our dependent variable, based on our previous analyses.

However, the impact of other independent variables was also tested during the sensitivity analysis (see below).

The intermediate solution calculated using fsQCA 2.0 software is presented in Table 3 and shows that the supply of housing subsidies and options for the elderly depends on the share of elderly living as single adults, the level of GDP per capita, the old-age-dependency ratio, income inequality among the elderly, and the housing system. More precisely, a large share of elderly living as single adults, high GDP per capita, a high old-age-dependency ratio, high income inequality among the elderly population and a low share of owner-occupied housing, when present simultaneously, cause a broader and more innovative supply of housing subsidies and options for the elderly.

Table 3. Crisp-set QCA solution for the supply of housing options (dependent variable), the share of elderly living as single adults, tenure, income inequality among the elderly, the old-age-dependency ratio and GDP per capita in PPS (independent variables).

```
************************
*TRUTH TABLE ANALYSIS*
************************

File:  D:/Sunega/HELPS/vyplnene_dotazniky/preliminary/analyzy/clanek/data_h4_sel_qca_dummy2_1.csv
Model: grproduct1 = f(lsa, tenoo1, iioop1, oadr1, gdppcpps1)

 Rows:      1

     |

 Algorithm: Quine-McCluskey
       True: 1
   0 Matrix: 0L
Don't Care: -

--- INTERMEDIATE SOLUTION ---
frequency cutoff: 1.000000
consistency cutoff: 1.000000
Assumptions:
lsa (present)
~tenoo1 (absent)
iioop1 (present)
oadr1 (present)
gdppcpps1 (present)

                                      raw        unique
                                   coverage    coverage    consistency
                                   ---------   ---------   -----------
lsa*~tenoo1*iioop1*oadr1*gdppcpps1  1.000000   1.000000    1.000000
solution coverage: 1.000000
solution consistency: 1.000000
```

Note: csQCA, fsQCA software, http://www.u.arizona.edu/~cragin/fsQCA/software.shtml.
Source: Authors' calculations, EUROSTAT statistics, EU-SILC 2009 and HELPS survey.

Consequently, our hypothesis has been partially confirmed. A larger share of rental housing in the housing system of a country leads to a more developed model of housing subsidies and options for the elderly, but only when the country simultaneously has a larger share of elderly living as single adults, greater wealth, a higher old-age-dependency ratio and higher income inequality among the elderly. Unfortunately, analysis on such a small sample of countries cannot test the significance of the influence of each of the factors separately. Despite this limitation, we can conclude that our analysis confirmed that tenure-based structure of housing stock is a significant determinant of a broader and more innovative supply of housing subsidies and options for the elderly, even after the control for the impact of other relevant external factors.[21]

The findings were confirmed by a sensitivity analysis, i.e. by re-running the analysis with a differently coded dependent variable or the inclusion of other independent variables. If we assume that not only AT and DE rank among the countries with a broad supply of housing subsidies and options for the elderly, but also IT (i.e. the value of the dependent variable for IT would be one, instead of zero, ceteris paribus), the results of the analysis would not change.

The sensitivity analysis showed that there are two independent variables that would also be significant when included in the model: per capita old-age pensions and the share of social protection benefits out of GDP. Both of them are closely related to the GDP variable and therefore were not included into the final solution presented in Table 3. However, even when included in the analysis, the housing system variable would remain significant in all cases. By contrast, many other variables proved to be insignificant, such as the share of housing allowance recipients, the net pension replacement rate by earnings, the gross pension replacement rate by earnings, housing affordability inequality and many others.

Conclusion

We tested a hypothesis postulating that housing systems have a significant impact on diversity and innovations in the supply of housing subsidies that support ageing in place and the supply of independent housing options available to the elderly, after controlling for the effects of other external factors. The nature of this supply was researched in the eight European countries, which were categorised into three main models: developed, semi-developed and basic. The housing system was basically defined by country housing tenure structure and, consequently, the following categories of housing system were identified: social-market, social-democratic, mixed and liberal.

The goal of our research was inspired by the discussion on the cause–effect mechanism between housing systems and welfare, although 'welfare' was strictly limited to housing-related issues for the elderly in our analysis. Such restriction substantially cuts the number of needed control variables and, consequently, decreased

the threat of spurious or false correlation. We applied the method of QCA that enabled the analysis of causal relations between housing systems and welfare in a small cross-section of samples, simultaneously controlling for the effects of relevant external factors.

Our hypothesis was partially confirmed. A larger share of rental housing in a country's housing system (i.e. other than a liberal housing system) leads to a more diverse and innovative supply of housing subsidies and options for the elderly, but only when the country simultaneously has a larger share of elderly living as single adults, greater wealth, a higher old-age-dependency ratio and higher income inequality among the elderly. We can conclude that our analysis confirmed that the tenure-based structure of housing stock is a significant determinant of a character of supply of housing subsidies and options for the elderly. However, due to the limited number of countries in our sample the results should be taken with caution. Despite the large contextual differences among countries included, the sample is not sufficiently large to assume fully reliable results. Consequently, the results need to be verified on a larger sample of countries in future comparative research.

The results of our analysis have important policy implications. Some practices effectively implemented in one environment (a social-democratic or a social-market housing system) cannot necessarily function effectively in another environment (a liberal housing system). Additionally, the scope of housing subsidies and options available to the elderly may be systematically restricted in liberal housing systems and the demand for accommodation in institutional care facilities may remain constantly high there. The housing system itself may thus become an important barrier to the successful implementation of policy promoting ageing in place.

The significant impact of housing systems on the diversity and level of innovations in the supply of housing subsidies and options for the elderly may be explained in different ways. The explanation may follow the interpretations made in previous studies linking housing systems and general welfare, such as those made by Doling and Elsinga (2012). Restriction on the scope of our analysis opened, however, other explanations: such as the role of housing policy tools and how they are introduced and assessed. Such tools are often assessed by governments and their audit bodies against the imperatives of efficiency, equity and effectiveness (Barr, 1998). There are several studies that have evaluated the efficiency of housing adaptation in support of ageing in place when contrasted with residential (institutional) care facilities. Generally, they suggest that home adaptations to support ageing in place lead to reduced public expenditures because seniors spend less time in hospital and move to more expensive institutional care at a later age (Heywood, 2001; Pleace, 2011). However, Lansley et al. (2004, p. 480) argue that assistive technologies and adaptations are effective only when provided with a view to long-term rather than short-term use. And it is much less possible to guarantee long-term use of devices and modifications in owner-occupied housing than it is in the case of both social and private rental housing.

The second problem represents the equity of public support. While the allocation of adapted dwellings to eligible households can be explicitly specified in contracts with private landlords in the social-market system (including the condition for a tenant, such as having low income and low wealth) and social landlords focus allocation of dwellings to people with low incomes in social-democratic systems, the targeting of subsidies to homeowners in liberal systems is much more complicated. There might be a large share of elderly called 'income poor, equity rich' in a liberal system, and these people may have a high level of housing wealth. The extension of public subsidies would further increase the wealth of such households and, moreover, that wealth would be subject to inheritance by their relatives. Consequently, in a liberal system public authorities face a dilemma when choosing to support 'wealthy' people through the allocation of public grants.

The impossibility of guaranteeing the long-term use of the service, together with problems relating to fair and effective targeting, makes owner-occupied housing tenure less suitable for potential public subsidies promoting ageing in place. This may, consequently, decrease the variability of available public subsidies and, finally, restrict the choice of eligible households.

Acknowledgements

Notes

1. We would like to thank, in particular, Štěpánka Pfeiferová, Martina Mikeszová and Tomáš Dvořák at the Institute of Sociology, Academy of Sciences of the Czech Republic, for their extensive work on preparing the survey and the collection of data. We would also like to thank all the HELPS project partners and their external experts for very kindly and conscientiously performing the time-demanding work of completing the questionnaires. The names of all the partners and collaborators are listed in Pfeiferová et al. (2013).
2. Implemented under the Central Europe programme and supported by the European Regional Development Fund.
3. The European Union Statistics on Income and Living Conditions (EU-SILC) datasets 2005–2009 were made available on the basis of contract no. EU-SILC/2007/16 between the European Commission, Eurostat and the Institute of Sociology of the Academy of Sciences of the Czech Republic.
4. The indicator is defined as the ratio between the median equalised disposable income of persons aged 65 or over and the median equalised disposable income of persons aged between 0 and 64.
5. The ratio of total income received by the 20% of the population with the highest income (highest quintile) to that received by the 20% of the population with the lowest income (lowest quintile). Income must be understood as equalised disposable income.

6. The ratio of income from pensions of persons aged between 65 and 74 and income from work of persons aged between 50 and 59.
7. The indicator is defined as the ratio of the median individual gross pensions of people in the 65–74 age category relative to the median individual gross earnings of people in the 50–59 age category including other social benefits.
8. The gross replacement rate shows the level of (gross) pensions in retirement relative to (gross) earnings when working.
9. The net replacement rate shows the level of (net) pensions in retirement relative to (net) earnings when working.
10. Social contributions are divided into actual social contributions and imputed social contributions. Actual social contributions include employers' actual social contributions, employees' social contributions and social contributions by self-employed and non-employed persons. Imputed social contributions represent the counterpart to social benefits (less eventual employees' social contributions) paid directly by employers.
11. The crude rate of net migration plus an adjustment per 1000 inhabitants.
12. Number of children per woman.
13. This indicator is defined as the projected number of persons aged 65 and over expressed as a percentage of the number of persons aged between 15 and 64.
14. The indicator is defined as the percentage of people aged over 65 with an education level according to the ISCED (International Standard Classification of Education) of 2 or less. ISCED levels 0–2: pre-primary, primary and lower secondary education.
15. The ratio is the share of average household housing expenditures of the elderly on their average net household income.
16. The variable is defined as differences in the ratio of households of elderly with the highest income (fifth quintile) to those with the lowest income (first quintile).
17. MDS is a way to rearrange objects in an efficient manner, so as to arrive at a configuration that best approximates the observed distances.
18. In some cases, we can interpret the axes as in principal components of factor analysis. However, in general, the MDS axes simply define the relative positions of the objects in multidimensional space so as to represent the observed (dis)similarities ((dis)similarity matrix).
19. Our typology of housing systems was substituted in MDS analyses by its best approximation in the form of continuous variable: the homeownership rate. The application of MDS on categorised variables can lead to the loss of information.
20. csQCA is designed to work with binary variables. As there is no possibility to analyse categorised variables by QCA, our typology of housing systems was converted into one binary variable (liberal housing system versus all other housing systems).
21. It is assumed that the future post-socialist states will have a higher relative GDP (per PPS), a higher old-age-dependency ratio and higher income inequality among the elderly. The other necessary conditions will therefore very probably also be fulfilled by post-socialist states in the next few decades.

References

Barr, N. (1998). *The economics of the welfare state*. London: Weidenfeld and Nicolson.

Boelhouwer, P.J., & van der Heijden H.M.H. (1992). *Housing systems in Europe*. Delft: Delft University Press.

Castles, F.G. (1998). The really big trade-off: Home ownership and the welfare state in the new world and the old. *Acta Politica, 33*(1), 5–19.

Doling, J., & Elsinga, M. 2012. Housing as income in old age. *International Journal of Housing Policy, 12*(1), 13–26.

Doling, J., & Horsewood, N. 2011. Home ownership and pensions: Causality and the really big trade-off. *Housing, Theory and Society, 28*(2), 166–182.

Donner, Ch. (2000). *Housing policies in the European Union*. Vienna: Christian Donner.

Donner, Ch. (2006). *Housing policies in Central Eastern Europe*. Vienna: Christian Donner.

Esping-Andersen, G. (1990). *The three worlds of welfare capitalism*. Cambridge: Polity.

Fenger, H.J.M. (2007). Welfare regimes in Central and Eastern Europe: Incorporating post-communist countries in a welfare regime typology. *Contemporary Issues and Ideas in Social Sciences, 3*(2), 1–30.

Genet, N., Boerma, G. W., Kringos, D.S., Bouman, A., Francke, A.L., Fargeström, C., ... Devillé, W. (2011). Home care in Europe: A systematic literature review. *BMC Health Services Research, 11*, 207. doi:10.1186/1472-6963-11-207

Ghekiere, L. (1992). *Les politiques du logement dans l'Europe de demain*. Paris: UNFOHLM.

Hegedüs, J., Lux, M., & Teller, N. (Eds.). (2012). *Social housing in transition countries*. New York: Routledge.

Heywood, F. (2001). *Money well spent: The effectiveness and value of housing adaptations*. Bristol: Policy Press.

Kemeny, J. (1981). *The myth of home ownership: Private versus public choices in housing tenure*. New York: Routledge.

Kemeny, J. (2005). 'The really big trade-off' between home ownership and welfare: Castles' evaluation of the 1980 thesis, and a reformulation 25 years on. *Housing, Theory and Society, 22*(2), 59–75.

Lansley, P., Mc Creadie, C., Tinker, A., Flanagan, S., Goodacre, K., & Turner-Smith, A. (2004). Adapting the homes of older people: A case study of costs and savings. *Building Research and Innovations, 32*(6), 468–483.

Lennartz, C. (2011). Power structures and privatization across integrated rental markets: Exploring the cleavage between typologies of welfare regimes and housing systems. *Housing, Theory and Society, 28*(4), 342–359.

Lowe, S., & Tsenkova, S. (Eds.). (2003). *Housing change in East and Central Europe. Integration or fragmentation?* London: Ashgate.

Lux, M. (2009). *Housing policy and housing finance in the Czech Republic during transition*. Amsterdam: Delft University Press.

Lux, M., & Sunega, P. (2012). New social housing strategies in post-socialist states: Effectiveness, efficiency, and sustainability. In J. Hegedüs, M. Lux, & N. Teller (Eds.), *Social housing in transition countries* (pp. 307–330). New York: Routledge.

Milligan, C. (2009). *There's no place like home: Place and care in an ageing society*. Farnham: Ashgate.

Pastalan, L.A., & Schwarz, B. (2001). *Housing choices and wellbeing of older adults*. New York, NY: The Haworth Press.

Pfeiferová, Š., & Havlíková, J. (forthcoming). Predictors of availability and variability of social care services for the elderly: Examination of systems of social care in the central-european countries. *Journal of Social Service Research* (in review).

Pfeiferová, Š., Lux, M., Dvořák, T., Havlíková, J., Mikeszová, M., & Sunega, P. (Eds.). (2013). *WP3: Main findings report*. Prague: Institute of Sociology AS CR.

Pleace, N. (2011). *The costs and benefits of preventative support services for older people*. York: The Centre for Housing Policy.

Reinprecht, Ch. (2007). Social housing in Austria. In Ch. Whitehead & K. Scanlon (Eds.), *Social housing in Europe* (pp. 35–43). London: LSE.

Rihoux, B. (2006). Qualitative comparative analysis (QCA) and related systematic comparative methods. *International Sociology, 21*(5), 679–706. doi:10.1177/0268580906067836

Soulliere, D. (2005). Pathways to attrition: A qualitative comparative analysis of justifications for police designations of sexual assault complaints. *The Qualitative Report, 10*(3), 416–438.

Van Deun, K., & Delbeke, L. (2000). *Multidimensional scaling*. Leuven: University of Leuven. Retrieved from http://www.mathpsyc.uni-bonn.de/doc/delbeke/delbeke.htm

Vasunilashorn, S., Steinmann, B.A., Liebig, P.S., & Pynoos, J. (2012). Aging in place: Evolution of a research topic whose time has come. *Journal of Aging Research, 2012*: 1–6. doi:10.1155/2012/120952

Whitehead, Ch., & Scanlon, K. (2007). *Social housing in Europe*. London: LSE.