

## The Two Dimensions of Housing Inequality in Europe Are High Home Ownership Rates an Indicator of Low Housing Values?

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**Abstract:** Exploring inequalities in home ownership as an important component of household wealth contributes to the understanding of social stratification in modern societies. We argue that inequalities in housing are not only manifested by differential access to home ownership, but also by differences in housing values, a somewhat neglected aspect in research hitherto. Applying data from the “Survey of Health, Ageing and Retirement in Europe” (SHARE),<sup>1</sup> we compare home ownership rates and housing values between 13 European countries. Our results suggest that housing inequality is indeed a two-dimensional phenomenon. Most surprisingly, migration status has a negative impact on the probability of home ownership in European countries, but not on the mean housing value. In addition, we exploratively study the relationship between these two dimensions of housing inequality. Our analyses show a negative though not significant relationship between home ownership rates and housing values.

**Keywords:** Housing · Wealth · Social Inequality · Europe · SHARE

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## 1 Introduction

Studying home ownership<sup>2</sup> is of major sociological importance, as social inequalities are not only defined by educational, occupational or income inequalities, but also in terms of real property (Kurz/Blossfeld 2004; Lewin-Epstein et al. 1997). Home ownership is an important purpose in life for many people. Frequently mentioned reasons for the desire to purchase residential property are independence from the landlord, capital investment, the possession of a house as a long-lasting value which can also be transferred to the children, the house as a kind of secure old-age provision<sup>3</sup> as well as long-term protection against inflation and a home of one's own as a means to achieve a higher quality of life (Faller et al. 2001; LBS Research 2004). Home ownership can also serve as a symbol of status and success (cf. Constant et al. 2007).

Various studies have revealed that residential property is an essential factor for wealth accumulation (see Brandolini et al. 2004; Grabka/Frick 2007; Skopek et al. 2012; Sierminska et al. 2007). Yet there are major differences in home ownership rates in Europe, these varying between 35 percent in Switzerland and 83 percent in Spain (Euroconstruct/ifo 2009). The distribution of home ownership in general, but also the analyses of socio-economic determinants that affect the probability of becoming a homeowner, have received the attention of a number of researchers (e.g. Kurz/Blossfeld 2004; Wagner/Mulder 2000). We argue that the differentiation between owners and non-owners is only one dimension of social inequality in housing. Being a homeowner does not necessarily imply that a household is wealthy, as the value of a house heavily depends on the location, the social environment (neighbourhood) as well as the quality of the residential property (e.g. Besley/Mueller 2012; Li/Brown 1980). All these factors are reflected in the housing value. Thus, in order to capture social inequality patterns in home ownership in their entirety, it is unavoidable to also take into account the real estate value, which has been a somewhat neglected aspect in research on housing in the social sciences so far (exceptions: Krivo/Kaufman 2004; Lewin-Epstein et al. 1997).

In our paper, we will account for both of the above-mentioned dimensions of social stratification in housing by analysing whether various socio-economic household characteristics differently affect 1) the probability of being a homeowner and 2) the value of housing within different European countries. In addition to that, we are 3) interested in the relationship between these two dimensions of social stratification in housing. Our contribution is thus twofold: Firstly, we provide a broad international comparison of home ownership rates and housing values, and secondly we explore the relationship between those two dimensions of housing (inequality).

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<sup>2</sup> The paper is interested in studying owner-occupied home ownership. The expressions "residential property", "home ownership" and "own homes" are used synonymously. The same applies to the expressions "housing value", "real estate value" and "value of residential property".

<sup>3</sup> Some authors (Castles 1998; Kemeny 1981) also argue that there might be a trade-off between the expansion of home ownership and the generosity of old-age pensions within countries.

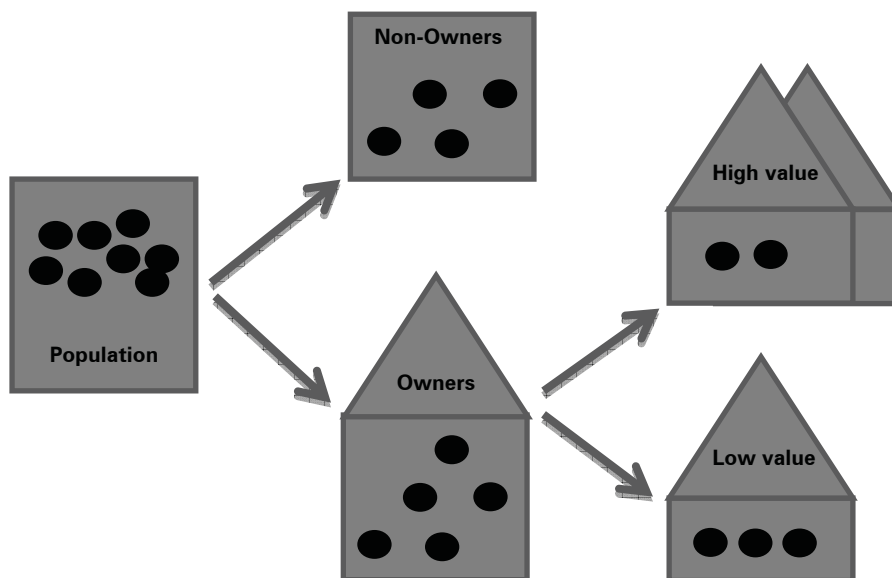
The population on which we focus is elderly Europeans because it is at this stage of life that residential property is particularly common in all European societies (Sierminska *et al.* 2007). As the elderly are generally confronted with a considerable fall in their income when they retire, their socio-economic position can only be adequately determined if one additionally takes wealth into account (e.g. Spilermann 2000). The financial position of homeowners whose housing is free from debts is strengthened by the fact that they do not need to invest money to rent a house or flat, so that they can spend these resources on consumption or savings (Wolff *et al.* 2005: 1076). Considering the ageing of industrialised societies and the growing importance of private pension provision, we assume that wealth and owner-occupied housing as an important part of it will even become more important in future. However, purchasing an apartment or a house can also have negative aspects, especially among the very old (75 years and above). High financial burdens, mobility restrictions and high (transaction) costs when selling residential property are often associated with home ownership (Bourdieu 1998; Häußermann/Petrowsky 1990; Häußermann/Siebel 2000; Sierminska *et al.* 2007). Moreover, in many cases housing is the only noteworthy wealth component of elderly households. As housing wealth is illiquid wealth, it cannot be directly used for consumption. Therefore, elderly homeowners are sometimes described as housing rich, but cash poor (Angelini *et al.* 2009; Venti/Wise 2000).

In the following section, we will give an overview of the current research on socio-economic variables affecting the probability of home ownership and housing values. For our statistical analyses, we use the second wave of the Survey of Health, Ageing and Retirement in Europe (SHARE) that was conducted in 13 countries:<sup>4</sup> Austria, Belgium, the Czech Republic, Denmark, France, Germany, Greece, Italy, the Netherlands, Poland, Spain, Sweden and Switzerland. We apply logistic regressions to analyse household characteristics affecting the chance of being a homeowner, and linear regressions to analyse household characteristics that influence the value of housing among homeowners. We make use of a multi-level model to find out about the relationship between home ownership rates and housing values. Considering housing inequality as a twofold process and analysing it over a broad range of countries will enable us to obtain a better, multidimensional understanding of social inequalities in housing (see Fig. 1).

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<sup>4</sup> Ireland also took part in the second wave of SHARE. However, as imputations are not available for Ireland, we decided to leave it out.

**Fig. 1:** The two dimensions of social stratification in housing



Source: Own design

## 2 Current research and expectations

### *The impact of socio-economic characteristics on home ownership rates and housing values*

Housing is likely to be affected by various individual and household characteristics, such as age, household size, children, family status, education, occupation, income, inheritances, migration status and urbanisation (e.g. Krivo/Kaufman 2004; Kurz/Blossfeld 2004; Lewin-Epstein et al. 1997). The impact of these socio-economic characteristics does not necessarily need to be the same for the two dimensions of housing inequality – home ownership rates and housing values.

In addition, the national institutional settings, characterised by a country's welfare regime, should exert a major influence on its housing situation (see Kurz/Blossfeld 2004). Welfare regimes can be expected to affect the individual chances and incentives to acquire property (e.g. through taxation, housing allowances). Differences in social security systems, especially retirement systems, may affect the need to own a home as a part of private old-age provision (see DeWilde/Raeymaeckers 2008). Whereas Northern welfare states are known for high state-provided social security also for the elderly, home ownership plays a crucial role for old-age provisions in Southern Europe because there is almost no serious state-provid-

ed pension scheme. As a result, in Southern European welfare states residential property is the main if not the only wealth component, while in Northern Europe financial assets are of greater importance (*Sierminska et al.* 2007). In order to capture country-specific differences in home ownership rates and values in our analyses, we will distinguish between Northern, Central and Southern Europe as well as post-socialist countries, following the welfare state typology of *Esping-Andersen* (*Esping-Andersen* 1990). Finally, welfare regimes can also influence the patterns and intensities of social inequalities in housing arising from the above-named socio-economic characteristics.

The lifecycle hypothesis (*Modigliani/Brumberg* 1954) states that wealth grows with advancing age, as people accumulate increasing amounts of wealth throughout their working lives by saving parts of their income in order to keep their consumption level stable over their life course. When entering retirement, they then start “dissaving” (consuming their wealth). We assume that home ownership rates follow a similar pattern (*Artle/Varaiya* 1978). However, different studies have shown that the probability of being a homeowner only starts to decrease significantly from the age of 70 onwards (*Tatsiramos* 2006; *Venti/Wise* 2000). The reasons for this decrease are that the elderly put their homes in their children’s names (e.g. for fiscal reasons) or sell them in case of the loss of the partner through death (*Chiuri/Jappelli* 2010) or to finance the move into an old people’s home or into a smaller (rented) flat (*Häußermann/Siebel* 2000; *Mulder/Wagner* 1998). It is nonetheless remarkable that many elderly retain their homes, which means that they have a high stock of illiquid capital that cannot be used directly for consumption (*Angelini et al.* 2009; *Attanasio et al.* 2011). Regarding our sample of elderly households, the home ownership rate should already be at its peak (c.f. *Scanlon/Whitehead* 2004), and should only slightly start to decrease with age. Given the current (market) value of residential property, we do not see any reason to expect differences over age in our sample. However, processes like “ageing in place” (which might result in age-homogenous residential areas) may result in decreasing housing values as people age. As this most often takes place in suburban areas (*Frey* 2011; *Swiaczny et al.* 2012), we argue that we can control for this effect by differentiating between urban and sub-urban areas in our analysis.<sup>5</sup>

The literature unanimously reports that household composition is crucial for the home ownership situation. Couples and families with children in particular live in their own homes more often compared to singles (*Davidov/Weick* 2011; *Lewin-Epstein/Semyonov* 2000; *Mulder* 2006; *Wagner/Mulder* 2000). In general, the probability of living in one’s own home increases with a growing number of people living in the household, as residential property is often associated with a family-friendly residential area and comfortable living accommodation (*Häußermann/Siebel* 2000; *Mulder/Wagner* 1998). The value of residential property is also found to be posi-

<sup>5</sup> Another phenomenon that might lead to decreasing housing values over age is the process of “asset meltdown”. Yet, so far there is no empirical evidence that this process is actually taking place (see for example *Börsch-Supan et al.*, 2003).

tively influenced by the number of household members (*Lewin-Epstein et al.* 1997). When it comes to the property value, we assume that having a partner also has a positive effect, while we have no clear assumptions for parenthood and household size.<sup>6</sup> Finally, we expect family-related characteristics to be especially important in Southern European welfare states where families have a central influence on the standard of living and therefore also on the home ownership situation (*Esping-Andersen* 1990).

Previous studies have emphasized the significant influence of an individual's educational and occupational status<sup>7</sup> on the transition to home ownership (*Kurz/Blossfeld* 2004; *Wagner/Mulder* 2000). Additionally, the chance of receiving bequests or inheritances increases with higher educational and occupational status, as these individuals often originate from higher-status families (*Blau/Duncan* 1967; *Buchholz* 2008; *Szydlík/Schupp* 2004). Regarding the impact of different welfare state regimes, *Kurz* and *Blossfeld* (2004) were able to show for example that occupational status has a greater impact on the transition to home ownership in liberal welfare states compared to social-democratic regimes. We likewise expect educational attainment levels and income to increase the probability of home ownership as well as the value of residential property. The educational level should be particularly important in countries with a highly standardised, stratified education system and a strong vocational specificity (like Germany and Switzerland), as the impact of formal qualifications on the employment career, and therefore on the potential of wealth accumulation, is especially strong in these countries (*Müller/Shavit* 1998). In addition to that, it we expect that households that received financial gifts or inheritances have a higher probability of being homeowners. Furthermore, if they own a dwelling it might be of higher value as intergenerational transfers enhance the household's wealth position.

In the U.S., people of African-American and Latin-American origin are less likely to own residential property, and if they realise home ownership, their houses are often of low value (*Krivo/Kaufman* 2004; *Lewin-Epstein et al.* 1997; *Parcel* 1982). Although a higher educational background and growing income weaken the negative impact of a migration background on home ownership, different studies show clear evidence that even when controlling for these variables, discrimination on the housing market can still be observed for migrants (*Chiteji/Stafford* 1999; *Horton/Thomas* 1998; *Krivo/Kaufman* 2004). Possible explanations of these findings are migrants' disadvantaged labour market position, the fact that migrants less often receive bequests and inheritances, migrants' information deficit on the local housing market, as well as discrimination against migrants in the credit approval process (*Charles/*

<sup>6</sup> This is because more living space is needed with an increasing number of people living in a household, and at least in multigenerational households more people can help finance the property. However, more people and having children cause higher costs that reduce the financial resources available to purchase residential property, which could have a diminishing effect on the residential property value as well.

<sup>7</sup> Occupational status is not included in our analyses as many people in our sample are already retired and their (former) occupational status is then unknown.

*Hurst 2002; Conley 2003; Krivo/Kaufman 2004; Szydlik/Schupp 2004*). So far, the question of whether this holds true for European countries as well is however unresolved.

Due to the high real estate prices, greater financial resources are needed in cities in order to gain access to home ownership, thus reducing the probability of owning residential property (*Kurz/Blossfeld 2004*). However, if owner-occupied housing has been realised successfully, it should consequently be of higher value in urban communities.

### *Linking home ownership rates to housing values*

In addition to the socio-economic factors that have an impact on home ownership rates and housing values, we are also interested in the relationship between these two dimensions. More precisely, we want to find out if high home ownership rates correlate with high housing values (positive relationship) or if they can only be realized at the cost of low housing values (negative relationship)? As far as we know, this research question has not yet been adequately addressed in social inequality research. We will exploratively approach this question in our study.

Theoretically, both relationships (positive and negative) are possible. Firstly, the socio-economic composition of the group of homeowners may lead to a negative relationship. It might be the case in countries with low ownership rates but high housing values that only a very selective group of better-off households achieves home ownership (*Poggio 2006*). Those would be households, which can also afford high-value housing. If this is the case, the homogeneous composition of this group could explain the high mean housing values in these countries. Likewise, in countries with high home ownership rates, homeowners might be a rather heterogeneous group (everybody has access to housing), which should lead to low mean housing values on the aggregate level, given that a large share of those homeowners cannot afford high-value housing. If we find a negative relationship between home ownership rates and housing values in our analysis, homeowners' socio-economic composition might be a possible explanation for this relationship.

Secondly, the scenario of a positive relationship is also possible. If a country's rental market can be classified as unattractive compared to the home ownership market (e.g. low quality of rented housing or small rental sector), being a homeowner might become an interesting, desirable alternative. If demand for home ownership is high, housing prices are likely to increase. This however might still not deter individuals from buying residential property, thus pushing up housing prices further. So if we find a positive relationship between home ownership rates and housing values, an unattractive renting market might be a possible explanation.

In general, housing is considered as an important component of asset-based social security. That is why most welfare states implemented certain housing policies (like interest subsidies and housing allowances) to support and provide social security via home ownership (*Elsinga et al. 2007*). By running multi-level regressions, we are testing statistically whether country-level variables can explain the variation in individual housing values.



### 3 Data and methods

#### *Data*

In our analysis, we make use of the second wave of the SHARE data. This survey is an international, representative panel study of the population aged 50 years and older, it is currently in its fourth wave. The main advantage of the SHARE data is that it provides detailed, internationally comparable information on the financial and housing situation (in waves one, two and four). As the first release of the wave-four data does not yet contain all the variables that are relevant to our analyses, and as waves one and two were conducted in a rather narrow period of time (2004 to 2007), we decided to work with the second wave only, which covers a broader range of countries. The observation that becoming a homeowner in the life course is a slow process with few events confirms our decision (*Venti/Wise* 1989).

In the second wave, conducted in 2006/2007, 33,281 people in 22,721 households from 13 EU member states (listed above) participated in the survey. After eliminating households with missing or implausible values as well as households where none of the people interviewed were aged 50+ (148 households), our final dataset contains 20,945<sup>8</sup> households. A typical problem of questions addressing financial aspects is a high rate of item non-response (*Riphahn/Serfling* 2005). The SHARE team is tackling this problem by applying a multiple imputation strategy for filling in missing values (for further information on multiple imputation see *Rubin* 1987). Five values were estimated for every missing value.<sup>9</sup> A more detailed description of the imputation method used in the SHARE can be found in *Christelis* (2011). All the analyses reported below were run across the five. Moreover, all financial values are adjusted for differences in the purchasing power of money across countries and over time using the exchange rates provided by the SHARE team (see *Mannheim Research Institute for Economics of Aging* 2010 for further information). We use cross-sectional calibrated weights that “are calibrated to precisely reflect each country’s age and gender proportions” (*Börsch-Supan et al.* 2005: 21) for our descriptive analyses. These weights compensate for problems of unit non-response and sample attrition (cf. *Mannheim Research Institute for Economics of Aging* 2010). Table 1 illustrates the sample size per country (weighted).

<sup>8</sup> For our analyses, we eliminated households with missing or implausible values in the following variables: owner (n=334), family status (n=3), migration status (n=88), educational level (n=60), retirement status (n=266), financial transfers/inheritances (n=260) and residential area (n=1,462).

<sup>9</sup> For total household income over all countries in about 60 percent of the households, at least one component (item) of total household income has been imputed. Income is a generated variable consisting of a battery of different items (see footnote 13).



**Tab. 1:** Overview of the dataset

Country	Total	Percent	Cum. in %
AT – Austria	897	4.29	4.34
BE – Belgium	2,009	9.60	13.89
CH – Switzerland	967	4.62	18.51
CZ – Czech Republic	1,721	8.23	26.74
DE – Germany	1,548	7.40	34.14
DK – Denmark	1,662	7.94	42.08
ES – Spain	1,278	6.11	48.19
FR – France	1,884	8.81	57.00
GR – Greece	2,083	9.96	66.96
IT – Italy	1,786	8.54	75.50
NL – Netherlands	1,709	8.17	83.67
PL – Poland	1,697	8.11	91.78
SE – Sweden	1,723	8.22	100.00
Total	22,924	100.00	

Source: SHARE Wave 2, release 2.5.0, weighted data, own calculations

### Variables<sup>10</sup>

- *Homeowner* is the dependent variable in our first analysis. It differentiates between households owning residential property (=owners) and households not owning residential property (=non-owners).
- *Financial value of residential property* is the dependent variable in our second analysis.<sup>11</sup> Financial value stands for the subjective market value estimated by the financial respondent.<sup>12</sup> It ranges between €0<sup>13</sup> and €27,950,000 (ppp-adjusted). As the distribution of this variable is very much skewed to the right, we use the variable's log value in our analyses.

<sup>10</sup> All the variables mentioned in this section refer to the current state of the household. Unfortunately, we have no information on these variables at the time when the household bought or acquired the residential property.

<sup>11</sup> As we are interested in the actual value of residential property and not in households' level of indebtedness, we do not take into account the net but the gross value (market value). The fact that it is likely that the households are in different stages of their repayment and that the method of financing home ownership varies widely between countries makes it even more plausible for us to make use of the gross housing value.

<sup>12</sup> The exact question in the SHARE questionnaire was: "In your opinion, how much would you receive if you sold your property today?"

<sup>13</sup> 20 households were assigned a housing value of zero. We kept them in our sample but for the analysis if the housing value, we added €1 to those households in order to calculate the logarithm of those housing values.

- *Age* corresponds to the mean age of all household members surveyed. Age ranges between 34 (for households with people aged above and below 50 years) and 104 years. We also calculated age square to test the assumption that the rate of home ownership first increases with age and then starts to decrease.
- *Household size* controls for the number of people living in a household. It ranges between 1 and 14 people.
- *Family status* informs us whether the main respondent is living together with a spouse (family status=1) or as a single person (family status=0).
- *Children* controls for parenthood of the main respondent and his/her spouse, irrespective of whether the child still lives in the parental household.
- *Migration status* informs us whether the main respondent and/or his/her spouse were born abroad (migrations status=1).
- *Educational level* (7 categories, ISCED-coded) equals the highest educational attainment level of the main respondent and his/her spouse. It ranges between 0 (pre-primary education) and 6 (second stage of tertiary education).
- *Net equivalent income*<sup>14</sup> is measured as yearly total household net income divided by the root of the number of people living in this household. It ranges from €0 to €727,000 (ppp-adjusted).
- *Retirement status* differentiates between households where the main respondent and/or his/her spouse are already retired vs. households where none of them is retired yet. As a large proportion of household members in our dataset are already retired, we use this variable for control reasons.
- *Gifts and inheritances*<sup>15</sup> controls for whether a household has ever received a financial gift, inherited money, goods or property (of at least €5,000).
- *Residential area* informs us whether a household is located in a big city or in the suburbs or outskirts of a big city (residential area=1) or in a small town or a rural area or village (residential area=0).

### *Methods*

In order to account for socio-economic factors that have an effect on the probability of being a homeowner, we will apply binary logistic regression models. Subsequently, trying to find socio-economic factors that affect the financial value of residential property, we use linear regression models. To find out about the relationship between home ownership rates and housing values, we finally run linear regression models once more, but this time in a multi-level framework. Our unit of analysis is the household.

The binary logistic model that we use aims at estimating the probability of belonging to the group of homeowners ( $y=1$ ):

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<sup>14</sup> See *Paccagnella and Weber* (2005: 357) for the exact definition of income in the SHARE.

<sup>15</sup> We pooled information from waves one and two to obtain this information.

$$P(Y = 1) = \left( \frac{1}{1 + e^{-(b_0 + b_1X_1 + \dots + b_iX_i)}} \right)$$

We estimate a separate model for each country. For more details on the binary logistic model see *Long* (1997). To analyse the effect of different socio-economic attributes on the financial value of residential property, we apply a linear regression model, firstly in a single-level framework

$$Y_i = \beta_0 + \beta_1X_i + \varepsilon_i$$

and secondly in a two-level framework, with households nested in countries:

$$Y_{ij} = \beta_0 + \beta_1X_{ij} + \varepsilon_{ij} + u_j$$

where  $Y_{ij}$  is the dependent variable (housing value) for households  $i$  clustered in countries  $j$ .  $X_{ij}$  are predictors on the household level and  $\varepsilon_{ij}$  is the household-level error term.  $\beta_0 + u_j$  is the random intercept that varies across countries. For more details on multilevel regressions, consider for example *Hox* (2010) or *Rabe-Hesketh* and *Skrondal* (2008). Note that there are only 13 cases on level 2 (countries). Although there is no consensus in the literature regarding the minimum number of cases for upper levels in multilevel analyses, 13 cases is without doubt very small. Simulation studies on two-level linear models claim that standard errors and variance components tend to be underestimated when the number of cases on the second level is smaller than 30 (*Bell et al.* 2008; *Hox* 2010; *Maas/Hox* 2005), which is the case in our study. Hence, the statistical power of our country-level effects might be rather small. To account for that, we additionally ran an alternative single-level regression with robust and cluster-adjusted standard errors. The results were largely the same. Finally, for substantive reasons, we opted for the multilevel estimation approach, which allows an explicit modeling of variance across countries.

Housing values can logically only be observed for the group of homeowners. For the analysis of housing values, the most obvious strategy would therefore be to drop non-owners out of the sample. This strategy was applied until the late 1990s (e.g. *Horton/Thomas* 1998; *Myers/Chung* 1996; *Parcel* 1982). The 1997 article by *Lewin-Epstein et al.* was one of the first to state that restricting the analysis to homeowners can lead to biased estimations, as the sample of homeowners might be a self-selective one. To avoid selection bias, the authors applied tobit regression models (also called censored regression models, see *Tobin* 1958) instead of linear regressions. *Krivo* and *Kaufman* (2004) applied the same strategy. However, neither of the two articles comprehensibly explains that a sample selection problem indeed exists. We argue instead that one cannot diagnose a bias in the analysis due to restricting the sample on homeowners. In fact, in our case, the selection process (the decision to become a homeowner) creates a necessary precondition for our outcome (the housing value) (cf. *Rohwer* 2012). When applying the tobit regression, *Lewin-Epstein et al.* (1997) as well as *Krivo* and *Kaufman* (2004) are thus modelling a

very specific and very hypothetical choice situation:<sup>16</sup> the choice for a certain housing value by an individual who has not yet purchased a house. However, in our paper we are explicitly not interested in this hypothetical decision at all. We are rather interested in the realised distribution of housing values of households that actually own a home. Thus, when analysing the housing value we will restrict our sample to homeowners. More precisely, we will carry out a two-part model. Firstly, we regress on the chance of being a homeowner among all households, and secondly we regress on the value of housing among those households that own a home.

## 4 Results

### *Descriptive overview*

Table 2 shows the distribution of socio-economic household characteristics among homeowners in comparison to the overall population in our sample. About 70 percent of the households live in their own real property. Country differences in home ownership rates are also illustrated in Figure 2: Especially in Southern European countries like Spain, Greece and Italy, home ownership is a widespread phenomenon, which is in line with current research. Also in some Western European countries such as Belgium and France, there are many elderly households who live in owner-occupied property. In contrast, it is, as expected, relatively common not to own residential property in Austria, the Czech Republic, Sweden, Germany and Switzerland. We compared our findings with data collected by *Euroconstruct/ifo* on the whole adult population. As expected, the rate of homeowners is higher among the elderly.<sup>17</sup> Yet the ranking remains similar for all countries except for marginal shifts.

Going back to Table 2, we can see that the average value of residential property among homeowners is €260,530; the median is €194,960 (right-skewed distribution). The highest mean housing values can be found in Switzerland (€487,650) and the lowest in the Czech Republic (€105,800).<sup>18</sup> These findings are illustrated in Figure 3. Looking at the median value of residential property reveals unambiguous country-specific patterns. In Continental Europe, the median is generally very high (greater than €194,000),<sup>19</sup> with Switzerland again on the top (€306,210). The median

<sup>16</sup> The same holds true for the *Heckman* selection model often used as an alternative to the tobit regression (*Heckman* 1979).

<sup>17</sup> The Czech Republic and Sweden are the only cases where home ownership for the overall population is higher than for the elderly.

<sup>18</sup> The term "housing value" is used in the article as a synonym for the gross housing value (market value). In general, the share of households with a mortgage on their real property is low due to the age structure of the sample (with the exception of Denmark, the Netherlands, Sweden and Switzerland).

<sup>19</sup> With the exception of Austria: 153,440 Euros.

**Tab. 2:** Socio-economic household characteristic by population group across countries

	All Countries		Northern Europe				Continental Europe				DE		
	All	Owner	DK	All	Owner	SE	All	Owner	BE	All	Owner	All	Owner
Owner = yes (%)	70.30	-	66.67	-	57.50	64.51	-	80.40	-	57.40	-	58.26	-
Age - $\mu(\sigma)$	65.94	65.44	65.11	63.00	66.34	64.51	65.72	65.28	66.22	65.72	65.85	65.72	65.18
Household size - $\mu(\sigma)$	2.21	2.30	1.80	1.98	1.90	2.11	2.09	2.08	2.01	1.99	2.18	1.98	2.11
Married = yes (%)	65.78	72.38	62.46	76.31	67.53	82.86	74.02	67.33	67.92	66.33	78.55	67.79	75.13
Child(fren) = yes (%)	88.46	89.33	89.94	91.02	91.05	93.75	88.83	88.77	88.63	85.19	88.02	87.58	88.19
Migrant = yes (%)	10.64	7.88	4.94	4.40	10.99	9.73	8.64	7.06	9.86	18.38	14.54	20.97	16.46
Education (ISCED) - $\mu(\sigma)$	2.50	2.52	3.32	3.51	2.71	2.80	2.86	3.00	2.76	2.84	2.98	3.34	3.46
Retired = yes (%)	60.04	60.26	53.43	47.96	59.21	54.12	59.83	67.17	59.88	49.93	44.23	59.99	58.82
Net equivalent income* - $\mu(\sigma)$	20.23	21.66	22.16	24.65	22.83	24.74	23.27	20.88	22.28	30.10	34.16	24.13	27.55
Net equivalent income* - Median	14.68	15.59	19.10	22.28	19.56	21.88	16.83	18.01	15.99	23.62	26.95	18.12	20.96
Transfer/Bequest = yes (%)	25.38	29.51	43.33	49.73	46.05	51.29	49.50	25.92	45.03	41.14	49.20	28.16	36.38
Urban area = yes (%)	44.51	39.23	52.29	44.32	64.50	51.90	36.31	26.47	40.95	30.75	17.91	42.17	33.38
Housing value* - $\mu(\sigma)$	-	260.53	-	261.56	-	221.02	231.24	205.65	-	487.65	-	232.67	-
Housing value* - Median	-	194.96	-	177.21	-	141.40	194.66	153.44	-	306.21	-	196.90	-
N	20,924	14,813	1,662	1,113	1,723	1,022	1,598	528	2,009	967	552	1,548	931

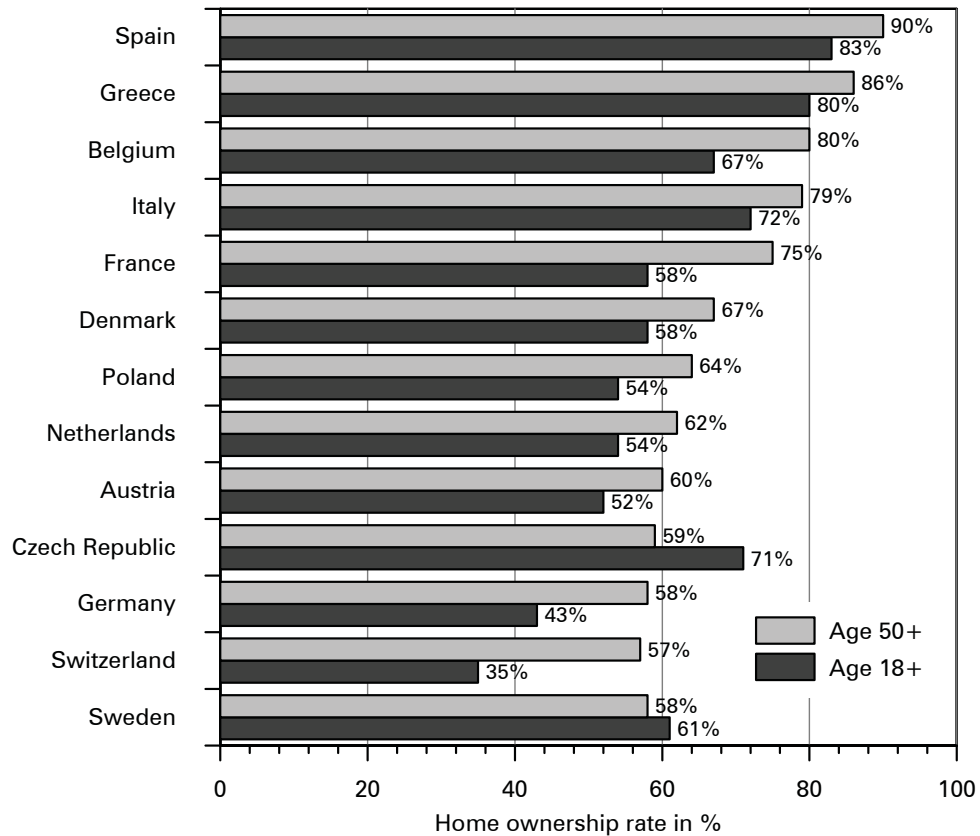
Tab. 2: continuation

	Continental Europe			Southern Europe			Eastern Europe		
	FR	All	Owner	ES	All	Owner	CZ	All	Owner
Owner = yes (%)	74.62	-	61.72	89.87	-	86.14	59.34	-	64.13
Age - $\mu(\sigma)$	65.99	65.44	64.95	66.94	66.70	65.87	64.80	64.00	64.44
Household size - $\mu(\sigma)$	2.02	2.06	1.98	2.49	2.50	2.23	2.08	2.17	2.88
Married = yes (%)	64.45	71.97	67.94	66.75	70.27	64.22	62.71	68.37	59.00
Child(ren) = yes (%)	88.66	89.78	88.46	87.76	89.33	88.11	93.72	93.55	91.83
Migrant = yes (%)	16.55	13.19	6.97	2.94	2.14	2.65	6.23	4.87	3.00
Education (ISCED) - $\mu(\sigma)$	2.40	2.56	2.78	1.64	1.63	1.98	2.54	2.55	2.24
Retired = yes (%)	63.01	64.38	44.03	15.74	15.90	14.25	11.20	11.65	7.21
Net equivalent income* - $\mu(\sigma)$	27.20	29.92	29.38	10.13	10.18	10.64	9.10	9.21	5.33
Net equivalent income* - Median	19.87	22.18	20.90	52.34	53.12	52.66	69.99	67.49	65.04
Transfer/Bequest = yes (%)	25.20	29.53	28.17	22.12	23.36	24.57	22.95	25.46	14.02
Urban area = yes (%)	43.13	38.20	67.51	55.67	54.54	75.10	65.22	59.13	46.38
Housing value* - $\mu(\sigma)$	-	336.40	-	-	338.52	-	-	105.80	-
Housing value* - Median	-	221.03	-	-	204.46	-	-	84.97	-
N	1,844	1,349	1,709	1,278	1,153	2,083	1,721	1,130	1,697
			1,087			1,792			1,121

\* Values in 1,000 Euros, ppp-adjusted, based on 5 sets of imputations

Source: SHARE Wave 2 (Release 2.5.0.), data weighted, own calculations

**Fig. 2:** Percentage of homeowners in European comparison

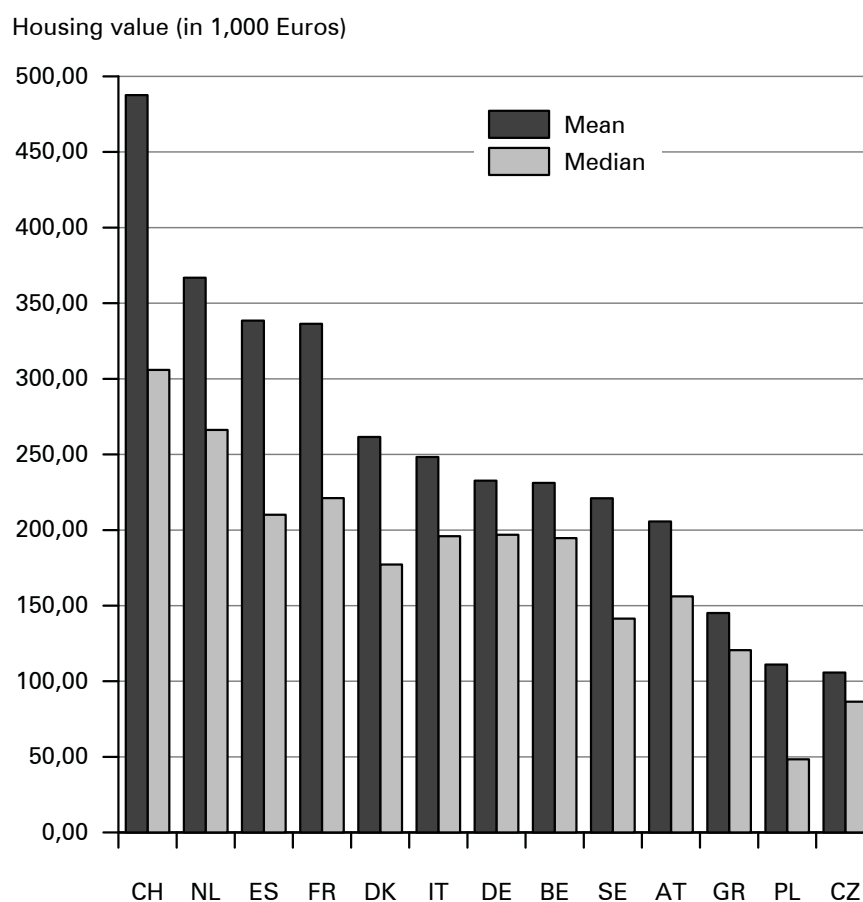


Source: *Euroconstruct/ifo* (2009) and SHARE Wave 2 (release 2.5.0), weighted SHARE data, own calculations

value of owner-occupied housing (at less than €85,000) is lowest in the post-socialist countries Poland and the Czech Republic.

When it comes to age, our findings show that households owning a home are slightly younger on average than the overall population. In line with our expectations, compared to the overall population, owners more often live in a steady partnership (72.4 percent vs. 65.8 percent), as well as in larger households (2.30 vs. 2.21 people). With respect to parenthood, there are only minor differences between the two groups. Among homeowners, 7.9 percent of the households have a migration background, in contrast to 10.6 percent of the total population. The overall share of migrants is comparably low in Southern Europe and Poland, while it is remarkably high in France, Germany and Switzerland. As expected, owners have a higher level of education than the overall population. The mean educational level is particularly low in Southern Europe. The average net equivalent income of homeowners, at €21,660, is also higher than in the group of the overall population (€20,230). Again,



**Fig. 3:** Mean and median values of houses

Values ppp-adjusted, based on 5 sets of imputations

Source: SHARE Wave 2 (release 2.5.0), weighted data, own calculations

notable country differences exist within the total population: Mean income is comparatively low in Eastern and Southern Europe, while it is rather high in France, the Netherlands and Switzerland. Retirement status does not differ between owners and the overall population. Overall, homeowners appear to benefit more often from financial gifts or inheritances compared to the total population (29.5 percent vs. 25.4 percent). Finally, homeowners live less often in urban areas compared to the total population (39.2 percent vs. 44.5 percent).

#### *Which socio-economic variables can predict home ownership?*

Table 3 contains the logistic regression models (more detailed models can be found in the Appendix). The likelihood of owning a home rises significantly with age in the

**Tab. 3:** Logistic regression (with robust standard errors) on the chance of being a homeowner

	Northern Europe			Continental Europe							Southern Europe			Eastern Europe	
	DK	SE		AT	BE	CH	DE	FR	NL	ES	GR	IT	CZ	PL	
Age	(+)	(+)		(-)	(-)	+	+	(+)	(-)	+	(-)	+	+	(+)	(+)
Age <sup>2</sup>	(0)	(0)		(0)	(0)	0	0	(0)	(0)	0	(0)	(0)	0	(0)	(0)
Household size	(+)	+		(+)	(+)	(+)	+	-	(+)	(-)	(-)	(+)	(+)	(+)	(-)
Partnership = yes	+	+		(+)	+	+	+	+	+	+	+	+	+	0	+
Child(ren) = yes	(-)	(+)		(-)	(-)	+	(-)	(-)	(+)	(+)	(-)	(+)	(-)	(-)	(-)
Migrant = yes	(-)	(-)		-	-	-	-	-	-	-	(-)	-	-	-	(-)
Education (ISCED)*	+	(+)		+	+	+	+	+	+	(+)	(+)	+	(+)	(+)	+
Net equivalent income*	(+)	(+)		+	(+)	+	+	+	(+)	(0)	(+)	(0)	(+)	(+)	(+)
Retirement = yes	(+)	(-)		(-)	(+)	(-)	(-)	(+)	(-)	(+)	(+)	+	(-)	(-)	(+)
Transfer/Bequest = yes	+	+		+	+	+	+	+	+	+	+	+	+	+	+
Urban community = yes	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Constant	(-)	-		(+)	(+)	-	-	(-)	(+)	(-)	(+)	-	(-)	(-)	(-)
Pseudo R <sup>2</sup>	0.21	0.19		0.15	0.15	0.18	0.35	0.15	0.20	0.12	0.05	0.10	0.05	0.07	0.07
N	1,663	1,725		897	2,022	967	1,550	1,844	1,710	1,279	2,083	1,786	1,722	1,697	1,697

\* Values are based on 5 sets of imputations  
 + positive effect (p≤0.05); - negative effect (p≤0.05); (+)/(-) - not significant  
 Source: SHARE Wave 2 (release 2.5.0), unweighted data, own calculations

Czech Republic, Germany, Italy, Spain and Switzerland. The quadratic age term has no effect on the probability of home ownership in our sample, i.e. in the countries analysed, home ownership rates do not appear to decline as people become older, thus contradicting the life-cycle hypothesis (*Modigliani/Brumberg 1954*).

Parenthood only significantly affects the likelihood of belonging to the group of homeowners in Switzerland. One explanation for this finding might be that childlessness is a rather rare phenomenon in the population studied (*Dorbritz 2005*), as already indicated in Table 2. As expected, households that are experiencing a steady partnership have a significantly higher chance of belonging to the group of homeowners compared to single households (except for Austria and the Czech Republic). In Germany and Sweden, household size has a positive impact on the probability of being a homeowner. However, there is not much variation in household sizes across countries.

Looking at the migration status, we find a negative impact on the probability of being a homeowner in all countries analysed, though the effect is not significant in the Northern countries, Greece and Poland. Thus, the U.S. findings also apply to Europe.

As expected, education has a positive impact on the probability of being a homeowner in all countries studied, though it is not significant. Moreover, our findings highlight the strong influence of education in Central Europe, which is in line with previous research. Income has a strong impact on the probability of being a homeowner, particularly in Continental Europe. The control variable "retirement status" does not have a significant effect on the likelihood of home ownership in most countries. This could be because the decision to acquire a home is mostly made before entering retirement. It is only in Italy that being retired positively affects the likelihood of home ownership. Financial gifts and inheritances have a significantly positive effect in all countries. As expected, owner-occupied home ownership is less probable in urban areas. Summing up, the results of the logistic model for the probability of being a homeowner are basically consistent with our expectations presented above.

#### *Which socio-economic factors can predict the housing value?*

Table 4 contains the results of the regression analyses on the impact of socio-economic household characteristics on the value of housing. The impact of age is positive in almost all countries studied. Again, the quadratic term has no influence on our dependent variable. Our analyses demonstrate – as expected – that household size and partnership status have a positive impact on the housing value. Household size has a significant positive effect in the Southern and Eastern European countries as well as in Germany. The influence of parenthood is only significant (positive) in Italy and the Czech Republic.

A very interesting and somewhat astonishing finding is that migration status has no significant effect on the value of housing in all countries except for Austria. This contradicts the findings from previous studies, mostly conducted in traditional immigration countries like the USA and Israel.

**Tab. 4:** Linear Regression on log (housing value)

	Northern Europe			Continental Europe								Southern Europe			Eastern Europe	
	DK	SE		AT	BE	CH	DE	FR	NL	ES	GR	IT	CZ	PL		
Age	(-)	(+)		(+)	(+)	(+)	+	(+)	(+)	(-)	(+)	(+)	(+)	(+)		
Age <sup>2</sup>	(0)	(0)		(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)		
Household size	(+)	(+)		(+)	(+)	(+)	+	(+)	(+)	+	+	(+)	+	+		
Partnership = yes	(+)	(+)		(+)	+	(+)	(0)	(+)	+	(+)	(+)	(+)	+	(+)		
Child(ren) = yes	(-)	(+)		(+)	(+)	(+)	(-)	(+)	(-)	(+)	(-)	+	+	(+)		
Migrant = yes	(+)	(+)		-	(-)	(+)	(+)	(+)	(-)	(+)	(+)	(-)	(0)	(-)		
Education (ISCED)*	+	+		+	+	+	(+)	+	+	+	+	+	+	+		
Net equivalent income*	+	+		+	(0)	+	0	0	0	0	0	+	(0)	(+)		
Retirement = yes	(-)	-		(-)	-	(-)	(-)	(+)	-	(-)	(+)	(+)	(-)	(-)		
Transfer/Bequest = yes	(+)	+		(+)	+	(+)	+	(+)	+	(-)	(+)	(+)	(+)	+		
Urban community = yes	+	+		(-)	-	(+)	(+)	(+)	-	+	+	+	(-)	(+)		
Constant	+	(+)		(+)	+	(+)	(+)	+	+	+	+	+	+	(+)		
R <sup>2</sup>	0.18	0.17		0.12	0.14	0.09	0.11	0.11	0.12	0.14	0.19	0.16	0.08	0.11		
N	1,114	1,024		528	1,608	552	932	1,349	1,087	1,153	1,792	1,437	1,130	1,121		

\* Values are based on 5 sets of imputations

+ positive effect (p≤0.05); - negative effect (p≤0.05); (+)/(-) - not significant

Source: SHARE Wave 2 (release 2.5.0), unweighted data, own calculations

Education is not only important for the probability of home ownership, but also for the value of residential property. Higher education (except for Germany) as well as higher income significantly increase the housing value in all countries studied. Retirement status has no impact on the property value in most countries. Transfers and bequests contribute to an increase in the value of residential property. Especially in Belgium, Germany, Poland, the Netherlands and Sweden, inheritances and financial gifts are important for the probability of being a homeowner as well as for the value of housing.

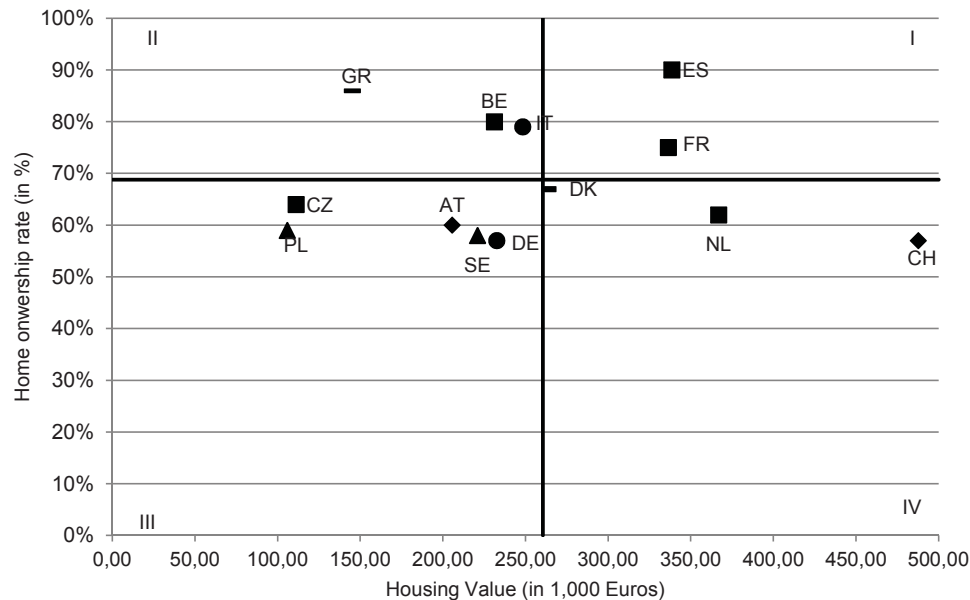
Consistent with our expectations, living in an urban area has a positive effect on the housing value, particularly in Southern and Northern Europe. A result that needs to be explored in more detail is that living in an urban area has a significant negative impact on the housing value in Belgium and the Netherlands.

*Is there a relationship between home ownership rates and housing values?*

To explore the relationship between home ownership rates and housing values on the country level, in a first step, we plotted all countries in a two-dimensional coordinate system (Fig. 4). No clear relationship however becomes evident in the emerging picture. Two lines divide the coordinate system in Figure 4: The mean housing rate over all countries (70.3 percent) divides the y-axis, and the mean housing value (€260,530) divides the x-axis. What we can see is that countries are evenly distributed across all four quadrants. There are as many countries showing a negative relationship between home ownership rates and housing values (GR, BE, IT, DK, NL, CH), as countries showing a positive relation (PL, CZ, AT, SE, DE, FR, ES).

Thus, in a next step we will carry out a multilevel regression to statistically test whether, controlling for individual characteristics of homeowners, the country context has a discrete impact on the housing value. The results are presented in Table 5. Model 0 (M0) shows that we have an intra-class correlation of 0.23, meaning that the households within countries are not independent from one another. The multilevel framework thus seems to be appropriate. The variance between countries is 0.23; the variance between households is 0.77. If we introduce the home ownership rate into the model (M1), we can see that it has a negative but not significant<sup>20</sup> impact on individual housing values. The variance between countries does not change at all from M0 to M1. In Model 2, we further include the country clusters. We can see that this explains a large share of the variance between countries. The Northern and Eastern European countries show significantly lower mean housing values compared to Continental countries. Finally, we include our household-level factors (the demographic and socio-economic household characteristics) into Model 3. This model is able to explain part of the variance between households. Overall, home ownership rates and housing values are negatively related to one another, also if one controls for the socio-economic composition of homeowners. Whereas

<sup>20</sup> The small number of cases and thus the low number of degrees of freedom on the context level (countries) might explain why this effect does not become statistically significant.

**Fig. 4:** Home ownership rates and housing values

Values in 1,000 Euros, ppp-adjusted, based on 5 sets of imputations

Source: SHARE Wave 2 (release 2.5.0), weighted data, own calculations

the home ownership rate itself cannot help to explain the differences in housing values, homeowners' socio-economic composition contributes to explaining them, as does the welfare state context to a considerable degree.

In our theoretical part, we argued that if we find a negative relationship between home ownership rates and housing values the mechanism behind that relationship might be that homeowners are a selective group compared to the overall population in countries with low home ownership rates (like in Switzerland, Germany and Sweden) and vice versa in countries with a high home ownership rate (like in Belgium, Greece and Spain). To test for the validity of this argument, we carried out a Heckman selection test (*Heckman 1979*). The detailed results of this analysis are available from the authors upon request. We found the group of homeowners to differ significantly in their composition from the overall population (including homeowners, non-homeowners and owners of houses that are rented out) in seven countries; four of them with comparatively low home ownership rates – Denmark, Germany, Sweden and Poland – but three of them with rather high rates – Belgium, Greece and Spain. Overall, the composition of the group of homeowners does not seem to be a helpful explanation for the negative though not significant relationship between home ownership rates and housing values. Summing up, the relationship between home ownership rates and housing values is far from being clear-cut.

**Tab. 5:** Multilevel regression on log (housing value) with households (level 1) clustered in countries (level 2), robust standard errors

	M0	M1	M2	M3
Constant	5.07	5.18	5.53	3.49
<i>Level 1 variables</i>				
Age				+
Age <sup>2</sup>				0
Household size				+
Partnership = yes				+
Child(ren) = yes				+
Migrant = yes				(+)
Education (ISCED)*				+
Net equivalent income*				+
Retirement = yes				(-)
Transfer/Bequest = yes				+
Urban community = yes				+
<i>Level 2 variables</i>				
Home ownership rate		(-)	(-)	(+)
Continental			Ref.	Ref.
North			-	-
South			(-)	(-)
East			-	-
N (level 1)	14,827	14,827	14,827	14,827
N (level 2)	13	13	13	13
ICC	0.23	0.23	0.07	0.21
<i>Variance components</i>				
Variance between households	0.77	0.77	0.77	0.70
Variance between countries	0.23	0.23	0.05	0.20

\* Values are based on 5 sets of imputations

+ positive effect ( $p \leq 0.05$ ); - negative effect ( $p \leq 0.05$ ); (+)/(-) - not significant

Source: SHARE Wave 2 (release 2.5.0), unweighted data, own calculations

## 5 Conclusion and discussion

In times of demographic ageing and less generous public pensions, home ownership will probably gain in importance for the financial well-being of the elderly. To determine the socio-economic position of households, it is therefore important to consider not only income, but also the stock of wealth (and especially home owner-



ship as a central wealth component), as wealth is especially important for retirees' socio-economic position (*Modigliani/Brumberg* 1954).

Previous international comparative studies mainly focused on the distribution of home ownership across countries, while neglecting its value. The value of housing, however, significantly determines the wealth position of households and therefore patterns of social inequality. Thus, we emphasized the importance of going beyond the approach of considering only access to home ownership by including the analysis of the value of residential property as we assume that housing inequality is a two-dimensional phenomenon. Our analyses were indeed able to show that the influence of socio-economic factors on the probability of being a homeowner, on the one hand, and the value of housing, on the other, can differ considerably within a country. For example, the effect of education and income is significant for both dimensions in most countries, whereas the influence of family-related characteristics varies: Having a partner seems to be especially important for being a homeowner, while household size mainly affects the value of housing. Especially the results on migration status are astonishing: The main obstacle for migrants appears to be access to home ownership. Once they obtained residential property, no difference in the housing value could be found between migrants and the total population of homeowners. Thus, in contrast to the USA and Israel, migration status only affects the first dimension of housing inequality among elderly Europeans.

In the second part of our work, we focused on the link between these two dimensions of social inequality in housing. In our theoretical considerations, we were able to find arguments for both situations: a negative and a positive relationship between home ownership rates and housing values. While our descriptive analysis did not show any clear-cut relationship between these two measures, the results of the multi-level regression revealed a negative though not significant relationship between home ownership rates and individual housing values. We assumed the composition of homeowners to be a possible mechanism behind the negative relationship. Our further analyses did not confirm this assumption, however.

In addition to the influence of socio-economic household characteristics, many other factors, such as the overall demographic and economic situation or cultural attitudes or patterns of behaviour towards home ownership, also play an important role in determining a country's home ownership situation. Due to the diversity and complexity of the country-specific jurisdictions, considering these factors would have gone beyond the scope of this article. Especially for countries like Spain and France, whose real estate markets were hit by the financial crisis in 2008 (*Ball* 2010), further analysis of the housing value before and after the financial crisis would also be interesting to look at. One restriction of our study was that we had no retrospective information on socio-economic household characteristics at the time of the transition to home ownership. Retrospective, longitudinal data would be necessary to trace back developments and analyse complex processes of property acquisition (*Kurz/Blossfeld* 2004). Nevertheless, a study carried out with longitudinal data for Western Germany by *Davidov* and *Weick* (2011) supports our central findings on the influence of socio-economic factors on the probability of owning a home. Considering the impact of the country context on home ownership rates and housing values,

it would be necessary to replicate our analyses with a larger number of countries and longitudinal data. This would be a more robust approach to examine causal relationships. Yet, by now, no such data is available. We therefore have to leave this task for future research. Summing up, despite some limitations, our article offers an innovative approach of an internationally comparative, two-dimensional analysis of housing inequalities.

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## Appendix

Tab. A1: Logistic regression (with robust standard errors) on the chance of being a homeowner

	Northern Europe		Continental Europe					
	DK	SE	AT	BE	CH	DE	FR	NL
Age	0.05	0.15	-0.03	-0.03	0.26**	0.19*	0.05	-0.07
Age <sup>2</sup>	0.00	0.00	0.00	0.00	0.00**	0.00*	0.00	0.00
Household size	0.22	0.28*	0.26	0.09	0.21	0.26*	-0.21*	0.00
Partnership = yes	1.20***	1.16***	0.22	1.28***	0.71***	0.56**	1.31***	1.08***
Child(ren) = yes	-0.28	0.11	-0.07	-0.24	0.42*	-0.17	-0.01	0.19
Migrant = yes	-0.52	-0.34	-0.57*	-0.49**	-0.61**	-0.54***	-0.59***	-0.90***
Education (ISCED)	0.20***	0.04	0.21**	0.16***	0.19**	0.19**	0.21***	0.45***
Net equivalent income	0.02	0.01	0.02**	0.01	0.01*	0.02*	0.01**	0.01
Retirement = yes	0.24	-0.07	-0.01	0.02	-0.06	-0.21	0.21	-0.19
Transfer/Bequest = yes	0.61***	0.24*	0.76***	0.80***	0.65***	0.92***	0.83***	1.00***
Urban community = yes	-1.12***	-1.69***	-1.50***	-0.86***	-1.36***	-0.96***	-0.79***	-0.67***
Constant	-1.97	-4.72	1.53	1.12	-9.98**	-7.96**	-1.80	2.12
Pseudo-R <sup>2</sup>	0.21	0.19	0.15	0.15	0.18	0.13	0.15	0.20
Wald Chi <sup>2</sup>	308.44	327.07	138.40	248.68	188.24	202.56	233.59	313.23
N	1,663	1,725	897	2,022	967	1,550	1,844	1,710



Tab. A1: continuation

	Southern Europe			Eastern Europe	
	ES	GR	IT	CZ	PL
Age	0.19*	0.01	0.17*	0.25**	0.13
Age <sup>2</sup>	0.00*	0.00	0.00	0.00**	0.00
Household size	-0.14	-0.15	0.09	0.06	-0.04
Partnership = yes	1.40***	0.76***	0.83***	0.45***	0.66***
Child(ren) = yes	0.55	-0.02	0.05	0.00	-0.07
Migrant = yes	-1.76***	-0.57	-0.78*	-0.67**	-0.51
Education (ISCED)	0.05	0.06	0.33***	0.01	0.14**
Net equivalent income	0.00	0.01	0.00	0.01	0.01
Retirement = yes	0.01	0.25	0.49**	-0.29	0.24
Transfer/Bequest = yes	0.68*	0.64***	0.67***	0.54***	0.95***
Urban community = yes	-0.44*	-0.45**	-0.89***	-0.57***	-0.90***
Constant	-5.24	2.78	-6.48*	-7.37**	-4.10
Pseudo-R <sup>2</sup>	0.12	0.05	0.10	0.05	0.07
Wald Chi <sup>2</sup>	94.74	77.36	162.58	104.07	119.36
N	1,279	2,083	1,786	1,722	1,697

All analyses based on 5 sets of imputations

\*p≤0.05, \*\*p≤0.01, \*\*\*p≤0.001. N=20,945

Source: SHARE Wave 2 (release 2.5.0), unweighted data, own calculations

Tab. A2: Linear regression (with robust standard errors) on log(housing value)

	Northern Europe				Continental Europe				N
	DK	SE	AT	BE	CH	DE	FR	NL	
Age	-0.01	0.10	0.09	0.03	0.09	0.16***	0.04	0.07	
Age <sup>2</sup>	0.00	0.00	0.00	0.00	0.00	0.00***	0.00	0.00	
Household size	0.09	0.07	0.02	0.01	0.05	0.10***	0.07	0.01	
Partnership = yes	0.15*	0.10	0.04	0.18***	0.07	0.00	0.05	0.25***	
Child(ren) = yes	-0.10	0.02	0.09	0.07	0.12	-0.04	0.07	-0.07	
Migrant = yes	0.10	0.06	-0.26*	-0.04	0.05	0.02	0.09	-0.05	
Education (ISCED)	0.14***	0.14***	0.13***	0.10***	0.07*	0.06	0.10***	0.07***	
Net equivalent income	0.01***	0.01*	0.01***	0.00	0.00**	0.00**	0.00**	0.00*	
Retirement = yes	-0.02	-0.17*	-0.08	-0.10**	-0.05	-0.04	0.08	-0.11*	
Transfer/Bequest = yes	0.01	0.22**	0.00	0.13***	0.10	0.26***	0.09	0.10*	
Urban community = yes	0.21***	0.33***	-0.10	-0.09**	0.13	0.03	0.04	-0.17***	
Constant	4.43***	0.39	1.52	3.71***	2.38	-0.55	3.36*	2.90***	
R <sup>2</sup>	0.15	0.13	0.12	0.14	0.09	0.09	0.09	0.07	
N	1,114	1,024	528	1,608	552	932	1,349	1,087	

Tab. A2: continuation

	Southern Europe			Eastern Europe	
	ES	GR	IT	CZ	PL
Age	-0.04	0.02	0.02	0.01	0.02
Age <sup>2</sup>	0.00	0.00	0.00	0.00	0.00
Household size	0.07*	0.11***	0.04	0.05*	0.08***
Partnership = yes	0.04	0.01	-0.06	0.19**	0.13
Child(ren) = yes	0.03	-0.01	0.20**	0.24**	0.19
Migrant = yes	0.18	0.17	-0.15	0.00	-0.04
Education (ISCED)	0.11***	0.12***	0.13**	0.10**	0.13***
Net equivalent income	0.00**	0.00***	0.01***	0.00	0.01
Retirement = yes	-0.02	0.02	0.09	-0.02	-0.06
Transfer/Bequest = yes	-0.08	0.05	0.06	0.07	0.22**
Urban community = yes	0.39***	0.23***	0.28***	-0.07	0.04
Constant	6.18***	3.59***	4.05**	3.59**	2.43
R <sup>2</sup>	0.08	0.19	0.07	0.08	0.11
N	1,153	1,792	1,437	1,130	1,121

All analyses based on 5 sets of imputations

\*p≤0.05, \*\*p≤0.01, \*\*\*p≤0.001. N=14,827

Source: SHARE Wave 2 (release 2.5.0) unweighted data, own calculations

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