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**EqualHouse**

**Deliverable 3.2: Housing Inequalities  
Dynamic Framework**

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## 3 Chapter 3. Explaining Trends in Housing Wealth Inequality and Concentration

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### 3.1 Introduction

Homeownership and housing wealth (or various broader concepts of property wealth)<sup>6</sup> have recently been ‘discovered’ as important determinants of cross-national differences in overall wealth inequality and concentration (e.g. Fuller et al., 2020; Pfeffer & Waitkus, 2021). Whilst Chapter 6 of Deliverable 3.1 provided a cross-sectional profile of housing wealth inequality across Europe, the current chapter takes a more longitudinal perspective. Studies on the contribution of *developments* in housing (property) wealth to *trends* in overall wealth inequality are scant. Furthermore, it remains unclear *what drives such developments in housing wealth inequality* in the first place. This lack of systematic comparative evidence constitutes a blind spot, given the argument that across western countries, the housing market has become a vehicle for wealth generation, extraction, and intergenerational transmission (Adkins et al., 2019; Forrest & Hirayama, 2018; Hochstenbach, 2022; Maclennan & Miao, 2017; Soaita et al., 2020). On the one hand, while the private rental sector has grown, homeownership became less accessible and more socially stratified, especially for new cohorts of young adults (Dewilde, 2020; Gielens & Dewilde, 2025; Howard et al., 2024). Given the importance of the tenure structure (i.e. the homeownership rate) as the main determinant of overall wealth inequality and concentration (Brzezinski & Salah, 2021; Kaas et al., 2019, also see Deliverable 3.1), both delays in and durable exclusion from homeownership access for younger and/or poorer households should

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<sup>6</sup> The term housing wealth is used throughout this chapter, but our conceptualization is somewhat broader, and also includes other real estate property not used for business purposes (see Section 3.3 for further explanation).





constitute an important contributing factor to explaining trends in (housing) wealth inequality and concentration. On the other hand, wealthier households have been argued to benefit from disproportionate price increases of more valuable (urban) properties and from rising multi-property ownership (Galster & Wessel, 2024; Kadi et al., 2020; Ronald et al., 2017; Wind & Hedman, 2018). To uncover the role of housing as a driver of trends in wealth inequality and concentration, this chapter uses HFCS-data (Household Finance and Consumption Survey) for 4 waves (2010-2021) and 22 European countries, to:

1. Describe *trends* across time and space regarding housing (property) wealth inequality and concentration (capturing different aspects of the housing wealth distribution), across countries and age cohorts;
2. Model the impact of various *drivers* explaining trends in housing wealth inequality and concentration, across countries and age cohorts.

The chapter is structured as follows. In the first section, we briefly review the main findings discussed in Chapter 6 of Deliverable 3.1. Next, we rehearse data, concepts and methods, highlighting differences with the aforementioned chapter. The results-section explores and further investigates trends over time. We distinguish between developments in housing wealth inequality and concentration for all households – investigating whether there has been a polarization of housing wealth between so-called *housing market insiders* (i.e. owners) and *outsiders* (i.e. renters) – and homeowner-households only – investigating whether there has been a polarization of housing wealth *within* the homeownership segment, between high wealth/income and low wealth/income homeowners. See Chapter 1 of this Deliverable for a short recap of the conceptual framework set out in Deliverable 3.1.





### 3.2 Cross-sectional pattern of housing wealth inequality across Europe

Chapter 6 of Deliverable 3.1 explored cross-sectional patterns in (housing) wealth inequality across 23 European countries, present in the fourth wave of the HFCS (2010-2021; data from Poland were taken from wave 3). We advanced the state-of-the-art by: 1) conceptualizing alternative measures of *gross* housing wealth and non-housing wealth that are more in tune with the comparative literature on housing-welfare regimes (see Chapters 1 and 2 of Deliverable 3.1) and account for cross-national differences in mortgage finance as well as differing housing wealth accumulation trajectories over the life-course; 2) investigating and qualifying established relationships for a larger sample of countries from this alternative angle; 3) broadening the focus from relative inequality to absolute levels of (housing) wealth, and to the concentration of (housing) wealth across the income distribution (hence, explicitly addressing the intersection with household income); and 4) analysing further intersections with age group/cohort and degree of urbanization.

Notwithstanding the often-stated importance of housing wealth in the wealth portfolio of households across the enlarged European Union (EU), wealth inequality research has only recently started to analyse relationships between homeownership rates, relative housing wealth inequality and relative total wealth inequality (usually measured in terms of 'net worth'). Most of these more econometric papers have analysed/decomposed summary inequality measures, in particular the Gini-coefficient. Based on country-level samples of varying sizes, a strong and statistically significant negative relationship is reported: the higher the homeownership rate, the lower relative (net) total wealth inequality. Put differently, comparative differences in relative 'net worth' inequality are centrally driven by the tenure structure, and by associated (net) housing wealth inequality.

A first conclusion from Chapter 6 of Deliverable 3.1 was that, using alternative measures of gross (housing) wealth and wealth inequality on a larger sample of countries, on the surface, still produces well-known stylized relationships.





Differences between concepts of gross and net (housing) wealth do not seem to make much difference: the majority (2/3) of homeowners across the enlarged EU does not have any outstanding mortgage debt. In particular, **a strong country-level negative association between homeownership rates and housing/total wealth inequality and concentration was established**: to the extent that specifically lower-wealth/income households are able to accumulate housing wealth, the overall level of (housing) wealth inequality tends to be lower. **Homeownership rates drive the distribution of housing wealth, while housing wealth inequality drives total wealth inequality**. These associations are particularly strong, indicating a much smaller role for other (far more investigated) drivers of comparative differences in wealth inequality.

This negative country-level association between higher homeownership rates and (gross) wealth inequality is likely explained by regional clustering,<sup>78</sup> and comes about through different ‘compositional’ mechanisms, such as a **higher preponderance of housing wealth in the wealth portfolio of lower-income households as we move from North to South and from West to East**, combined with the fact that, across countries, **non-housing wealth tends to be more unequally distributed than housing wealth**. At the country-level, **higher relative inequality in housing wealth due to lower homeownership rates is, hence, not compensated for by higher equality of non-housing wealth**. At the household-level, to the extent that homeownership stretches to include lower-income households, the latter own both housing wealth and some level of non-housing wealth. Furthermore, low-income owners tend to own (much) higher levels of non-housing wealth compared to low-income renters. To the extent that rental options

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<sup>7</sup> As explained in Deliverable 3.1 and Chapter 1 of the current report, different housing-welfare regimes produce qualitatively different housing provision systems and types of homeownership, including different relationships between income, wealth, tenure and housing outcomes (e.g. value of housing).





are limited and unattractive, renting furthermore becomes more selective of poorer households.

***From the negative country-level association between homeownership and relative wealth inequality, it should not be inferred that increasing homeownership would necessarily result in lower wealth inequality.*** In the countries belonging to the unitary rental market housing-welfare regime, for instance, levels of non-housing wealth inequality tend to be lower in comparative perspective (though still similar to levels of housing wealth inequality). The (relative) inequality-reducing impact of homeownership/housing wealth in the countries with a unitary rental market is, therefore, far more limited and even non-existent in Austria, compared with other countries. The rather unique position of unitary rental market-countries indicates that (historical) housing policies play an important role, in particular in terms of influencing owners' and particularly renters' opportunities to accumulate non-housing wealth (Lersch & Dewilde, 2018; Wind et al., 2017). The social selection of higher-income households into homeownership (and of lower-income households into renting), as well as housing policies that have traditionally disproportionately favoured wealth accumulation of homeowners vs. renters, rather than homeownership rates *per se*, are key factors explaining comparative differences driving the negative country-level association between homeownership and wealth inequality (also see Causa & Woloszko, 2020; Wind et al., 2017).

***Moving the focus to absolute wealth levels, across all European countries, the wealth rate of renters is very low:*** median gross total wealth of renters amounts to less than half (42.4%) of their gross annual household income. The total wealth of homeowners amounts to seven times their gross annual household income. The average tenure wealth gap across Europe, defined as median gross total wealth of owners divided by median gross total wealth of renters, amounts to 25.1 (ranging from 16.5 in Austria to 38.0 in Ireland): ***owners own far more total wealth than renters.*** The tenure wealth gap is lower in





housing-welfare regimes with a unitary rental market, where renter-households comparatively own higher levels of (non-housing) wealth. It is also smaller in Eastern-Europe, but this is explained by comparatively lower wealth levels of homeowners, partly reflecting lower housing quality. On average, homeowners also own about three times more non-housing wealth than renters (who mostly do not own any housing wealth).<sup>9</sup> With the exception of Luxembourg, where the median renter is comparatively rich, ***across European countries the level of non-housing wealth owned by renters is so low that, for most and based on these resources alone, obtaining a mortgage/entering homeownership is ‘mission impossible’.*** This is an important policy issue, as high-quality affordable (private) rental options in many European countries are limited. For an important subgroup of renters with no or few financial resources, it is unlikely that higher-quality homeownership will be in reach at some future point in time.

Lastly, Chapter 6 of Deliverable 3.1 investigated the concentration of (gross) housing wealth across the income distribution. If housing wealth would be equally distributed across the income distribution, then each income quintile would own 20% of housing wealth. ***Across European countries, housing wealth is unequally concentrated across the income distribution:*** on average (across all households), the bottom income quintile owns 11.9% of total gross housing wealth, whilst the top income quintile owns 34.5% of total gross housing wealth. Notwithstanding between-country differences within each housing-welfare regime group, ***the concentration of (gross) housing wealth across the income distribution becomes less severe when we move from North to South, and from West to East. Again, this pattern is driven by cross-national differences in homeownership rates:*** abstracting from the tenure structure,<sup>10</sup> the concentration of housing wealth across income quintiles is, in fact, remarkably similar across

<sup>9</sup> See Chapter 6 of Deliverable 3.1 for a note on dual tenure of homeowners that rent their main residence.

<sup>10</sup> When looking at the concentration of gross housing wealth amongst homeowners only.



countries in the enlarged EU. Nevertheless, lower-income homeowners are more likely to own smaller levels of housing wealth, and higher-income homeowners are more likely to own larger levels of housing wealth (the top quintile owns about 30% of gross housing wealth, vs. 15% owned by the bottom quintile).

**Particularly across Western-Europe, (gross) housing wealth is more concentrated in each younger age cohort:** younger high-income households own a larger share of total housing wealth compared with older counterparts, and younger low-income households own a smaller share of total housing wealth compared with older counterparts (calculations based on cohort-specific income bands to account for varying relationships between age and income across European countries). A similar trend is (much) less outspoken in Eastern-European countries, and mostly comes about by lower housing wealth shares of low-income young households. **In North-Western-Europe, compared with thinly populated areas, in densely populated areas higher-income households own a comparatively larger share of total housing wealth, whilst lower-income households own a comparatively smaller share of total housing wealth,** which could be linked to the so-called financialization of urban housing markets (Galster & Wessel, 2024; Haffner & Hulse, 2021; Hulse & Reynolds, 2018; Wetzstein, 2017). In the Southern-European countries for which degree of urbanization is available, a similar but less intense difference regarding the concentration of housing wealth comes about by the comparatively smaller housing wealth holdings of lower-income households with an increasing degree of urbanization. Intersections with degree of urbanization are less clear in Eastern-European countries.

In the current chapter, we firstly aim to describe trends in (housing) wealth inequality and concentration across countries belonging to various housing-welfare regimes (see Chapter 1 of Deliverable 3.1). Next, we aim to disentangle the impact of various potential drivers of such trends, including: trends in income inequality; changing tenure structures (in particular trends in the affordability of homeownership access and the generational and/or stratified decline of young





adult-homeownership across European countries); the suspected rise of multi-property ownership and landlordship; house price inflation associated with different capital gains; and the grown importance of intergenerational transfers (e.g. Forrest & Hirayama, 2018; Smith et al., 2022).

### 3.3 Data, concepts, and measures

#### 3.3.1 Data

In this chapter, comparable data from HFCS (Household Finance and Consumption Survey, ECB, 2010-2021) are analysed (e.g. ECB, 2023a). This repeated cross-sectional survey currently has four waves (2010-2014-2017-2021). 22 countries are present in at least two waves. Though calculated from household data by the author, most analyses in this chapter pertain to the country-level. The main reason for this is that concepts such as ‘inequality’ and ‘concentration’ of wealth cannot be calculated at the individual or household level – these measures can only be defined at an aggregate level. For sample sizes by country and wave, see Tables A3.1 and A3.2 in the Appendix to this chapter. For information about the survey, see Chapter 6 of Deliverable 3.1.

#### 3.3.2 Concepts

Similar to the distributional analysis of income, the distributional analysis of wealth is bound to agreed-upon, but also somewhat arbitrary conventions (e.g. Atkinson & Bourguignon, 2015; Atkinson et al., 2002; OECD, 2013). Though (disposable) (annual) household income, by default, pertains to the household-level, household income is normally attributed to each household member, standardized for the size and composition of the household by means of an equivalence scale (accounting for economies of scale and assumed lower costs of younger children). The welfare of each individual in the population, including children, is hence accounted for. While income measures attempt to capture the flow of resources, wealth, on the other hand, pertains to the stock of resources accumulated over time (including over generations) and pooled by different household members. Wealth inequality measures, therefore, usually pertain to the





household as an economic unit, and tend not to be equivalized. In recent years, however, interest in the so-called ‘joint distribution of income and wealth’ has increased. In the latter approach, the income and wealth distributions are not analysed separately as independent proxies of economic well-being, but assessed together. When combining information from both distributions, it makes sense to equivalize household wealth, in the same vein as is done for disposable household income (e.g. Skopek et al., 2015). In this chapter, the level of analysis is the household level (as in the regular analysis of wealth), while both wealth and income are equivalized (as in the regular analysis of income). We use the modified OECD-equivalence scale.<sup>11</sup>

Given the specific focus of EqualHouse on housing inequality, we also divert from some other more typical conventions (similar to e.g. Dewilde & Flynn, 2021). To start with, the main distinction made in this chapter is between *gross housing wealth* and *non-housing wealth* (Dewilde & Flynn, 2021; Owen & Pryce, 2024). Both the amortization of mortgages over the life-course, as well as the opposite process of equity withdrawal, might lead to significant differences between a household’s net housing equity, and the amount of gross housing wealth they will theoretically own (or have owned). Substantive interest, furthermore, lies with unequal opportunities terms of housing wealth accumulation pathways, and the factors impacting on this, such as uneven capital gains arising from differential house price appreciation (intersecting with socio-economic (dis)advantage or degree of urbanization), or the uptake of Buy-to-Let mortgages by high-income households in order to finance the procurement of multiple properties. In this report, we are more interested in the life-time accumulation of housing wealth, rather than in “*snapshots of net wealth at arbitrary time points*” (Owen & Pryce, 2024, p. 72). A focus on gross housing wealth also facilitates comparisons of housing wealth

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<sup>11</sup> This scale attributes a weight of 1 to the first adult (aged 14 years or older) in the household, further adults count for 0,5 whilst children receive a weight of 0.3.





between countries with different levels and patterns of mortgage finance, especially since our focus includes Eastern-European countries, and allows for cohort comparisons.

Research on so-called multi- or secondary- property ownership (SPO) is limited, and – depending on the purpose of the research as well as data availability – tends to use varying definitions and operationalizations. On the one hand, one could argue that various types of real estate property constitute assets with a market value, that can generate wealth and/or (rental) income for their owners. Households pursue different types of real estate property for various reasons (consumption, investment, or both), and various types and uses all have an impact on the functioning of the housing market at large (e.g. Wind et al., 2020). On the other hand, one could argue that the concept of housing wealth should be limited to properties that provide living space, either for one's own use (incl. rent-free living benefitting extended family members) or to let as (small-scale) landlord (e.g. Kadelke, 2024). Stricter definitions however ignore more blurry types of secondary properties, such as second homes used as weekend or holiday retreat, where the value resides in the land rather than in the building (which can be a simple structure, e.g. chalets, dachas). In more affluent rural regions with more expensive (luxury) holiday or secondary homes, ownership of rural land comes into play, as selective gentrification of rural areas entails a preference for open views 'surrounded by unbuilt areas' (Kordel & Naumann, 2024, p. 3029, on Alpine gentrification or Verhüttelung). Such rural touristification/gentrification is argued to limit the housing and economic opportunities of local communities, similar to impacts of touristification by short-term rentals (e.g. Airbnb) in urban regions. Yet another form of SPO concerns urban property (i.e. *pied-à-terre*) owned by weekly commuters to and from their country-side family homes. Finally, typically in homeownership countries, (extended) families often own or purchase unbuilt land with an eye to the future construction of housing for the next generation(s). The term 'residential real estate' constitutes an intermediate perspective, as it can be





taken to refer to both residential buildings (to be used as housing) as the land intended for this purpose.

In this chapter and for above-mentioned reasons, gross housing wealth is approximated by the current market value of the main residence as well as other real estate property<sup>12</sup> owned by household members, but excludes property reported as directly related to the households' own business activities (e.g. shop, workshop). Our approximation of housing wealth hence pertains to additional properties of different types aside from the household main residence, but these types are likely closely associated to some use or investment-function related to housing or housing markets. Housing wealth is in most countries assessed by respondents themselves.<sup>13</sup> Recent research comparing objective and subjective (self-reported) home values has shown that the latter generally are a good proxy for the former, specifically in relation to the study of wealth inequality (e.g. Tomal, 2022). Non-housing wealth includes total financial assets plus non-real estate assets: vehicles, other valuables (e.g. jewellery), as well as the value of value of self-employed businesses, including real estate property related to one's business activities. Total wealth is the sum of housing and non-housing wealth.

As also explained in Chapter 6 of Deliverable 3.1, we employ a joint income and wealth-perspective, as a way to address the intersection between (housing) wealth and income. This means that analyses in this chapter not only pertain to the (housing) wealth distribution as such, but also describe levels of (housing) wealth across income quintiles or tertiles. Not all country-level sample sizes are large, which is why we opt for income tertiles when investigating sample selections pertaining to young households/homeowners. Sample sizes for different sample selections in Wave 4 (2021) are reported in Table A3.2 in Appendix.

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<sup>12</sup> Properties that can be listed are: house or flat; apartment building; industrial building/warehouse; building plot/estate, field, garden, forest, and arable land; garage; shop; office; hotel; farm, other.

<sup>13</sup> In some countries, income and wealth data are taken from register data (ECB, 2023b).





The choice to assess the concentration of housing wealth across household income quantiles is based on substantive as well as methodological arguments. For one, though access to housing finance and property-ownership is strongly determined by the income level of a household, income and wealth are themselves not highly correlated. As a stock-measure (and accumulated across generations), wealth inequality tends to be higher than income inequality, and – at the aggregate level – the level of wealth inequality is not systematically related to the level of income inequality (Causa et al., 2019; Keister & Moller, 2000). Describing intersections between different economic dimensions contributes to identifying and understanding configurations of economic and material well-being vs. vulnerability (e.g. Kuypers & Marx, 2019). Assessing levels of (housing) wealth across income groups is furthermore helpful in capturing different aspects of wealth dynamics. For example, summary housing wealth inequality measures could, in theory, remain relatively unchanged (e.g. when house prices decline, on average, to the same extent for all levels of housing wealth), whilst at the same time housing wealth could become more or less concentrated within particular income groups, as some income groups acquire more (valuable) properties whilst other income groups do not manage to access homeownership in the first place (Dewilde & Flynn, 2021). Thirdly, whilst regular wealth or income summary inequality measures usually apply to the whole population (few households have literally zero income or wealth), housing wealth only pertains to those who own houses. In countries where the majority of households rents, the median level of housing wealth is 0. This complicates the calculation, interpretation and comparison of various measures, such as the wealth-based GINI-coefficient, the P90/P10 ratio or housing wealth holdings/shares by wealth groupings (e.g. wealth deciles).





### 3.3.3 Measures

In the HFCS, only gross household income is available. Income inequality in this chapter is measured by means of the Gini-coefficient.<sup>14</sup> Regarding the wealth distribution, we report the wealth-based Gini-coefficient as well as one measure capturing (trends in) wealth concentration intersected with income: the ratio of the housing wealth share (%) owned by the top income quintile (tertile) to that of the bottom quintile (tertile), indicated as ‘quintile (tertile) share ratio’. Whereas the Gini-coefficient takes into account all households relative to one another (and hence obscures differences in terms of where in the income/wealth distribution exactly the largest relative inequalities are located), the latter measure simply compares rich and poor segments of society. This measure also ‘compensates’ for the well-known fact that the Gini-coefficient is more sensitive to changes around the middle of the distribution than at the extremes. Both summary-measures hence capture different aspects of the relative inequality distribution. We also report the concentration of housing wealth itself within income quintiles or tertiles (depending on sample sizes, in Appendix). To assess the concentration of wealth, we take the amount of wealth each income quantile holds as a share of the sum total of all wealth (for the relevant sample selection). We describe these wealth inequality measures as ‘across the income distribution’ to highlight the additional context they provide. Income quantiles are defined at the level of the sample selection to which the respective analyses pertain (see further). Income and gross wealth variables were bottom-coded at 1; income has been top-coded at 10 times the median and wealth variables at the 99th percentile. All measures are country-specific and appropriate weighting factors (see below) have been applied in their calculation.

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<sup>14</sup> Generalized S-Gini index with aversion parameter set at 2 (the most-used Gini-coefficient) and allowing for negative values. We used the STATA set of commands (yadap: inequaly, povery, percentils) made available by Philippe Van Kerm (<http://www.vankerm.net/stata>).





Analyses in this chapter use survey-provided weights (correcting for unequal probabilities of households being selected into the sample due to survey design (e.g. oversampling of wealthy households) and selective non-response), as well as the five imputates arising from the multiple imputation of missing income and wealth components (ECB, 2023a). As the focus of this chapter is on the importance and distribution of housing and non-housing wealth across the general population, no additional efforts have been made to adjust for likely remaining under-reporting of wealth ownership at the very top of the wealth distribution.

### **3.4 Trends in inequality and concentration of housing wealth across all households**

#### **3.4.1 To what extent did housing wealth become more unequally distributed over time?**

This first section explores developments, across European countries, in the distribution and concentration of gross housing wealth over time. As discussed previously, the tenure structure/homeownership rate is the main factor explaining comparative differences in housing wealth as well as total wealth inequality. The aim of this section is to investigate whether – in line with arguments arising from the more theoretical literature discussed in Chapter 1 of Deliverable 3.1 – a polarization of housing wealth between housing market insiders (homeowners) and outsiders (renters) can be discerned.

Given the time period under consideration (2010 to 2021), there are two important limitations to discuss. A first limitation is the rather short time period: traditionally, wealth inequality has been studied over much longer time frames, spanning several centuries even (e.g. Piketty, 2014; Piketty & Zucman, 2014; Roine & Waldenström, 2015). Secondly, the distribution of wealth is, more than income, sensitive to economic fluctuations. A common finding regarding financial wealth has been that growing prosperity is associated with increasing wealth inequality, whilst inequality tends to decrease during economic downturns (Keister & Moller, 2000). In times of crisis, wealth destruction tends to mostly affect the higher end





of the wealth distribution. In the course of April 2025, Donald Trump's trade war, for instance, wiped out trillions of dollars of asset wealth in a matter of days. Though housing values are influenced by housing markets rather than financial markets, the period under consideration has been characterized by high house price volatility, which affects the value of housing, and hence our dependent variables. Such volatility (strong decline around the Global Financial Crisis (GFC, 2008-9) followed by strong or more gradual increases during the post-crisis period, depending on the indicator used) was more outspoken in Southern- and Eastern-European countries, but also in, for instance, the Netherlands. House price volatility is, furthermore, likely to affect the distribution and concentration of housing wealth, as not all properties are affected equally. One could perhaps expect a decline in the inequality and concentration of gross housing wealth during the aftermath of the GFC. Higher-end properties (e.g. luxury villa's) tend to experience stronger price declines during a recession, and also pick up in housing value later and at a slower pace when the economy improves. Because during a recession more middle- and higher-income households might furthermore look for better-affordable properties, one would furthermore expect that demand pressure on and price competition for lower-end properties increases, also leading to a certain de-concentration of housing wealth. Expected increases in inequality and concentration of housing wealth associated with – for instance – declining and/or increasingly socially-stratified access to homeownership or multi-property ownership, could therefore potentially be offset by a de-concentration of gross housing wealth in the years immediately following the GFC.

Given differential patterns and trends in various housing inequalities established in Deliverable 3.1, we display descriptive trends over time for Western-Europe vs. Eastern-Europe. In Figures 3.1A and 3.1B, we show the trend in the wealth-based Gini-coefficient. In 9 out of 14 Western-European countries, we see a modest or stronger increase in the wealth-based Gini over time. Housing wealth inequality has increased most clearly in Finland and Spain. Only in Belgium there seems to be a decrease in gross housing wealth inequality, mainly between 2010



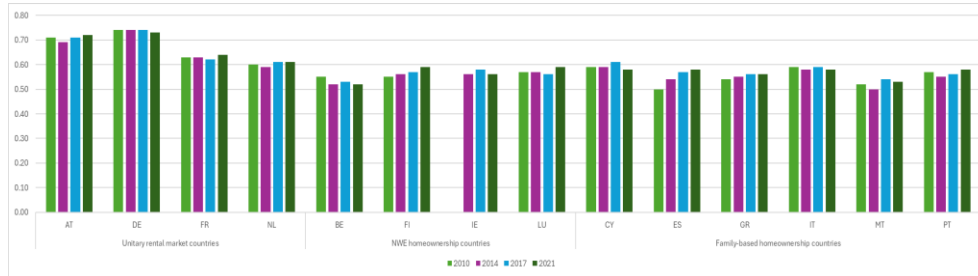


and the later waves. In several other countries we also see a decrease in gross wealth inequality between 2010 and 2014 (following the GFC), followed by a gradual increase in the later waves (Austria, Netherlands, Malta, Portugal). In Eastern-Europe on the other hand, total gross wealth inequality declined for 5 out of 8 countries; we only note increasing housing wealth inequality in Croatia and Slovenia. In the Baltics, as well as Poland and Hungary, there was a trend towards declining housing wealth inequality

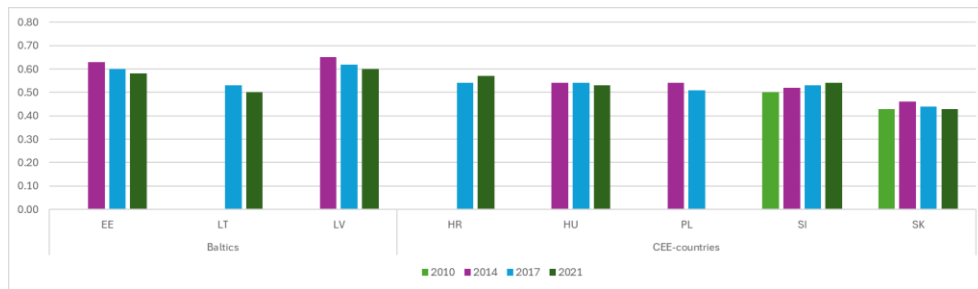




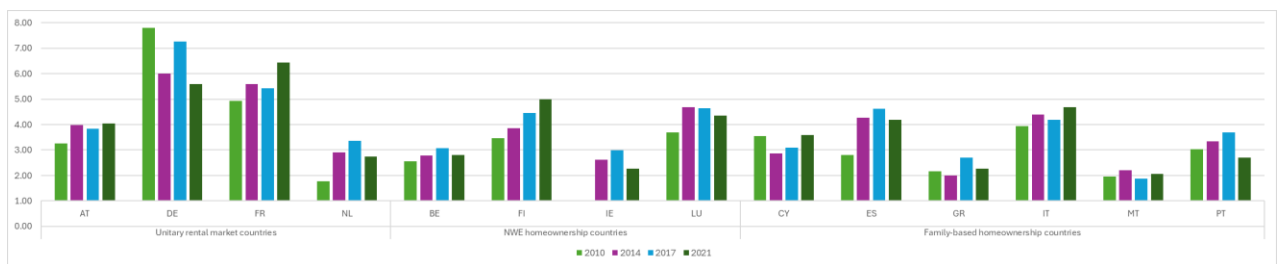
**Figure 3.1A Trends in gross housing wealth inequality over time across Western-Europe, wealth-based Gini (HFCS, 2010-2021, household level, weighted results) (all households)**



**Figure 3.1B Trends in gross housing wealth inequality over time across Eastern-Europe, wealth-based Gini (HFCS, 2010-2021, household level, weighted results) (all households)**

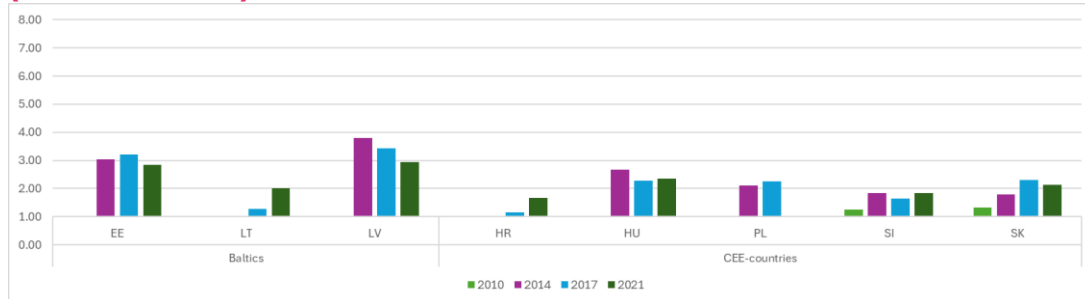


**Figure 3.2A Trends in gross housing wealth concentration over time across Western-Europe, ratio of top quintile share vs. bottom quintile share, across the income distribution (HFCS, 2010-2021, household level, weighted results) (all households)**





**Figure 3.2B Trends in gross housing wealth concentration over time across Eastern-Europe, ratio of top quintile share vs. bottom quintile share, across the income distribution (HFCS, 2010-2021, household level, weighted results) (all households)**





Figures 3.2A and 3.2B show developments in gross housing wealth over time, expressed as the ratio of the top quintile share vs. the bottom quintile share, across the income distribution (concentration graphs by housing-welfare regime for different age cohorts are available in the Appendix to this chapter). Increases indicate increasing wealth concentration, either because of growing top wealth shares, declining bottom wealth shares, or both. Again, we note increases in 9 out of 14 West-European countries, with a stronger trends towards increased concentration of wealth in Austria, France, Netherlands, Finland, Spain and Italy. Trends in Germany and Ireland are more diffuse. Gross housing wealth also became more concentrated across income quintiles in 5 out of 8 Eastern-European countries: Lithuania, Croatia, Poland, Slovenia, and Slovakia.

Different age cohorts have acquired housing wealth/homeownership in different age periods and under different macro-economic conditions (e.g. labour market conditions, access to mortgage finance, house price trends, privatization). For various reasons (e.g. a trend towards enhanced income-based stratification of homeownership entry in Chapter 5 of Deliverable 3.1), we could hypothesize that trends in gross housing wealth inequality (across the wealth distribution) and concentration (across the income distribution) would be more outspoken for younger households. Figures 3.3 and 3.4 therefore repeat the analyses above for the subgroups of households with a household reference person aged 40 and younger. Given the strong correlations in some countries between age cohort and household income (see Chapter 6 of Deliverable 3.1), we calculated cohort-specific income tertiles to investigate trends in (gross) housing wealth concentration over time. As evident from Table A3.2 in Appendix, the absolute number of young adult-households is not very large in several countries, which results in larger fluctuations (average sample size across countries is 691). Nevertheless, previous research on the same data for a smaller number of countries has shown that even in this case, some trends were statistically significant (Dewilde & Flynn, 2021).



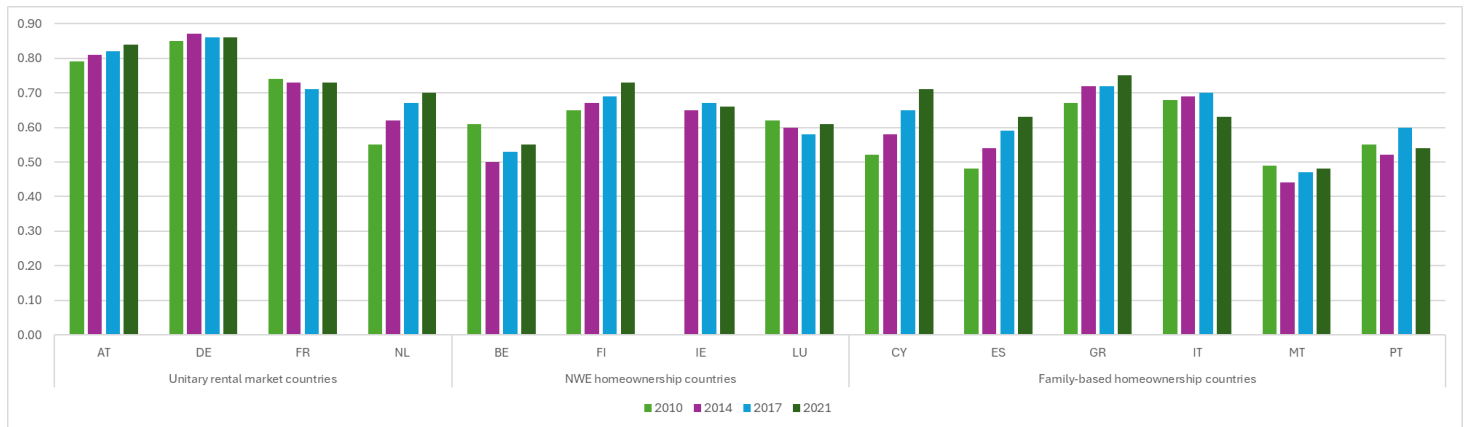


Figures 3.3A and 3.3B show the time trend in the wealth-based Gini-coefficient for young households. Though stronger increases in gross housing wealth inequality can only be discerned for 6 out of 14 Western-European countries (Austria, Netherlands, Finland, Cyprus, Spain, Greece), there are no countries for which we note a decline. Furthermore, for those countries for which we do note an increase, there are quite large movements in the wealth-based Gini-coefficient: in Cyprus, the wealth-based Gini for young household increases from 0.52 in 2010 to 0.71 in 2021; in the Netherland a similar-sized increase is noted, from 0.55 to 0.70. Even bearing in mind that changes in the Gini-coefficient of gross housing wealth are strongly driven by house price volatility as well as tenure restructuring, and that country samples in HFCS are small, much smaller changes in the Gini-coefficient are generally considered as 'significant'. Across Eastern-European countries, we again see more varied developments, with increases in gross housing wealth inequality for young households in Lithuania (the opposite pattern was noted for the whole population), Croatia and Slovenia. A clear decrease is noted for Estonia (similar to the time trend for the whole population).

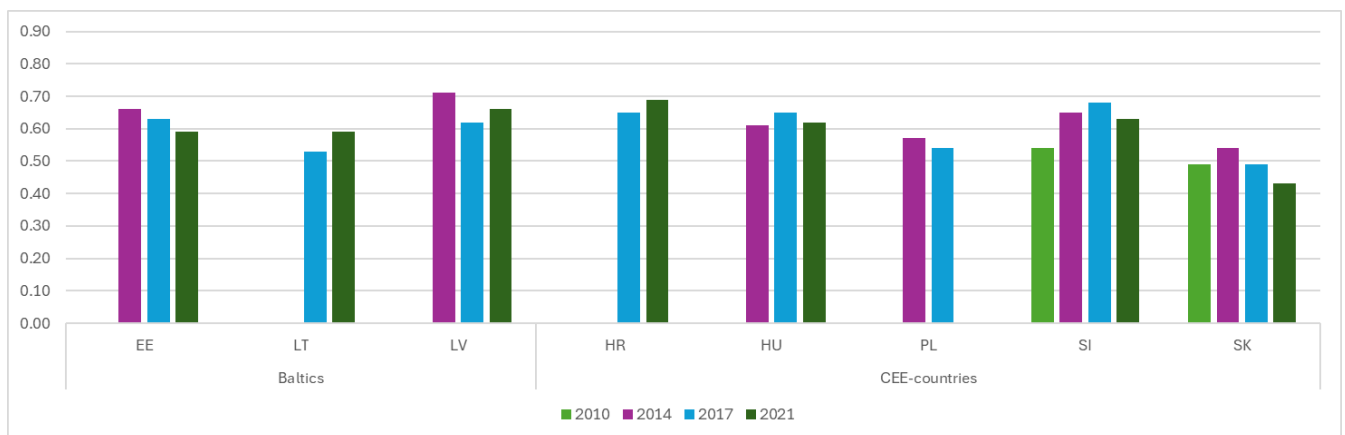




**Figure 3.3A Trends in gross housing wealth inequality over time across Western-Europe, wealth-based Gini, households with a reference person  $\leq 40$  (HFCS, 2010-2021, household level, weighted results) (all households)**

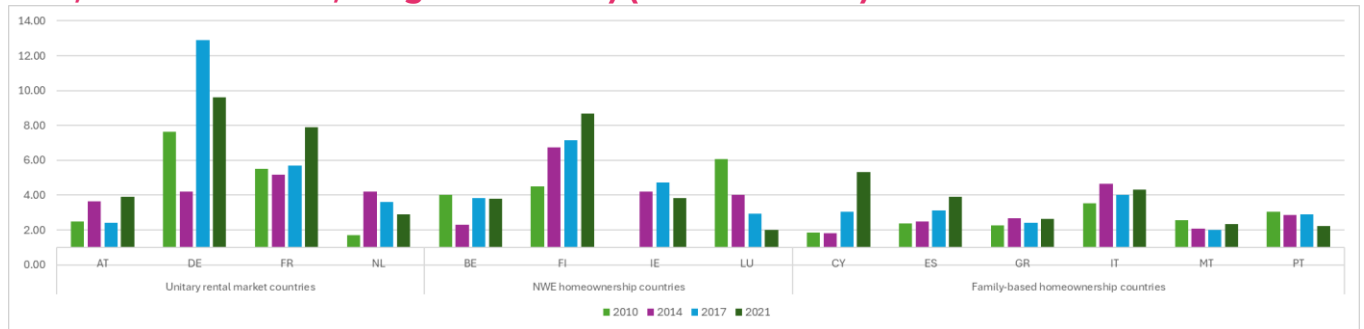


**Figure 3.3B Trends in gross housing wealth inequality over time across Eastern-Europe, wealth-based Gini, households with a reference person  $\leq 40$  (HFCS, 2010-2021, household level, weighted results) (all households)**

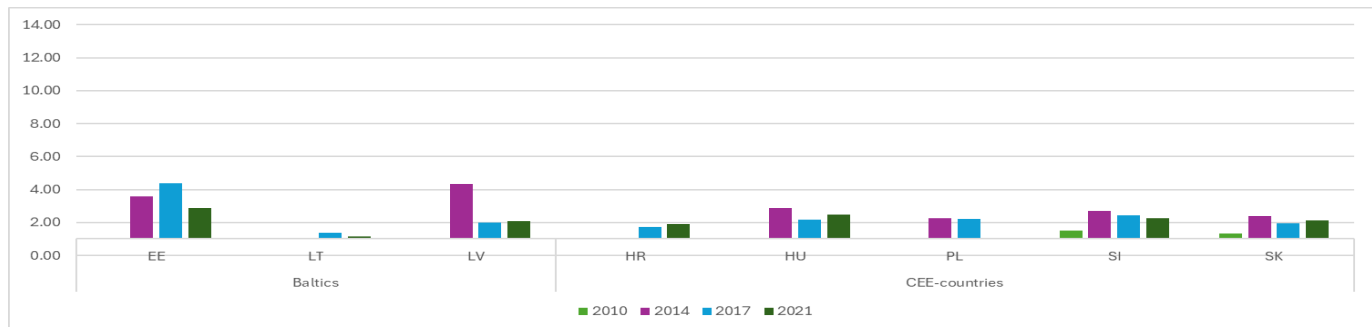




**Figure 3.4A Trends in gross housing wealth concentration over time across Western-Europe, ratio of top tertile share vs. bottom tertile share, across the income distribution, households with a reference person  $\leq 40$  (HFCS, 2010-2021, household level, weighted results) (all households)**



**Figure 3.4B Trends in gross housing wealth concentration over time across Eastern-Europe, ratio of top tertile share vs. bottom tertile share, across the income distribution, households with a reference person  $\leq 40$  (HFCS, 2010-2021, household level, weighted results) (all households)**





Figures 3.4A and 3.4B show developments in gross housing wealth over time, expressed as the ratio of the top tertile share vs. the bottom tertile share, across the income distribution.<sup>15</sup> We again note increases in 9 out of 14 countries, with strong increases in housing wealth concentration in Finland, Cyprus, and also Germany. Declines are noted in Luxembourg and also Portugal; in both countries this relates to increases in housing wealth shares by the bottom income tertile and decreases in housing wealth shares by the top income tertile (see Appendix Figure A3.2). Developments in the Netherlands seem somewhat opposite based on both indicators; wealth share ratio's decline between 2014 and 2021, but in 2021 are still elevated from the 2010-level. Across Eastern-Europe, we see somewhat clearer increases in wealth concentration in Slovenia and Slovakia (evaluated from the 2010-value). In Latvia there seems a decline in housing wealth concentration.

### 3.4.2 Summarizing overview and test of significance

#### Summarizing overview

Table 3.1 summarizes the visual inspection of trends over time for all households. Overall, we note a trend towards increasing inequality and concentration of (gross) housing wealth, both across the total sample of households and for young households with a reference person  $\leq 40$  years of age. Such a trend is most consistent in the countries with a unitary rental market and across Southern-European countries. Bar strong and consistent increases in Finland, the trend is less outspoken in the traditional homeownership countries of Western-Europe, with Belgium and Luxembourg standing out in terms of declining inequality and concentration, or a more fluctuating trend. Developments are more varied in the CEE-countries, with more consistent increases in wealth inequality in Croatia, Slovenia, and perhaps Slovakia, and more consistent decreases in Hungary and Poland. In the Baltics (particularly Estonia and Latvia), there

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<sup>15</sup> We use age cohort-specific tertiles because of smaller sample sizes in HFCS.





seems to be an overall trend towards declining inequality and concentration of gross housing wealth. Inequality of gross housing wealth trends upwardly most consistently across measures and sample selections in Finland, Austria, the Netherlands, Spain, Slovenia, Croatia and France.

Trends are broadly similar for the total sample and when young households are considered; this could indicate that overall trends in gross housing wealth inequality and concentration are driven specifically by developments affecting subsequent younger cohorts. In other words, increased income-based stratification of homeownership entry is a potentially important driver of overall trends in (gross) housing wealth inequality, as well as wealth inequality in general. Chapter 5 of Deliverable 3.1 specifically investigated to what extent in recent years young adult-homeownership across European countries became 're-stratified'. An important research question was to what extent new cohorts entering the housing market are durably excluded from homeownership, as opposed to merely delaying their transition into homeownership. Based on data from EU-SILC, Chapter 5 tracked the homeownership rates of: (a) young adult age groups from 2005-2023 as well as (b) six birth cohorts, for 29 European countries. We found increasing income-based stratification of homeownership in social-democratic unitary rental-market countries (Netherlands, Denmark, Sweden), to a similar extent as in some homeownership countries with a dual rental market (e.g. UK, Ireland, Finland). New generations with low incomes in these countries are not only increasingly durably excluded from entering homeownership at all, but low incomes also seem to increasingly fall out of homeownership later in the life course. Income-based stratification of homeownership was also on the rise in several Eastern-European countries, either as increased exclusion amongst low incomes (e.g. Estonia, Slovenia) or as disproportionate growth amongst high incomes in Poland. In Southern-Europe, particularly in Spain and Greece, there was a strong generational decline of young-adult homeownership across cohorts and age groups, regardless of income. Finally, middle-class homeownership appeared to be eroding in a number of countries (Sweden, Norway, Denmark, and Ireland, but also Estonia, Slovakia and Slovenia). In the Netherlands, France and Luxembourg, only





low incomes were increasingly excluded, whereas middle-income homeownership rates were stable or even rising.

**Table 3.1 Trends in inequality and concentration of gross housing wealth (HFCS, 2010-2021, household level, weighted results) (all households)**

Housing-welfare regime	Time	Inequality (all households)	Concentration (all households)	Inequality (young households)	Concentration (young households)	Income-based stratification of young-adult homeownership
Social-democratic unitary rental market-countries						
NL	2010-2021	small increase	increase	increase	small increase	small increase
Conservative-corporatist unitary rental market-countries						
AT	2010-2021	small increase	increase	increase	increase	small increase
DE	2010-2021	Stable	fluctuating	stable	increase	stable
FR	2010-2021	small increase	increase	stable	small increase	small increase
NWE homeownership countries - dual rental market						
BE	2010-2021	small decrease	small increase	small decrease	stable	small decrease
FI	2010-2021	increase	increase	increase	increase	increase
IE	2014-2021	stable	stable	stable	stable	stable
LU	2010-2021	small increase	small increase	stable	decrease	decrease
SE family-based homeownership countries						
CY	2010-2021	stable	stable	increase	increase	small increase
ES	2010-2021	increase	increase	increase	increase	small increase
GR	2010-2021	small increase	stable	increase	stable	stable
IT	2010-2021	stable	small increase	stable	small increase	stable
MT	2010-2021	small increase	stable	stable	stable	small increase
PT	2010-2021	small increase	small increase	stable	small decrease	fluctuating
Baltics						
EE	2014-2021	decrease	stable	decrease	stable	decrease
LT	2017-2021	decrease	increase	small increase	small decrease	small decrease
LV	2014-2021	decrease	decrease	small decrease	decrease	fluctuating
CEE-countries						
HR	2017-2021	small increase	increase	small increase	small increase	small increase
HU	2014-2021	small decrease	small decrease	stable	stable	small decrease
PL	2014-2017	small decrease	small increase	small decrease	stable	small decrease
SI	2010-2017	increase	increase	increase	increase	increase
SK	2010-2017	stable	increase	stable	increase	small decrease

Though conclusions drawn from Chapter 5 depended somewhat on the specific age group and cohort considered, HFCS-data also reveal increased income-based stratification of homeownership amongst households with a reference person ≤ 40 years of age, operationalized in terms of developments in the ratio of young adult-homeownership rates in the top income tertile vs. the bottom income tertile in





subsequent years (see Appendix Figures A3.5A and B).<sup>16</sup> Familiar housing-welfare regime patterns arise, with increased income-based stratification of young-adult homeownership most evident in the countries with a unitary rental market and in Southern-Europe. We see declining income-based stratification of young adult-homeownership across most of Eastern-Europe (bar Slovenia and Croatia). ***On face value, it would appear that trends in gross housing wealth inequality and concentration amongst all households are partly driven by trends in gross housing wealth inequality and concentration amongst young-adult households, in turn driven by increased income-based stratification of young-adult homeownership.*** These overall trends are increasing in the Netherlands, Austria, Finland, France, as well as in most Southern-European countries, Croatia, Slovenia and Slovakia; the trends are decreasing in the Baltics, Hungary, and Poland.

#### Test of significance

As we are interested in evaluating whether there is a significant within-country trend over time towards increased inequality and concentration of gross housing wealth, we evaluate a (linear) time trend using fixed-effects regression based on a country-year panel data set constructed by the author from HFCS, using the indicators discussed above. Fixed-effects models control for all time-invariant differences between countries (e.g. culture, historically-evolved long-standing differences in institutions), and therefore only capture the causes of change *within* a country. As there are reasons to believe that inequality trends within countries are influenced by their own internal characteristics (i.e. the housing-welfare regime/tenure structure), fixed-effects models are the superior choice (vs. random-effects models), but as all between-country variation is removed from the data by using each country as a control for itself, fixed-effects models also tend

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<sup>16</sup> We also evaluated the trend in the absolute %-difference, which delivered very similar patterns.

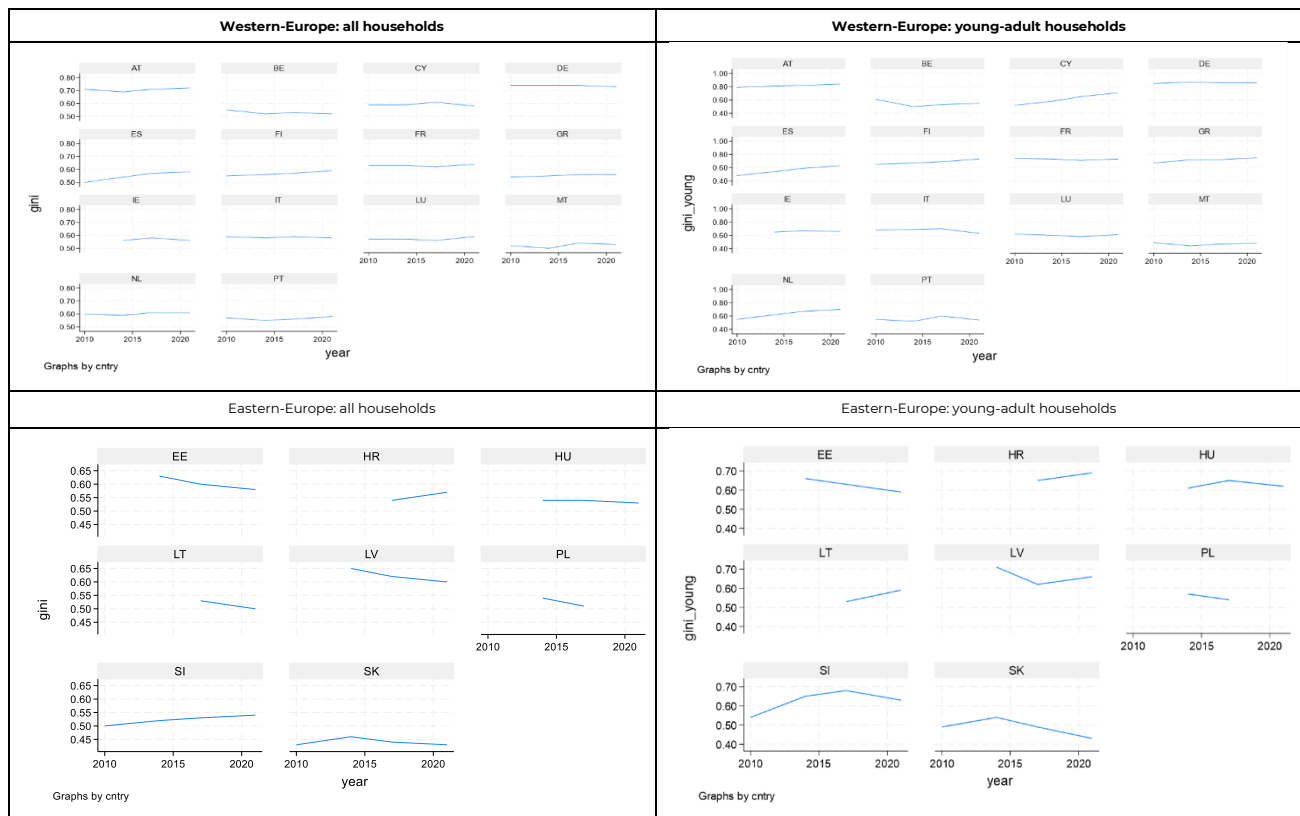




to be statistically inefficient, certainly when based on a smaller number of time points (e.g. Andreß et al., 2013; Torres-Reyna, 2007).

Models below are estimated on an unbalanced panel of 78 country-years, as well as on a Western-European (55 country-years) and Eastern-European subsample (23 country-years). While the wealth-based Gini-coefficient was more or less normally distributed, the wealth share ratio was log-transformed in order to achieve a normal distribution. Significance tests indicated that for most models reported below, it was not necessary to additionally include time fixed-effects in addition to the linear time trend.

**Figure 3.5. Time trends across Eastern- and Western-Europe, wealth-based Gini-coefficient**



**Table 3.2. Panel fixed-effects regression evaluating the existence of a linear time trend towards high housing wealth inequality, all households**

	Total sample		Western-Europe			Eastern-Europe		
	(N=78 country-years)		(N=55 country-years)			(N=23 country-years)		
	Coefficient	SE	Coefficient		SE	Coefficient		SE
<b>Year</b>	0.0008	0.0005	0.0012	*	0.0005	-0.0010		0.0013
<b>Constant</b>	-0.9631	0.9768	-1.8610		0.9698	2.5424		2.5949
<b>Sigma_u</b>	0.0643		0.0625			0.0571		
<b>Sigma_e</b>	0.0160		0.0142			0.0193		
<b>Intraclass correlation</b>	0.9414		0.9510			0.8976		
<b>F-test (Prob &gt; F)</b>	2.48		6.40	*		0.60		

Note: (\*): p<0.10; \*: p<0.05; \*\*p<0.01; \*\*\*p<0.001.

**Table 3.3. Panel fixed-effects regression evaluating the existence of a linear time trend towards higher housing wealth inequality, young households**

	Total sample		Western-Europe			Eastern-Europe		
	(N=78 country-years)		(N=55 country-years)			(N=23 country-years)		
	Coefficient	SE	Coefficient		SE	Coefficient		SE
<b>Year</b>	0.0032	0.0012	0.0041	**	0.0013	-0.0004		0.0030
<b>Constant</b>	-5.7637	2.4169	-7.5996		2.5465	1.3773		5.9539
<b>Sigma_u</b>	0.0946		0.1066			0.0626		
<b>Sigma_e</b>	0.0397		0.0373			0.0442		
<b>Intraclass correlation</b>	0.8506		0.8911			0.6671		
<b>F-test (Prob &gt; F)</b>	7.01	*	10.50	**		0.02		

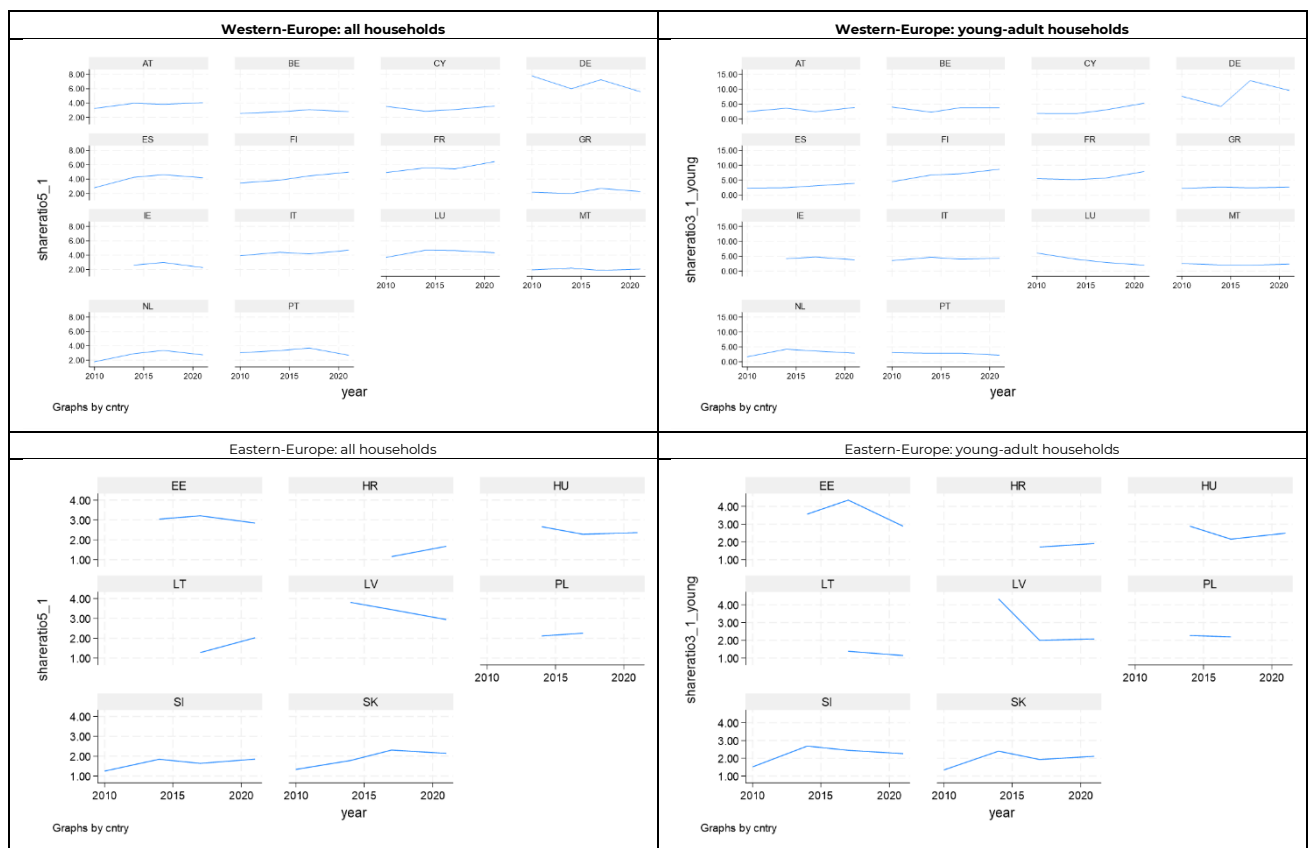
Note: (\*): p<0.10; \*: p<0.05; \*\*p<0.01; \*\*\*p<0.001.

In line with descriptive findings above, there is a **statistically significant trend toward increasing inequality of gross housing wealth over time across Western-European countries, both for all households and for young adult-households** (Tables 3.2 and 3.3). A similar trend cannot be discerned across Eastern-European countries. **With regard to the concentration of gross housing wealth over time, a trend towards increased concentration can be discerned across the total sample of countries (all households)**, though it is less evident for the Eastern-European subsample. The trend towards increased concentration of housing wealth appears less strong for young households (which could be explained by the fact that less of them become homeowners during this period), and insignificant across Eastern-Europe



(Tables 3.4 and 3.5). **All in all, we can say that across Europe, there is a trend towards increased inequality and concentration of housing wealth, in Western- rather than in Eastern-Europe. Again, the pattern of these findings is in line with an interpretation singling out the potential importance of increasingly stratified access to homeownership in Western-Europe.**

**Figure 3.6 Time trends across Eastern- and Western-Europe, wealth concentration (quintile/tertile top to bottom share ratio)**





**Table 3.4 Panel fixed-effects regression evaluating the existence of a linear time trend towards higher housing wealth concentration (log-transformed), all households**

	Total sample			Western-Europe			Eastern-Europe		
	(N=78 country-years)			(N=55 country-years)			(N=23 country-years)		
	Coefficient		SE	Coefficient		SE	Coefficient		SE
<b>Year</b>	0.0144	**	0.0044	0.0121	*	0.0046	0.0231	(*)	0.0112
<b>Constant</b>	-27.9238		8.7832	-23.2363		9.2194	-45.8653		22.5550
<b>Sigma_u</b>	0.4161			0.3377			0.3247		
<b>Sigma_e</b>	0.1441			0.1349			0.1676		
<b>Intraclass correlation</b>	0.8929			0.8624			0.7897		
<b>F-test (Prob &gt; F)</b>	10.92	**		7.05	*		4.27	(*)	

Note:

(\*): p<0.10; \*: p<0.05; \*\*p<0.01; \*\*\*p<0.001.

**Table 3.5 Panel fixed-effects regression evaluating the existence of a linear time trend towards higher housing wealth concentration (log-transformed), young households**

	Total sample			Western-Europe			Eastern-Europe		
	(N=78 country-years)			(N=55 country-years)			(N=23 country-years)		
	Coefficient		SE	Coefficient		SE	Coefficient		SE
<b>Year</b>	0.0149	(*)	0.0085	0.0184	(*)	0.0098	0.0013		0.0170
<b>Constant</b>	-28.8564		17.1080	-35.7505		19.8466	-1.9121		34.3075
<b>Sigma_u</b>	0.4401			0.3841			0.3045		
<b>Sigma_e</b>	0.2807			0.2904			0.2549		
<b>Intraclass correlation</b>	0.7108			0.6363			0.5881		
<b>F-test (Prob &gt; F)</b>	3.07	(*)		3.48	(*)		0.01		

Note: (\*): p<0.10; \*: p<0.05; \*\*p<0.01; \*\*\*p<0.001.

## 3.5 Trends in inequality and concentration of housing wealth across homeownership households

### 3.5.1 To what extent did housing wealth become more unequally distributed over time?

Firstly, we assess whether there is evidence of housing wealth polarization between low wealth/income and high wealth/income homeownership households. From the literature discussed in Chapter 1 of Deliverable 3.1, such polarization *within* the homeowner-segment could arise from several different mechanisms, such as increased cumulative advantage/disadvantage in terms of capital gains returns in relation to initial housing investments (which have also become more socially-stratified in themselves),





the amplifying impact of family support for housing intersecting with socio-economic position (as family support tends to be higher for better-placed young adults compared with less advantaged young adults, allowing the former to purchase more expensive properties earlier in the life-course and in more 'productive' locations), or the suspected growth of multi-property ownership at the high end of the income and wealth distributions.

Given that associations between income and tenure vary across housing-welfare regimes, and that the focus of this section is on mechanisms driving trends in housing wealth inequality and concentration other than the tenure structure (i.e. trends in homeownership rates), concentration shares are calculated using homeowner-specific as well as age cohort-specific (for the subsample of young homeowners) income quantiles.

Though one would perhaps expect much smaller changes over time within the homeowner-segment, we again can discern some general trends over time. Across Western-European countries, we only see a trend towards declining wealth inequality and concentration in Cyprus, Portugal and Germany (Figures 3.7A and 3.7B). In other countries, the trend is either stable or increasing (about 8 out of 14 countries) over time. Increases are most consistent across both measures in France, Finland, Greece and Italy. Across Eastern-Europe, developments are again different (Figures 3.8A and 3.8B). Based on the wealth-based Gini-coefficient, there seems a trends towards a more equal distribution of gross housing wealth (with Slovenia as the exception). Based on the wealth share ratio across the income distribution (top quintile vs. bottom quintile), however, the overall trend is towards increasing concentration of gross housing wealth over time (with Poland, Croatia, Slovenia and Slovakia showing increased concentration, similar to developments for all households); such a trend is less evident in the Baltic states. As indicated in section 3.3, both measures capture different aspects of trends in the distribution of housing wealth.

Figures 3.9A-B and 3.10A-B display trends in wealth inequality and concentration amongst young homeowners. Given the smaller number of young homeowners in, for



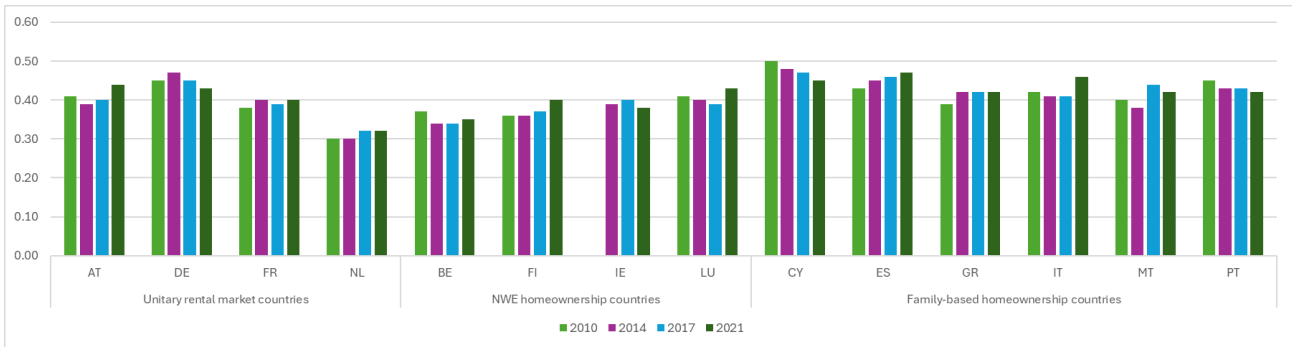


instance, countries with a unitary rental market (e.g. Austria), where levels of multi-generational co-residence are high, or with small samples in general (e.g. Cyprus and Croatia), the average sample size is now only 387 (wave 4). It is therefore important not to over-interpret large fluctuations. Again, we see a similar picture emerging, with stable or increasing wealth inequality (based on the Gini-coefficient) across Western-European countries (clearer increases in Austria, Finland, Netherlands, Italy, Greece, Cyprus) and for Slovenia and Slovakia. Small declines in gross housing wealth inequality are limited to Estonia, Croatia and Poland. Increases in the wealth share ratio between the top and bottom income tertile are more common in unitary rental market countries, Southern-European countries and also Central- and Eastern-European countries. During the decade from 2010 to 2021, gross housing wealth became clearly more concentrated in Austria, France, Spain, Italy and also Slovakia.

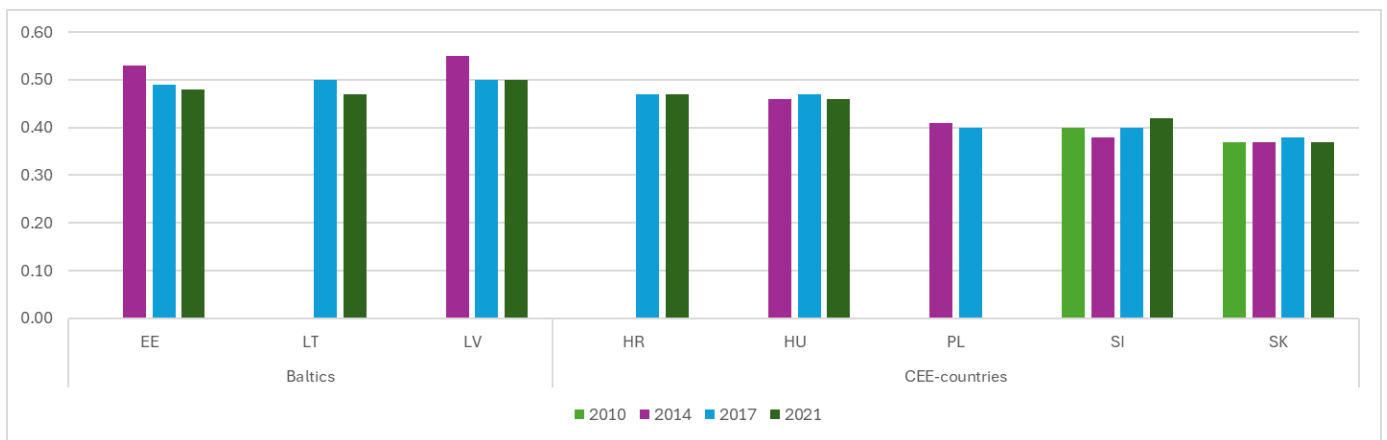




**Figure 3.7 (A) Trends in gross housing wealth inequality over time across Western-Europe, wealth-based Gini (HFCS, 2010-2021, household level, weighted results) (homeowners)**

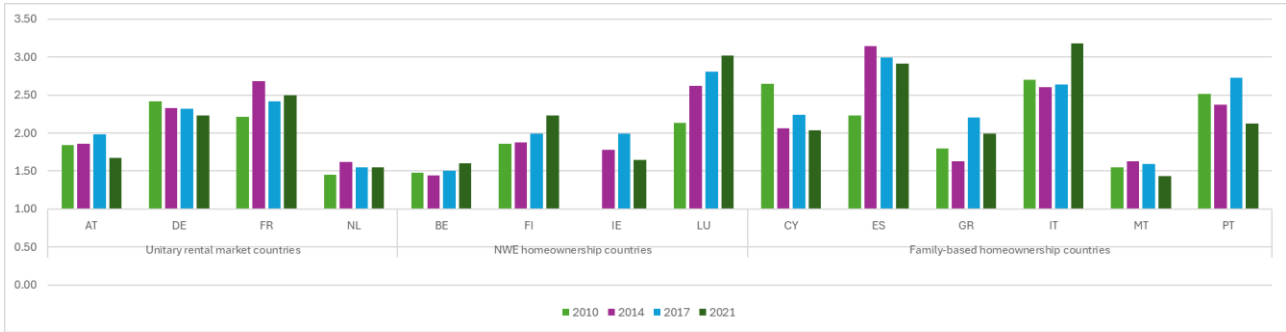


**Figure 3.7 (B) Trends in gross housing wealth inequality over time across Eastern-Europe, wealth-based Gini (HFCS, 2010-2021, household level, weighted results) (homeowners)**

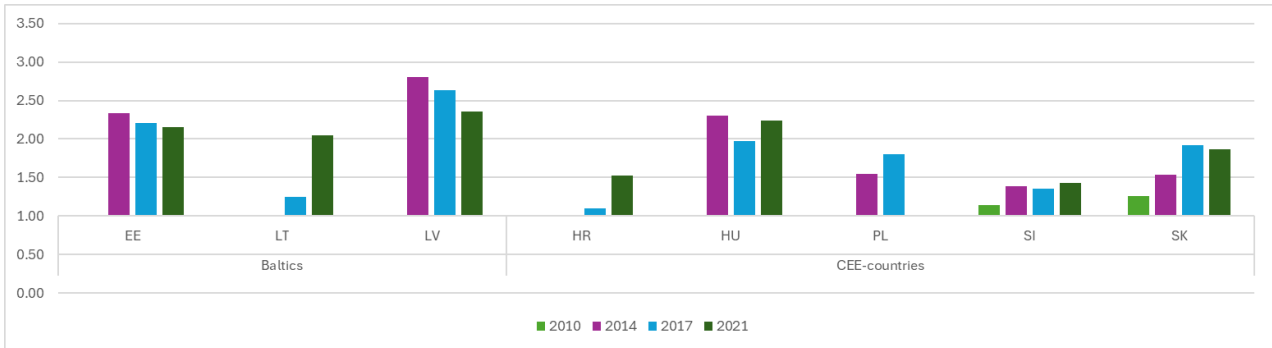




**Figure 3.8 (A) Trends in gross housing wealth concentration over time across Western-Europe, ratio of top quintile share vs. bottom quintile share, across the income distribution, (HFCS, 2010-2021, household level, weighted results) (homeowners)**

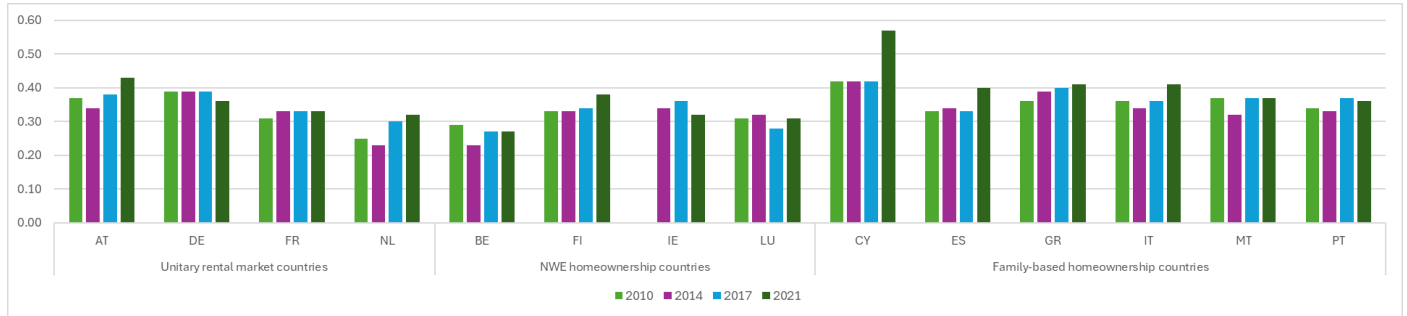


**Figure 3.8 (B) Trends in gross housing wealth concentration over time across Eastern-Europe, ratio of top quintile share vs. bottom quintile share, across the income distribution, (HFCS, 2010-2021, household level, weighted results) (homeowners)**

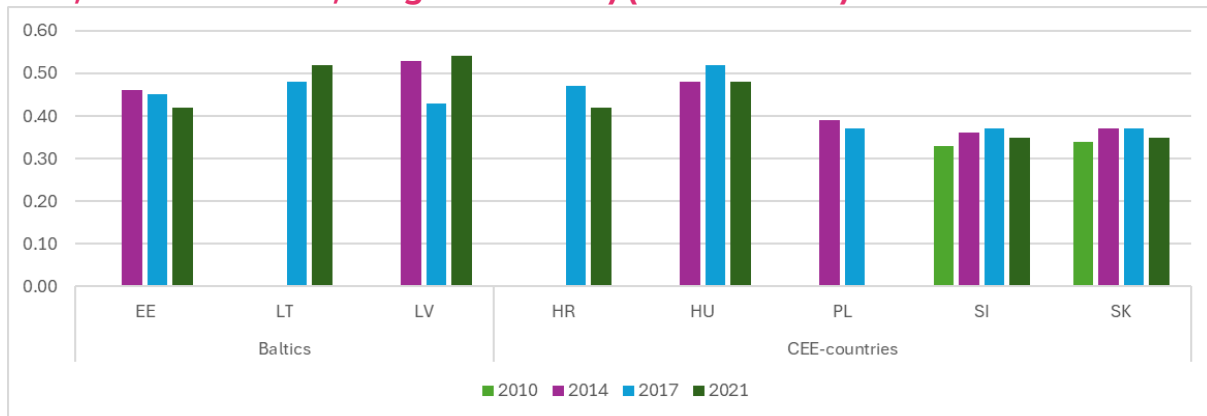




**Figure 3.9 (A) Trends in gross housing wealth inequality over time across Western-Europe, wealth-based Gini, households with a reference person ≤ 40 (HFCS, 2010-2021, household level, weighted results) (homeowners)**

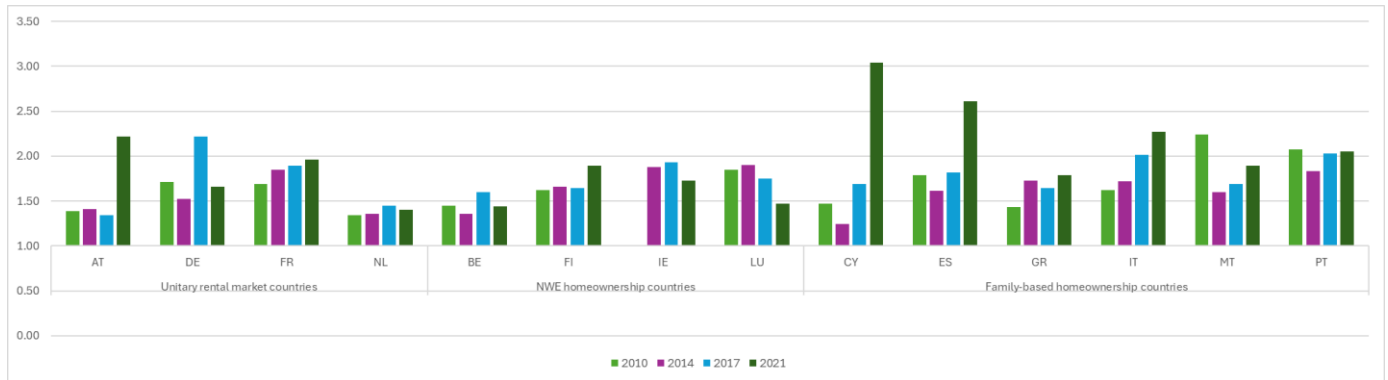


**Figure 3.9 (B) Trends in gross housing wealth inequality over time across Eastern-Europe, wealth-based Gini, households with a reference person ≤ 40 (HFCS, 2010-2021, household level, weighted results) (homeowners)**

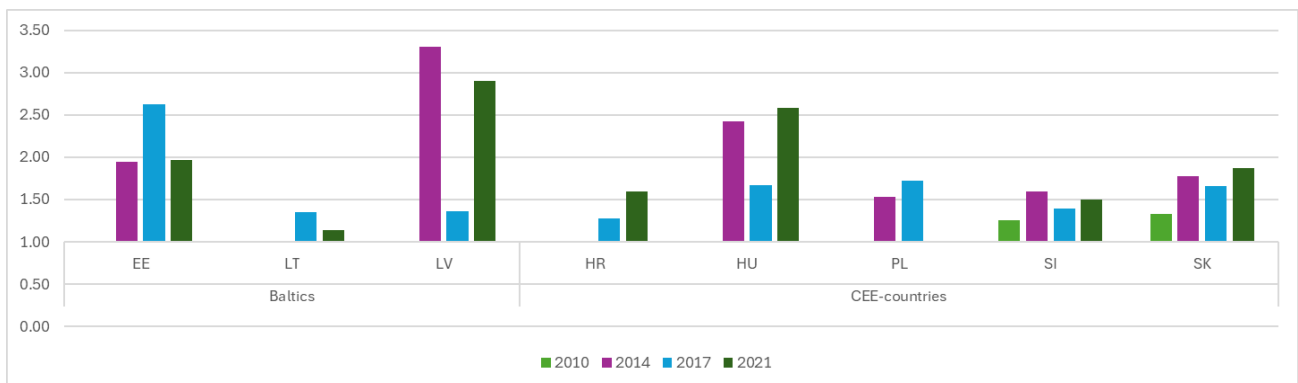




**Figure 3.10 (A) Trends in gross housing wealth concentration over time across Western-Europe, ratio of top tertile share vs. bottom tertile share, across the income distribution, households with a reference person  $\leq 40$  (HFCS, 2010-2021, household level, weighted results) (homeowners)**



**Figure 3.10 (B) Trends in gross housing wealth concentration over time across Eastern-Europe, ratio of top tertile share vs. bottom tertile share, across the income distribution, households with a reference person  $\leq 40$  (HFCS, 2010-2021, household level, weighted results) (homeowners)**





### 3.5.2 Summarizing overview and test of significance

#### Summarizing overview

Table 3.6 summarizes trends in inequality and concentration of gross housing wealth for all homeowners as well as young-adult homeowners. Again, though this time abstracting from trends in the tenure structure, we see a fairly consistent, but somewhat different, pattern of results across housing-welfare regimes. Increases in wealth inequality and concentration within the homeownership segment are most outspoken in Southern-Europe, several unitary rental market countries (bar Germany), and also CEE-countries Slovenia and Slovakia. Finland is again the country with the strongest increase in housing wealth inequality and concentration amongst the traditional homeownership countries of Western-Europe. Trends towards increasing inequality and concentration seem more outspoken for young-adult homeowners, particularly across Southern-Europe. Again, there is a clear trend towards declining inequality and concentration of gross housing wealth in the Baltic states, though more so for the total sample of homeowners than for young-adult homeowners. Increases across measures and groups are most evident in: Finland, Italy, Greece, Slovenia, Spain, Austria, France, the Netherland, and Slovakia. Declines in gross housing wealth inequality and concentration across measures and groups are most evident in: Estonia, Latvia and Germany – with some signs of decrease in Portugal and Cyprus for the total population. Whilst the overall polarization of (gross) housing wealth between owners and renters in the previous section seems to be driven by trends in young-adult homeownership, a polarization of (gross) housing wealth between low wealth/income and high wealth/income homeowners seems to be more specific to young adult-homeowners, with less outspoken developments in the total sample. This might indicate that there is indeed an increased intersection between the socio-economic position of young adult homeowners, and the type of properties they are entering (as was also suggested by Dewilde & Flynn, 2021 for a smaller selection of countries and over a shorter time period).





### Test of significance

As before, we evaluate whether there is a statistically significant within-country trend over time towards increased inequality and concentration of gross housing wealth of homeowners as well as young homeowners. Again, we evaluate the (linear) time trend using fixed-effects regression based on the country-year panel data set constructed by the author from HFCS, using the homeowner-specific indicators discussed above. In Figures 3.11 and 3.12, we plot the respective time trends across Eastern- and Western Europe, allowing for an additional visual perspective.

**Table 3.6. Trends in inequality and concentration of gross housing wealth (HFCS, 2010-2021, household level, weighted results) (homeowners)**

Housing-welfare regime	Time	Inequality (homeowners)	Concentration (homeowners)	Inequality (young homeowners)	Concentration (young homeowners)
Social-democratic unitary rental market-countries					
NL	2010-2021	small increase	stable	increase	small increase
Conservative-corporatist unitary rental market-countries					
AT	2010-2021	small increase	stable	increase	increase
DE	2010-2021	small decrease	decrease	stable	fluctuating
FR	2010-2021	small increase	increase	stable	increase
NWE homeownership countries - dual rental market					
BE	2010-2021	stable	small increase	stable	stable
FI	2010-2021	increase	increase	small increase	small increase
IE	2014-2021	stable	stable	stable	stable
LU	2010-2021	stable	increase	stable	decrease
SE family-based homeownership countries					
CY	2010-2021	decrease	decrease	small increase	small increase
ES	2010-2021	increase	fluctuating	small increase	increase
GR	2010-2021	small increase	small increase	increase	small increase
IT	2010-2021	small increase	small increase	increase	increase
MT	2010-2021	small increase	small decrease	stable	fluctuating
PT	2010-2021	small decrease	small decrease	small increase	stable
Baltics					
EE	2014-2021	decrease	small decrease	small decrease	fluctuating
LT	2017-2021	small decrease	increase	small increase	small decrease
LV	2014-2021	decrease	decrease	stable	fluctuating
CEE-countries					
HR	2017-2021	stable	small increase	small decrease	small increase
HU	2014-2021	stable	stable	stable	fluctuating
PL	2014-2017	small decrease	small increase	small decrease	small increase
SI	2010-2017	small increase	small increase	small increase	small increase
SK	2010-2017	stable	increase	small increase	increase





**Table 3.7. Panel fixed-effects regression evaluating the existence of a linear time trend towards higher housing wealth inequality, homeowners**

	Total sample		Western-Europe			Eastern-Europe		
	(N=78 country-years)		(N=55 country-years)			(N=23 country-years)		
	Coefficient	SE	Coefficient		SE	Coefficient		SE
<b>Year</b>	0.0005		0.0009	p<0.11	0.0006	-0.0012		0.0012
<b>Constant</b>	-0.6136	1.0674	-1.4938		1.1777	2.7814		2.3334
<b>Sigma_u</b>	0.0502		0.0429			0.0538		
<b>Sigma_e</b>	0.0175		0.0172			0.0173		
<b>Intraclass correlation</b>	0.8913		0.8613			0.9058		
<b>F-test (Prob &gt; F)</b>	0.34		2.60			1.00		

Note: (\*): p<0.10; \*: p<0.05; \*\*p<0.01; \*\*\*:p<0.001.

**Table 3.8. Panel fixed-effects regression evaluating the existence of a linear time trend towards higher housing wealth inequality, young Homeowners**

	Total sample		Western-Europe			Eastern-Europe		
	(N=78 country-years)		(N=55 country-years)			(N=23 country-years)		
	Coefficient	SE	Coefficient		SE	Coefficient		SE
<b>Year</b>	0.0027	**	0.0034	**	0.0010	0.0002		0.0020
<b>Constant</b>	-5.1615		-6.5108		1.9609	0.0368		4.1214
<b>Sigma_u</b>	0.0653		0.0490			0.0629		
<b>Sigma_e</b>	0.0295		0.0287			0.0306		
<b>Intraclass correlation</b>	0.8304		0.7449			0.8082		
<b>F-test (Prob &gt; F)</b>	9.47	**	12.24	**		0.01		

Note: (\*): p<0.10; \*: p<0.05; \*\*p<0.01; \*\*\*:p<0.001.

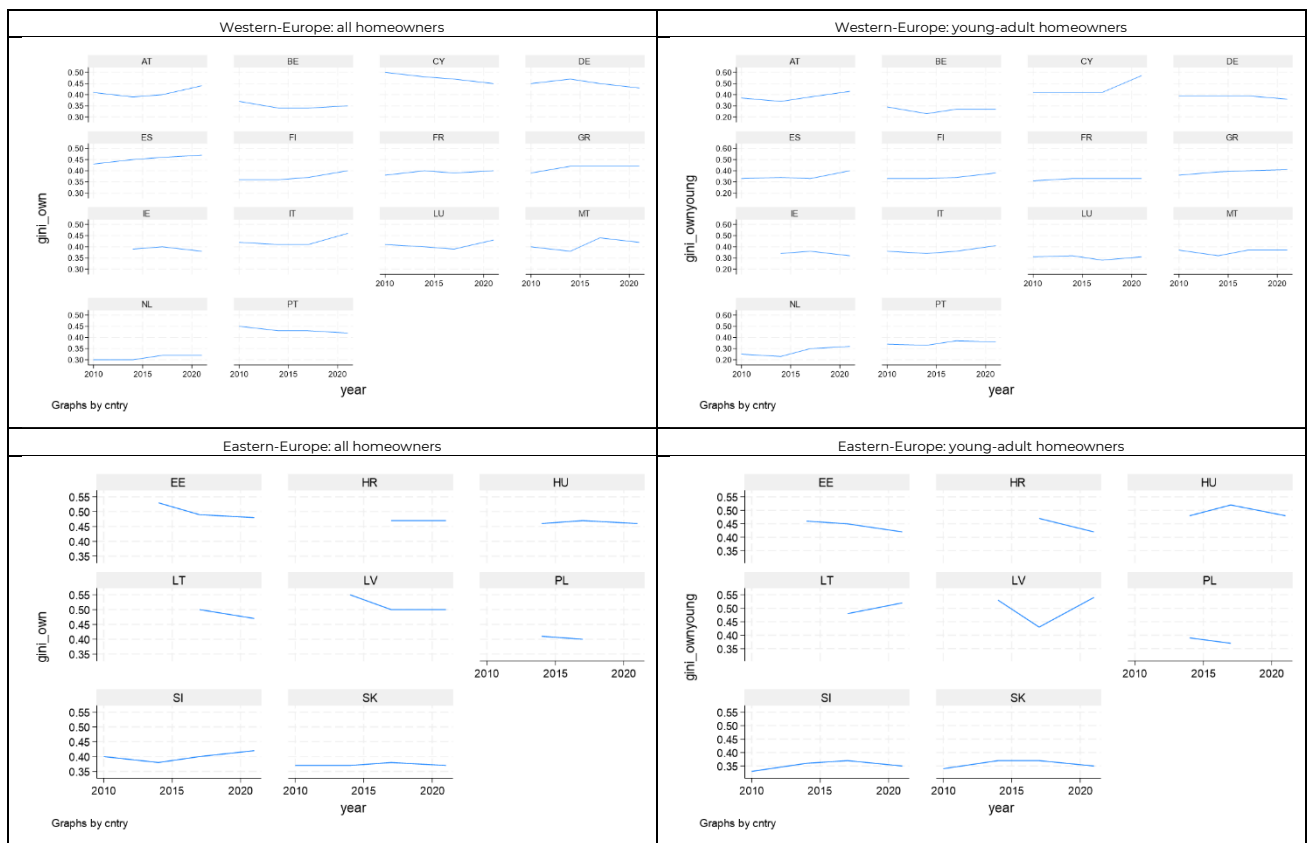
From Tables 3.7 and 3.8, we conclude that for homeowners across European countries, an increasing trend toward higher inequality of gross housing wealth is not statistically significant. For young-adult homeowners, however, a similar trend is statistically significant in Western-Europe, which also drives the result for the total sample of all country-years. Tables 3.9 and 3.10 show results for our measure of housing wealth concentration. A time trend towards increased concentration of gross housing wealth (driving the overall result) is found across Eastern-Europe when considering all homeowners, and across Western-Europe when considering young-adult homeowners.





**All in all, we find that also within the segment of homeowners, inequality and concentration of (gross) housing wealth seem on the increase. Trends are more outspoken when considering the concentration of housing wealth across the income distribution, and/or for younger households. All in all, these results indicate that changes in young-adult homeownership (overall delay/exclusion, increased income-based stratification) are not the only drivers of trends in inequality and concentration of gross housing wealth.**

**Figure 3.11. Time trends across Eastern- and Western-Europe, wealth-based Gini-coefficient**





**Table 3.9. Panel fixed-effects regression evaluating the existence of a linear time trend towards higher housing wealth concentration (log-transformed), homeowners**

	Total sample			Western-Europe			Eastern-Europe		
	(N=78 country-years)			(N=55 country-years)			(N=23 country-years)		
	Coefficient		SE	Coefficient		SE	Coefficient		SE
<b>Year</b>	0.0079	*	0.0034	0.0046		0.0033	0.0207	*	0.0093
<b>Constant</b>	-15.2163		6.8082	-8.5042		6.5803	-41.1580		18.6684
<b>Sigma_u</b>	0.2411			0.2186			0.2520		
<b>Sigma_e</b>	0.1117			0.0963			0.1387		
<b>Intraclass correlation</b>	0.8233			0.8376			0.7676		
<b>F-test (Prob &gt; F)</b>	5.46	*		1.97			5.00	*	

Note: (\*): p<0.10; \*: p<0.05; \*\*p<0.01; \*\*\*:p<0.001.

**Table 3.10 Panel fixed-effects regression evaluating the existence of a linear time trend towards higher housing wealth concentration (log-transformed), young homeowners**

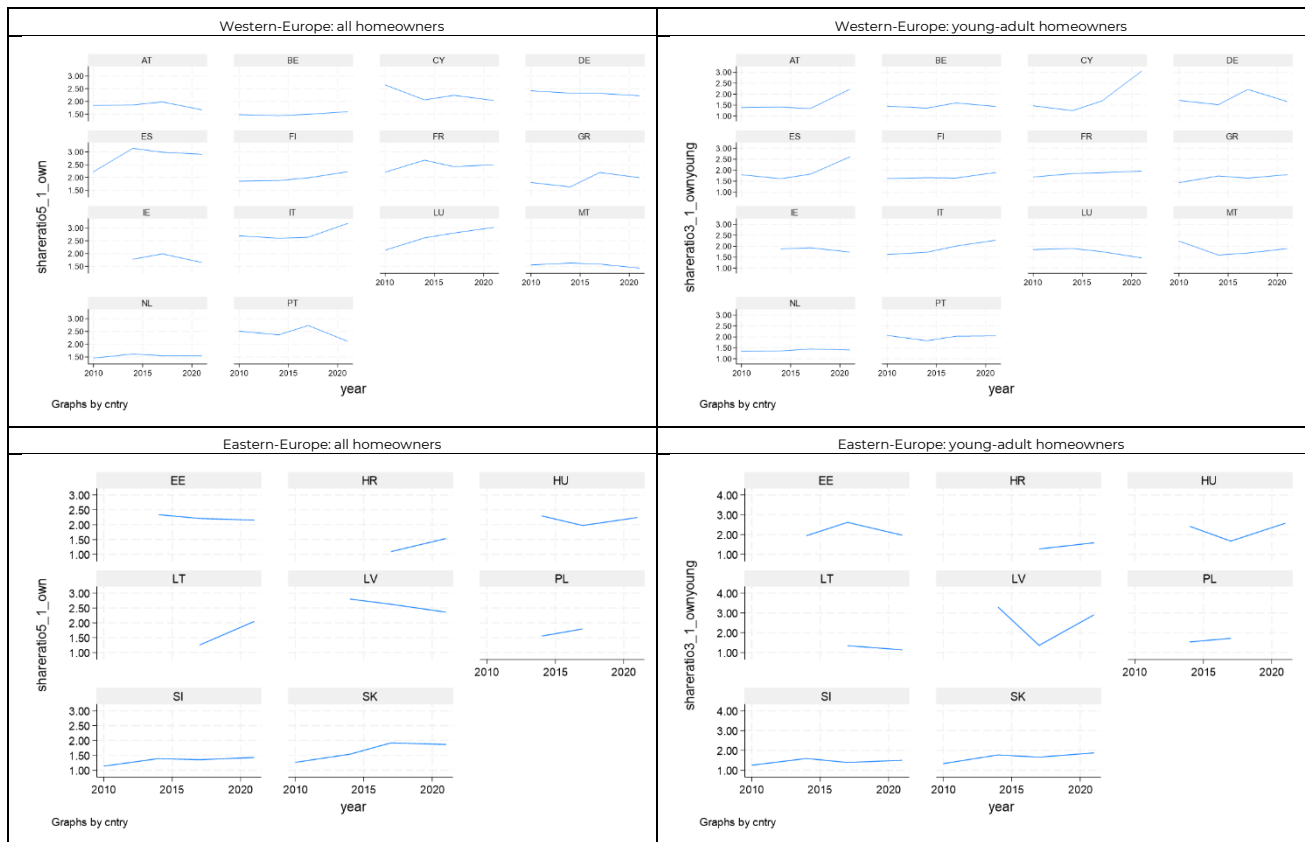
	Total sample			Western-Europe			Eastern-Europe		
	(N=78 country-years)			(N=55 country-years)			(N=23 country-years)		
	Coefficient		SE	Coefficient		SE	Coefficient		SE
<b>Year</b>	0.0143	**	0.0052	0.0146	**	0.0051	0.0132		0.0152
<b>Constant</b>	-28.3686		10.5375	-28.9356		10.3470	-26.1668		30.6770
<b>Sigma_u</b>	0.1616			0.1041			0.2397		
<b>Sigma_e</b>	0.1729			0.1514			0.2279		
<b>Intraclass correlation</b>	0.4663			0.3211			0.5252		
<b>F-test (Prob &gt; F)</b>	7.53	**		8.12	**		0.76		

Note: (\*): p<0.10; \*: p<0.05; \*\*p<0.01; \*\*\*:p<0.001.





**Figure 3.12. Time trends across Eastern- and Western-Europe, wealth concentration (quintile/tertile top to bottom share ratio)**



### 3.6 The interplay between income inequality, housing inequality and housing wealth inequality

In this section, we disentangle the various country-level drivers of a mostly statistically significant time-trend over the last decade (2010-2021) towards increased inequality and concentration of (gross) housing wealth across all households and for the subsample of homeowners, both for young-adult households and all homeowners. We distinguish between different groups of macro-level drivers. A conceptual model is depicted in Figure 3.13. We argue that higher inequality and concentration of housing wealth across all households is partly mediated by changing tenure structures and intensified social sorting, in particular declined opportunities to enter homeownership for young and low-income households, resulting in compositional changes in terms of the population

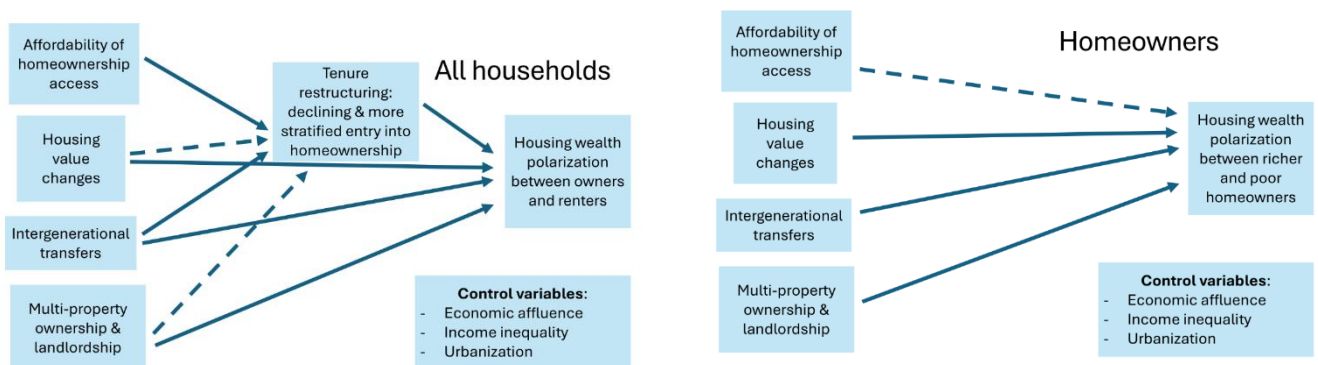




groups that are still able to accumulate housing wealth. For the subsample of homeowners, we expect enhanced housing wealth polarization to arise from the same set of drivers, but we expect no effect of changing tenure structures, given that these households have already successfully negotiated the hurdle of homeownership entry.

Given the larger number of variables and the smaller number of country-waves, we turn to random-effects models rather than less efficient fixed-effects models (modelling *only* within-country change). Whilst the more strict fixed-effects model assumes that unobserved country-level characteristics influence the dependent and/or the independent variables (and hence completely removes this source of variation), the random-effects models assumes that unobserved country-level effects are distributed randomly and are hence not correlated with the predictors and/or outcome. Though countries qualitatively differ from each other in terms of their housing-welfare regime, one could argue that these differences are mostly captured by the different variables included in the conceptual model. The Hausman-test is used to evaluate whether this assumption is valid. When not-significant ( $p > 0,05$ ), this indicates that the more statistically efficient random-effects model could be the more suitable one. This is indeed the case, as indicated in the notes to each results-table. Furthermore, to control for cross-sectional heteroscedasticity and within-country auto-correlation, we estimate cluster-robust standard errors.

**Figure 3.13. Conceptual model: drivers of housing wealth inequality and concentration**





### 3.6.1 Macro-level drivers of housing wealth inequality: theory and expectations

#### Control variables

A first group of drivers pertains to three variables that could be labelled as control variables and/or alternative explanations: trends in economic affluence, trends in household income inequality, and trends in urbanization. From the literature, we could expect that stronger *economic growth* is positively associated with increased inequality and concentration of (housing) wealth. Such an effect, however, also depends on the underlying drivers of economic growth itself and the composition of households' wealth portfolio (e.g. Keister & Moller, 2000). To the extent that economic growth is derived from stock market or housing market booms (rather than more traditional savings), we could expect a trend towards enhanced inequality and concentration of housing wealth. To the extent that economic growth is derived from the growth of labour market incomes, more households could be expected to save for house purchase and hence be enabled to access housing wealth accumulation, in turn leading to declining housing wealth inequality and de-concentration. On the other hand, if more households can pay more for housing (especially when interest rates are low, allowing households to take on more mortgage debt (e.g. Damen et al., 2016)), house prices are also likely to increase accordingly in the long-term. All in all, given the declined power of labour vs. capital in recent decades, along with the increased importance of global capital in mortgage and housing markets (e.g. Aalbers, 2016; Fuller, 2019; Piketty, 2014; Piketty & Zucman, 2014), we expect that the inequality-enhancing effects of economic growth might outweigh inequality-reducing effects. Economic affluence is operationalized as Gross Domestic Product (GDP) per capita in international comparable prices (UNECE, US\$, prices and PPPs of 2010).

Given the positive (though modest) correlation between income inequality and wealth inequality (see Chapter 6 of Deliverable 3.1), we expect that increasing *income inequality* is associated with a trend towards higher inequality and concentration of housing wealth. For richer households, increasing absolute incomes/relative income inequality has been found to result in higher investments in larger, better-quality, or more housing (e.g. Dwyer, 2009). For poorer households, the impacts of increasing relative





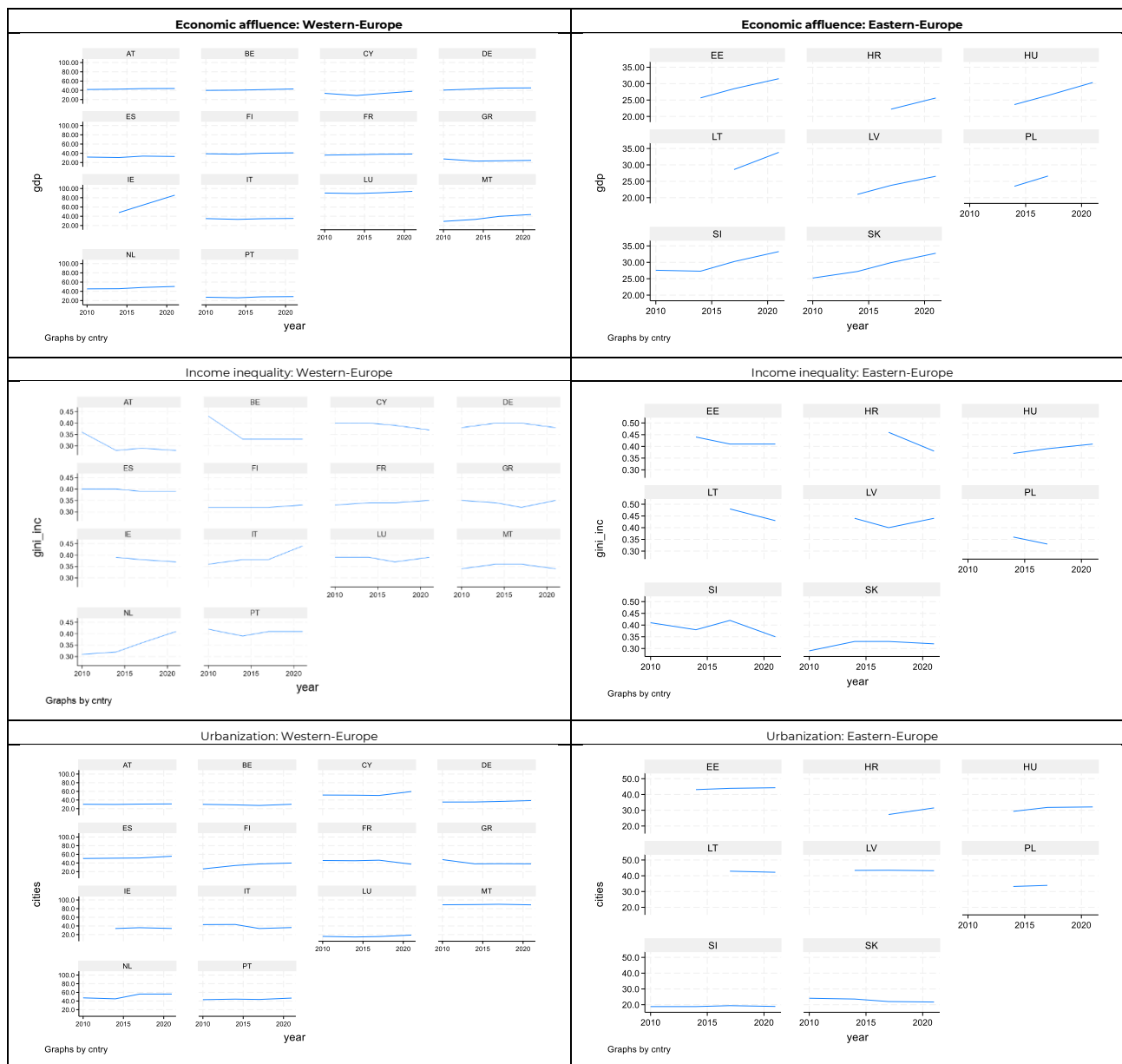
income inequality are rather dependent on a more complicated set of processes (e.g. whether filtering processes take place throughout the income distribution and across all housing market segments (e.g. Matlack & Vigdor, 2008; Rothenberg et al., 1991)). Absolute income deterioration of poorer households, however, is likely associated with enhanced competition for lower-value housing and more difficult entry into or higher exit rates from homeownership (e.g. Beer et al., 2011). Overall, a positive effect on housing wealth inequality and concentration of increasing relative income inequality could be expected. Income inequality is operationalized by means of the Gini-coefficient of (gross) household income, calculated from HFCS (see section 4 of this chapter).

More recently, Galster & Wessel (2024, p. 2) put forward the idea that growing wealth inequality across countries could be (partly) explained by *“the widespread, ongoing movement of population from rural to urban milieus, and the subsequent rural-urban differentiation in patterns of employment and housing”*. The focus of their analysis is however more limited and addresses only an element of this explanation: in Norway (controlling for selective migration patterns), urban residence has an important, independent effect on wealth accumulation. This effect comes about through interactive effects of labour and housing markets, with *“alterations in housing wealth”* appearing as an important causal pathway. Put differently, better-placed individuals not only have a higher chance of becoming an urban homeowner, but they also ascend a more profitable ‘housing value escalator’ by residing at higher levels of the Norwegian urban housing hierarchy for longer periods of time. We hence control for the *level of urbanization*, operationalized as the % of the population living in cities (EUROSTAT).





**Figure 3.14 Trends in the control variables**



From Figure 3.14, we learn that between 2010 and 2021 economic affluence has grown far more in Eastern-European countries compared with Western-Europe (bar the strong recovery in Ireland from the fiscal and economic crisis following the GFC), that trends in income inequality are more diverse, and that urbanization seems to be trending upwards rather gradually in most countries.





### *Affordability of homeownership access*

A second group of drivers pertains to changes affecting different wealth and income groups in terms of (un)affordability of access to homeownership and housing wealth. A first indicator is the *availability of mortgage credit* (operationalized as the Residential Mortgage Debt to GDP ratio (EMF)), which is an often-used predictor of increasing or decreasing homeownership rates, particularly for young adults (Andrew, 2012; Dewilde, 2020; Scanlon et al., 2008; Whitehead & Williams, 2017). We expect that higher credit availability is associated with lower inequality and concentration of (gross) housing wealth, for younger households in particular. Credit restrictions for young adults, however, could remain hidden when more residential mortgage debt is taken up by (older) so-called ‘investor’-households or entrepreneurial landlords, leveraging mortgage debt to enhance multi-property ownership and landlordship (Desmond, 2012; Ronald & Dewilde, 2017).

A second variable is the often-cited *house price to income-ratio*; in this chapter we use this variable expressed in terms of its deviation from the long-term average (EUROSTAT).<sup>17</sup> House price-to-income ratios are often used to illustrate a growing trend towards the *unaffordability of entering homeownership* for housing market entrants, in particular in so-called debt-driven (mostly Anglo-Saxon) economies (e.g. Ryan-Collins, 2021). We expect that increasing house price-to-income ratios are associated with higher inequality and concentration of housing wealth. An important (an often ignored) drawback of this indicator, however, is that it does not take account of long-term variations in interest rates – lower interest rates allow households to take up comparatively higher levels of mortgage debt. Higher house price-to-income ratios therefore do not necessarily reflect declined affordability of housing, but rather what households can afford to pay for homeownership entry (Damen et al., 2016).

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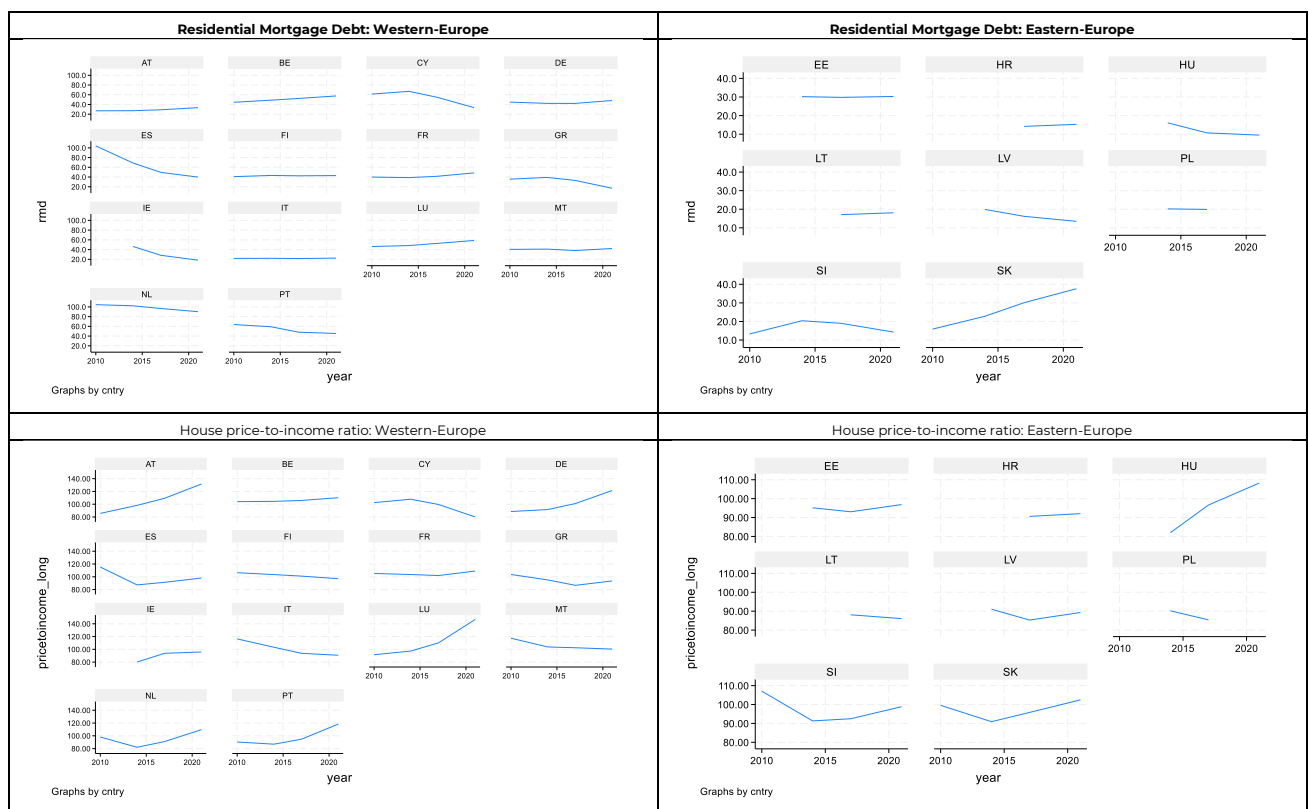
<sup>17</sup> Calculated over the period from 2000 to the most recent data available. Related variants of this indicator (index, annual average rate of change) yielded more or less similar results.





Both variables discussed here mainly impact on the tenure structure (see next section), and are therefore expected to be more influential for the inequality and concentration variables pertaining to all households, rather than for the dependent variables capturing the polarization of (gross) housing wealth within the homeownership segment. Figure 3.15 shows that between 2010 and 2021 trends in availability of mortgage credit vary between countries (though decline seems to be more common), whilst long-term house price-to-income ratios have trended upwards (though not everywhere; the trend furthermore varies somewhat depending on the indicator used (not shown)).

**Figure 3.15. Trends in homeownership (un)affordability.**



Extent of homeownership stratification

We already discussed intensified income-based stratification of homeownership entry of young adults over time (Gielens & Dewilde, 2025; Howard et al., 2024). Such stratification is of a potentially more durable nature, which could be reinforced by increased



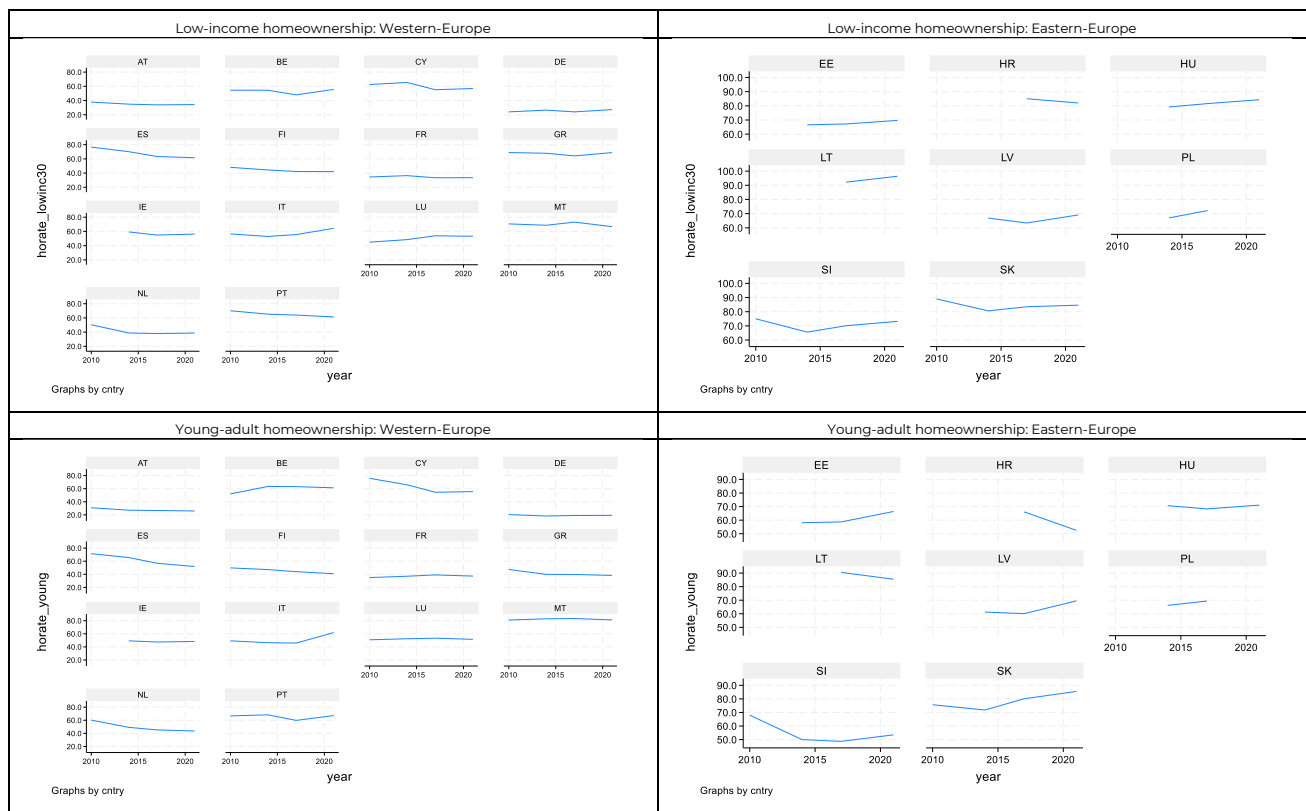


unaffordability of private renting for younger and lower-income households – turning renting from a ‘transitional tenure’ into a ‘forever tenure’. In previous empirical studies, low-income and young-adult households have often been analysed in isolation, notwithstanding some overlaps (e.g. Dewilde, 2022; Dewilde & Haffner, 2022). These overlaps however vary cross-nationally, depending on the income position of the elderly. Whilst in most Western-European countries young adults tend to have a higher chance of belonging to the lowest income tertile, in Eastern-Europe they are less likely to have a low income, given the (far) less advantageous income position of the elderly in most Eastern-European countries. In this chapter, we estimate the effect of cross-country and over-time trends in both: 1) the *low-income homeownership rate* (lowest tertile), and 2) the *young-adult homeownership rate*. We expect that these variables mainly explain trends towards increased inequality and concentration across all households (as they mostly influence the tenure structure): declining access of younger and low-income households to homeownership is expected to result in higher inequality and concentration of (gross) housing wealth. From Figure 3.16, we see that across Western-Europe, the low-income homeownership rate has gradually declined between 2014 and 2021, whilst in Eastern-Europe the time trend is rather indicative of improved access to homeownership for low-income households. In line with known trends in young-adult homeownership (Dewilde, 2020; Lennartz et al., 2016), similar findings pertain to the young-adult homeownership rate.





**Figure 3.16. Trends in the extent of homeownership-stratification**



Housing value changes

A fourth group of drivers pertains to *changes in the value of housing* (i.e. house price inflation) that could, when capital gains are unevenly distributed across the wealth and income distribution, impact on the inequality and concentration of gross housing wealth (see above).

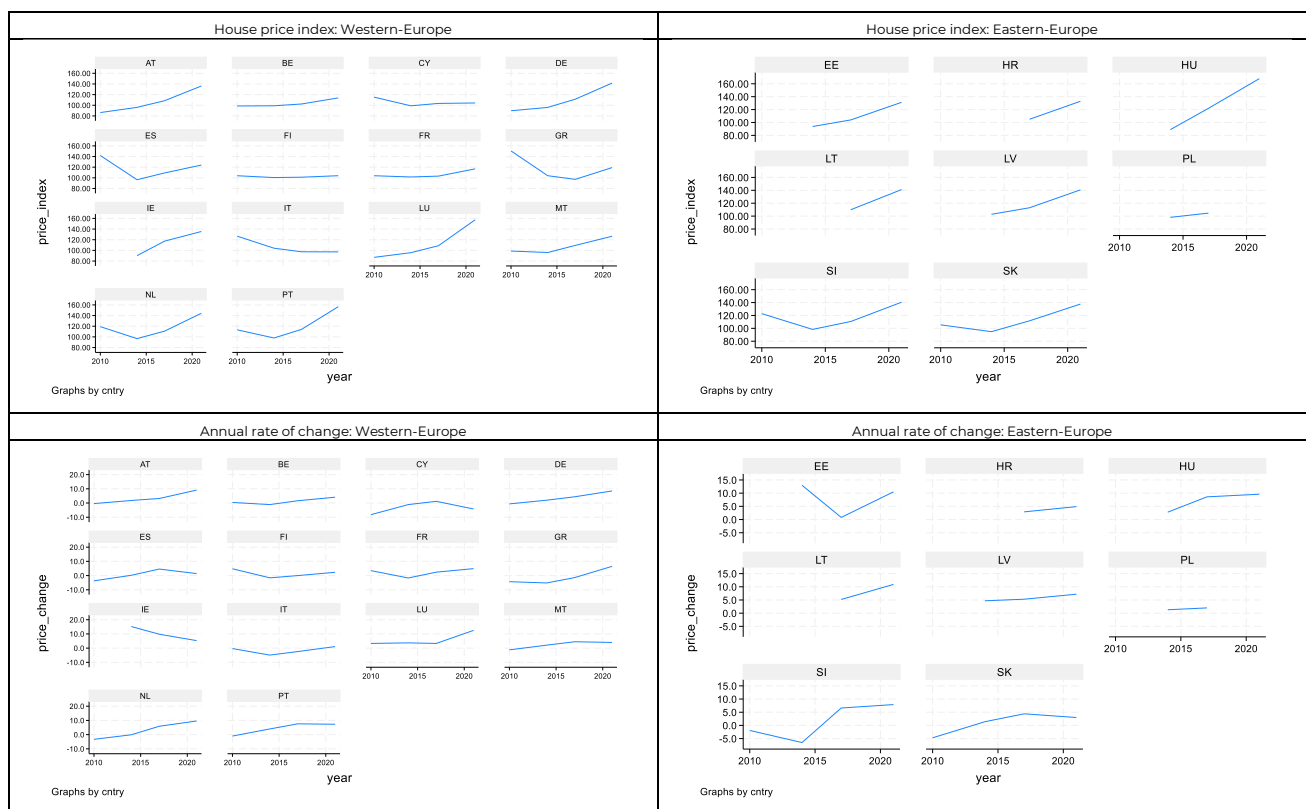
In this chapter, we evaluate the impact of two indicators (EUROSTAT): 1) the annual average (real) house price index (2015=100); and 2) the annual average rate of (real) change, indicating an *acceleration of housing values*. While we expect that gradually increasing real house prices may mainly impact on inequality and concentration of gross (housing wealth) via affordability of access to homeownership, hence through enhancing differences in social selectivity between owners and renters (i.e. for all households), we expect that booming house prices may lead to more uneven outcomes, i.e. lead to more





inequality and concentration of (gross) housing wealth within the subsample of homeownership households. From Figure 3.17, we see that across Europe, there are (strong) increases in real house prices over time. Whilst in several countries house prices were less affected by the GFC, in other countries (e.g. the Netherlands, Spain, Portugal, Greece) a steeper bust took a longer time to recover. The average annual rate of change is generally positive, with some more variations. Nevertheless, in many countries, real house price acceleration is more clearly apparent near the end of the observation period.

**Figure 3.17. Trends in the value of housing**



Multi-property ownership and landlordship

We look at the impact of cross-country differences and trends in the ‘rate’ and ‘value’ of both multiple properties and ownership of rental properties (i.e. landlordship). A fifth group of drivers hence pertains to *multi-property ownership* and the *(gross) real estate*





wealth derived from multi-property ownership (expressed as a % of (gross) total wealth for multi-property owners (based on the median)), as well as the average number of additional properties (for multi-property owners).<sup>18</sup> We also evaluate the impact of rental-property ownership (landlordship) and the relative size of rental income streams (expressed as a % of gross household income for landlords (based on the median)).<sup>19</sup> Given enhanced attractiveness and profitability of different types of real estate as an asset class/investment product for both middle-to-higher-income households, we expect that (gross) housing wealth accumulation through multi-property ownership and landlordship has benefited higher-wealth and higher-income households to a larger extent, leading to enhanced inequality and concentration of (gross) housing wealth across all households and within the subsample of homeownership households.

Though this research is focused on explaining drivers of approximated housing wealth (see section 3.3), our independent variable includes all types of properties (i.e. including for business purposes), in line with other recent research on SPO.<sup>20</sup> This work argues that a broader perspective on SPO is useful, as the ownership and mixed use (i.e. commercial and non-commercial) of different types of properties has increased in recent years; economic advantage can be derived from all these different ownership types. In many countries, landlordship is a much smaller fraction of multi-property ownership.

Figure 3.18 and 3.19 display trends in these five indicators, which were calculated from HFCS. Multi-property-ownership across Western-European countries is mostly stable with some trending upwards or downwards. Across Eastern-European countries, there are mostly increases. The value of these additional properties in the total wealth portfolio seems to be trending downwards over time, however. This could, however, also indicate that – during the period under consideration – returns on financial assets have

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<sup>18</sup> This variable is missing for Finland in wave 1 (2010); the value from 2014 was imputed in order to not lose a country-year observation.

<sup>19</sup> Top-coded at 100%.

<sup>20</sup> Private email-exchanges with Alexis Mundt and Karin Wagner, based on their work in progress.





grown more than returns on real estate property.<sup>21</sup> Typically, in a long-term perspective, investments in residential real estate tend to deliver more stable, but lower returns compared with investments in stocks and shares. The landlordship rate is everywhere quite a bit lower than the multiple-property ownership rate, and seems to be trending upward more clearly across European countries. There is no clearly visible trend in the value of rental income streams relative to gross household income, perhaps because households with increasing rental income streams also derive more household income from other sources (e.g. labour, other investments).

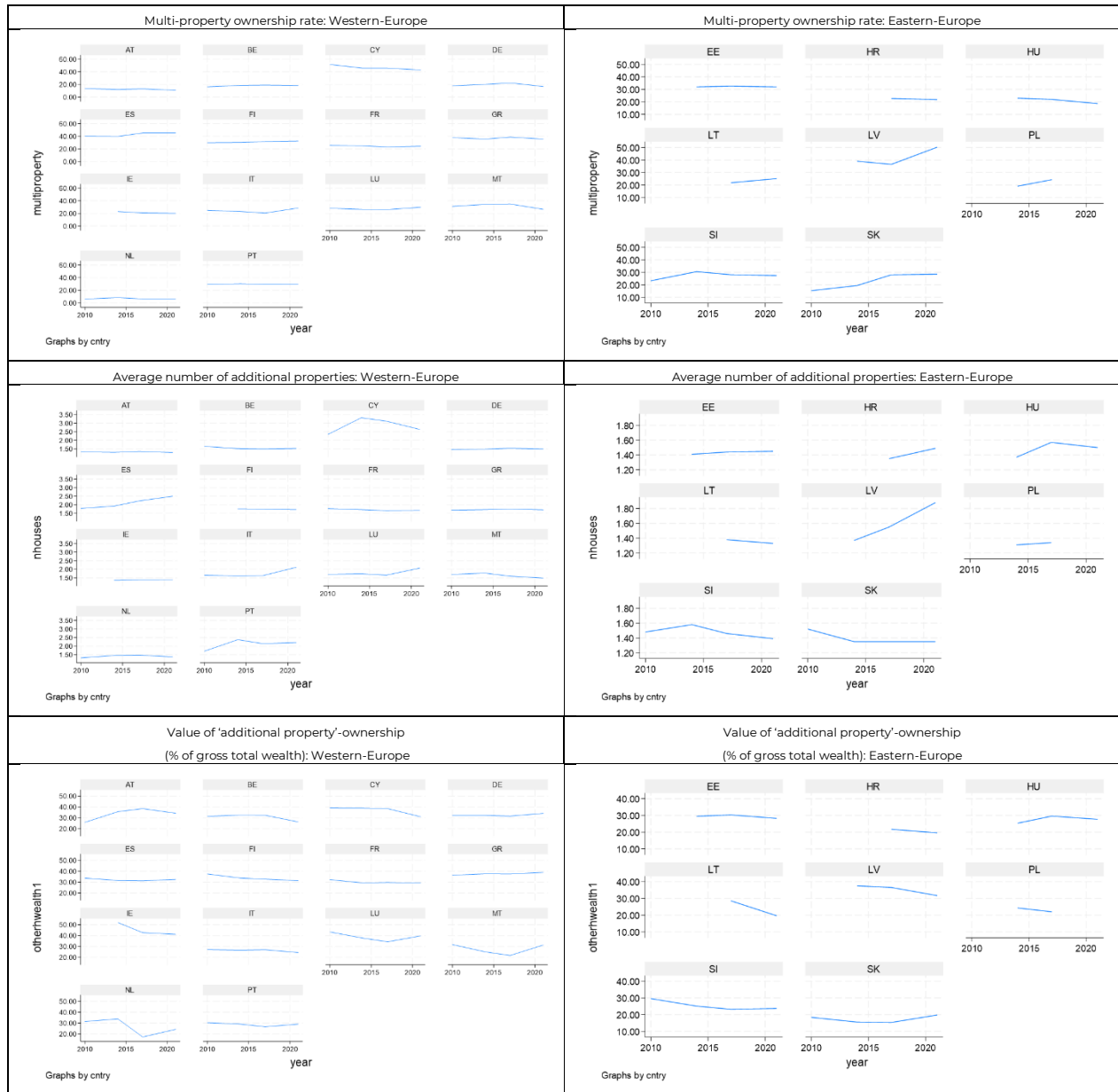
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<sup>21</sup> Findings from Jordà et al. (2019) regarding surprisingly high rates of return to housing assets have been questioned in more recent work using different methodologies, in a special issue on *Real and Private Value Assets*, published by the *Review of Financial Studies* (2021), volume 4, issue 8).





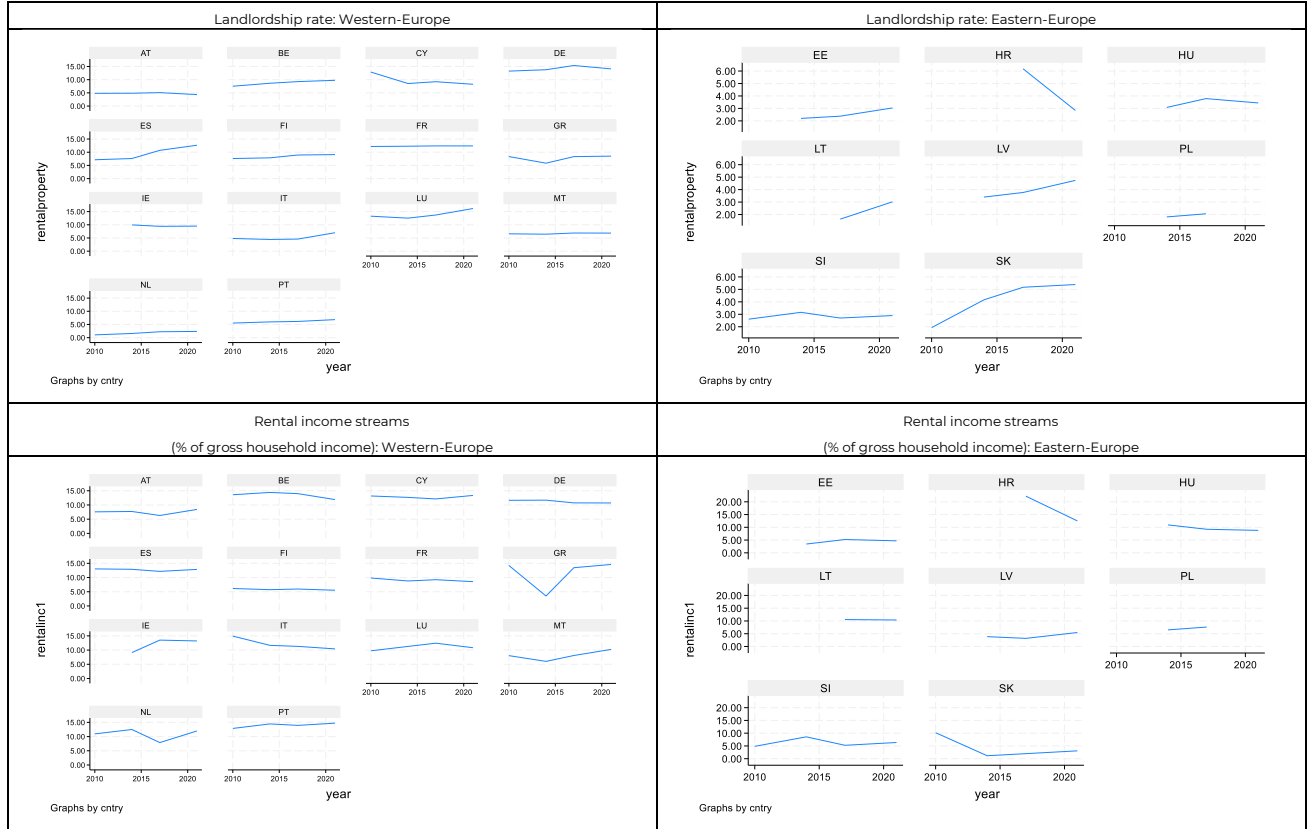
**Figure 3.18. Trends in multi-property ownership**





**Figure 3.19. Trends in landlordship**

*Intergenerational transfers*



We discuss the final group of indicators last, given that indicators regarding the *rate* and the *size of intergenerational transfers*<sup>22</sup> are only available for a subset of country-years. The *rate* of intergenerational transfers is missing for Finland (2010), Italy (2010, 2017, 2021) and Luxembourg (2021). The *size of intergenerational transfers, expressed as a % of gross household income (based on the median)*, is additionally missing for Finland in 2014, 2017 and 2021. This is unfortunate, given that Finland is perhaps the country with the most consistent increases in our different measures of housing wealth inequality and concentration. The same applies to Italy, though to a lesser extent.

<sup>22</sup> "Have you/has any member of the household ever received an inheritance or a substantial gift, including money or any other assets (from someone who is not a part of your current household)?".





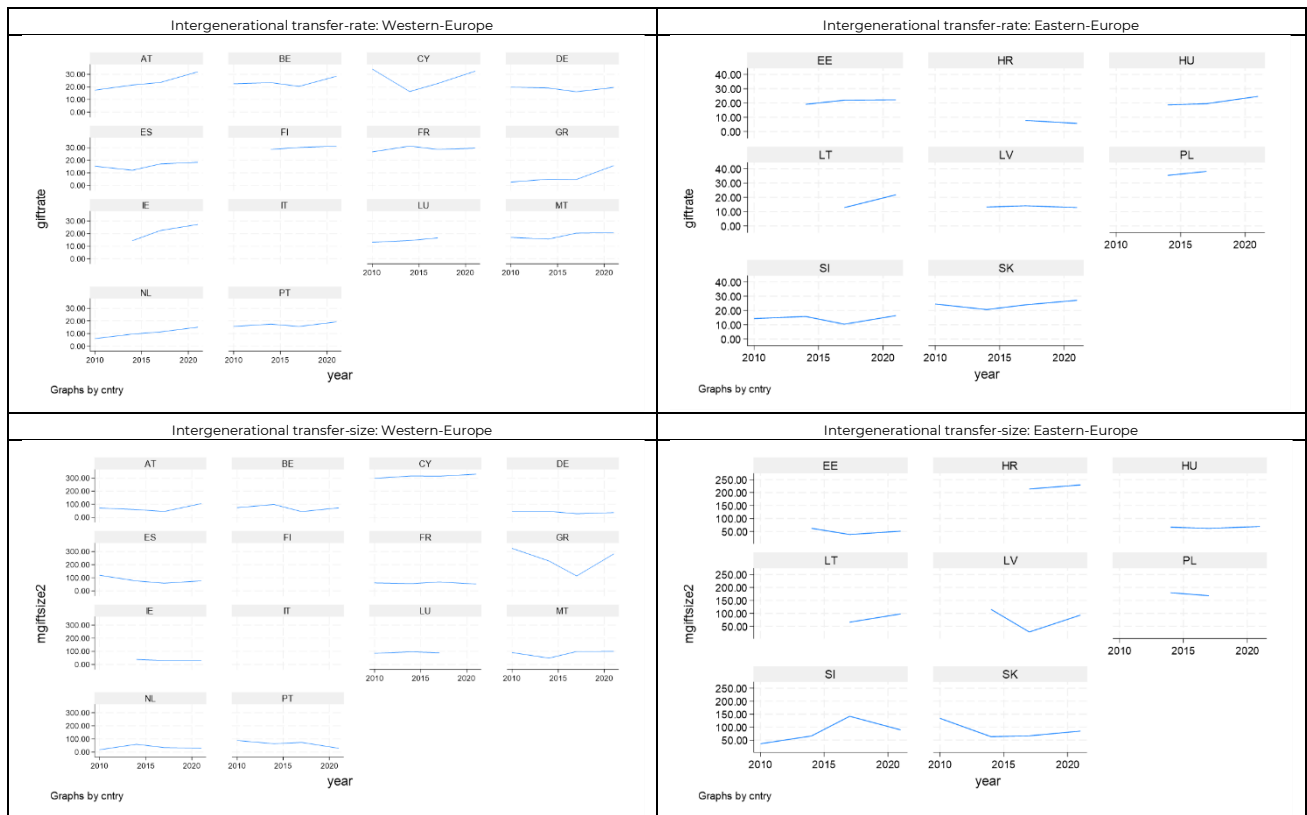
Though mostly discussed in the literature regarding young adults' homeownership entry and consequent opportunities for housing wealth accumulation, intergenerational transfers (gifts and inheritances) matter in various ways. For instance, young adults receiving larger transfers could be expected to buy more valuable properties in more 'productive' locations, and at an earlier point in their life-course. We expect that a growing reliance on intergenerational transfers, particularly across younger cohorts, has contributed to tenure restructuring (stronger income-based stratification of homeownership entry), in turn resulting in growing inequality and concentration of (gross) housing wealth between owners and renters. We expect that, for older cohorts, a higher availability of sizeable inheritances (including of real estate property itself) from elderly generations, has contributed to a growing polarization of (gross) housing wealth within the subsample of homeowners. Such an effect could partly mediate the impact of 'incidental' multi-property ownership and landlordship (which happened by inheritance).

From Figure 3.20, we see that across European countries, the intergenerational transfer-rate has clearly increased over the course of the observation period. In terms of the size of intergenerational transfers, trends are more stable or fluctuating.





**Figure 3.20. Trends in intergenerational transfers**



### 3.6.2 Multivariate random-effects panel regressions

Based on the conceptual models depicted in Figure 3.13, we now move on to estimating regression models for each of the eight dependent variables capturing the inequality and concentration of (gross) housing wealth for all households and young-adult households (capturing housing wealth polarization between owners and renters), and all homeowner-households and young-adult homeowner households (capturing housing wealth polarization between richer and poorer homeowners). Given the limited number of country-years (N=78 and N=70 for the models including intergenerational transfers), variables that are always insignificant are dropped from the models when appropriate. GDP and the level of urbanization, for instance, never reach statistical significance. The same goes for the indicators capturing time trends in: the house price-





to-income ratio,<sup>23</sup> the annual average house price index, the average number of additional properties, the value of multi-property ownership and the value of rental income streams. Furthermore, in all models, the linear year-trend is explained by the country-level drivers of wealth inequality and concentration and hence excluded here.

*Drivers of housing wealth polarization between owners and renters*

Tables 3.11-14 show the results of panel regression (random-effects) models for the four dependent variables calculated across all (young) households. Models are estimated in two steps, which the mediating variables (see Figure 3.13 – changing tenure structures) added in a second step. Models 3 and 4 re-estimate Models 1 and 2 on the more limited sample of country-years (N=70), for which the variables pertaining to ‘intergenerational transfers’ are available and added to the model (see above). Below we summarize the most important results across the four dependent variables.

Increases in **income inequality** are associated with increasing inequality of gross housing wealth, though such a significant effect is only visible after controlling for changes in the tenure structure, i.e. changes in low-income and young-adult homeownership (for the latter variable we noted opposite trends in Western- versus Eastern-Europe). The effect of income inequality is furthermore much stronger for gross housing wealth inequality calculated across young-adult households. Results pertaining to the **availability of mortgage credit** (indicating affordability of homeownership access) reveal an interesting pattern: increasing mortgage credit is associated with lower wealth inequality amongst young-adult households (indicated improved access), but with significantly higher wealth concentration amongst all households. This could indicate the leverage of mortgage credit for the purpose of climbing the housing ladder or for investment purposes, e.g. Buy-to-Let (e.g. Kemp, 2015) by older generations. While house price inflation in itself does not seem to have much influence (see above), greater **house price acceleration** (booming house prices) is associated with increasing inequality of

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<sup>23</sup> In line with earlier critical notes, the house-price-to-income ratio seems to have no effect across all models. It is likely that this variable simply captures what households can realistically pay for homeownership in relation to income, taking changing tenure structures into account.





(gross) housing wealth, particularly for young households. There is some empirical support for a similar weaker positive effect on housing wealth concentration (all households). In particular **rental property ownership** seems to enhance the concentration of housing wealth in the hands of richer households (all and young households). Effects of various types of **multi-property ownership** seems to be more limited and contradictory. For all households, a positive effect on housing wealth concentration only becomes apparent after controlling for (differences in) tenure restructuring, whilst for young households, such a suppressed effect is negative (indicating de-concentration of housing wealth inequality) rather than positive. This indicates potential differences in the type and value of multi-property ownership vs. rental property ownership; possibly lower-value multi-property ownership is used as investment strategy by more moderate-income (rather than high-income) households. The **intergenerational transfer rate** has a strong direct positive effect on the concentration of housing wealth across the income distribution of all households, rather than of young households (although the effect here is positive and near-significant when controlling for tenure restructuring). This points at the importance of inheritance, mostly befalling on the older generations. A larger or growing **intergenerational transfer size** is however significantly associated with a *lower* concentration of housing wealth for all households.

**Declining (increasing) young adult-homeownership** rate appears an important driver of increasing (decreasing) housing wealth inequality and concentration (significant negative effect across all four dependent variables). The **declining low-income homeownership** rate also matters, perhaps more so for explaining gross wealth inequality and concentration amongst all households compared with young households. These two variables also act as (partial) mediator. In particular for the measures calculated across the total sample of households, (positive) effects of house price acceleration and multi-property ownership/landlordship on housing wealth inequality and concentration disappear, or become substantially smaller. In other words, polarization of housing wealth between owners and renters is driven by various trends, mostly changes in available credit (differential effects for different cohorts), differential capital gains associated with house price booms, and trends in multi-property ownership and particularly landlordship.





These have some direct effects on the wealth distribution, but also important indirect effects via changing tenure structures, in particular the extent to which they influence the young-adult homeownership rate.





**Table 3.11. Panel regression of trends in gross housing wealth inequality (wealth-based Gini), all households**

	Model 1 (N=78)			Model 2 (N=78)			Model 3 (N=70)			Model 4 (N=70)		
	B		SE	B		SE	B		SE	B		SE
<b>Control variables</b>												
<b>Income inequality</b>	0.0645		0.1076	0.1714	(*)	0.0974	0.0739		0.1125	0.1450	(*)	0.0962
<b>Affordability of homeownership access</b>												
<b>RMD (ln)</b>	-0.0032		0.0128	0.0000		0.0071	-0.0041		0.0142	-0.0030		0.0075
<b>Housing value changes</b>												
<b>House price acceleration</b>	0.0009	*	0.0004	0.0005		0.0005	0.0009	(*)	0.0005	0.0004		0.0005
<b>Multi-property ownership &amp; landlordship</b>												
<b>Multi-property ownership</b>	-0.0013	(*)	0.0007	0.0000		0.0005	-0.0012	(*)	0.0007	0.0002		0.0005
<b>Rental-property ownership</b>	0.0043	(*)	0.0028	0.0010		0.0019	0.0042		0.0034	0.0000		0.0024
<b>Intergenerational transfers</b>												
<b>Intergenerational transfer rate</b>							-0.0002		0.0004	-0.0003		0.0003
<b>Intergenerational transfer size (ln)</b>							0.0031		0.0101	0.0016		0.0055
<b>Tenure restructuring</b>												
<b>Low-income homeownership rate</b>				-0.0014	*	0.0006				-0.0018	**	0.0006
<b>Young-adult homeownership rate</b>				-0.0014	***	0.0003				-0.0012	**	0.0004
<b>Constant</b>	0.5640	***	0.0505	0.6631	***	0.0540	0.5523	***	0.0793	0.7052	***	0.0640
<b>Sigma_u</b>	0.065			0.029			0.068			0.031		
<b>Sigma_e</b>	0.016			0.013			0.016			0.014		
<b>Intraclass correlation</b>	0.945			0.836			0.946			0.833		
<b>F-test (Prob &gt; F)</b>	25.09	***		50.15	***		20.36	**		76.39	***	

Note: (\*): p<0.10; \*: p<0.05; \*\*p<0.01; \*\*\*:p<0.001.

Robust standard errors. A Hausman-test based on Model 4 revealed a non-statistically significant difference between fixed- and random-effects estimates (p>0.11).





**Table 3.12. Panel regression of trends in gross housing wealth inequality (wealth-based Gini), young households**

	Model 1 (N=78)			Model 2 (N=78)			Model 3 (N=70)			Model 4 (N=70)		
	B		SE	B		SE	B		SE	B		SE
<b>Control variables</b>												
<b>Income inequality</b>	0.0531		0.2686	0.2774	**	0.0915	0.1065		0.2917	0.2706	**	0.0884
<b>Affordability of homeownership access</b>												
<b>RMD (ln)</b>	-0.0461	*	0.0232	-0.0304	***	0.0081	-0.0404	(*)	0.0244	-0.0245	**	0.0076
<b>Housing value changes</b>												
<b>House price acceleration</b>	0.0029	**	0.0011	0.0012	*	0.0005	0.0031	**	0.0010	0.0011	*	0.0005
<b>Multi-property ownership &amp; landlordship</b>												
<b>Multi-property ownership</b>	-0.0025		0.0016	0.0011		0.0007	-0.0023		0.0017	0.0011		0.0008
<b>Rental-property ownership</b>	0.0044		0.0054	-0.0023		0.0015	0.0052		0.0063	-0.0030		0.0021
<b>Intergenerational transfers</b>												
<b>Intergenerational transfer rate</b>							-0.0001			0.0006		0.0007
<b>Intergenerational transfer size (ln)</b>							0.0245			0.0150		0.0129
<b>Tenure restructuring</b>												
<b>Low-income homeownership rate</b>				0.0002		0.0005			0.0010	0.0002		0.0006
<b>Young-adult homeownership rate</b>				-0.0064	***	0.0003			0.0167	-0.0064	***	0.0004
<b>Constant</b>	0.7999	***	0.1460	0.9681	***	0.0591	0.6393	***	0.1648	0.8725	***	0.0872
<b>Sigma_u</b>	0.091			0.031			0.087			0.034		
<b>Sigma_e</b>	0.037			0.016			0.037			0.016		
<b>Intraclass correlation</b>	0.856			0.780			0.844			0.823		
<b>F-test (Prob &gt; F)</b>	12.35	*		2199.43	***		26.39	***		1139.64	***	

Note: (\*): p<0.10; \*: p<0.05; \*\*p<0.01; \*\*\*:p<0.001.

Robust standard errors. A Hausman-test based on Model 4 revealed a non-statistically significant difference between fixed- and random-effects estimates (p>0.47).





**Table 3.13. Panel regression of trends in gross housing wealth concentration (wealth share ratio, log-transformed), all households**

	Model 1 (N=78)			Model 2 (N=78)			Model 3 (N=70)			Model 4 (N=70)		
	B		SE	B		SE	B		SE	B		SE
<b>Control variables</b>												
<b>Income inequality</b>	-1.3447		0.8827	-0.5294		0.6221	-0.9669		0.6577	-0.3527		0.4050
<b>Affordability of homeownership access</b>												
<b>RMD (ln)</b>	0.1286	(*)	0.0661	0.0843		0.0612	0.1510	**	0.0509	0.1208	*	0.0538
<b>Housing value changes</b>												
<b>House price acceleration</b>	0.0071		0.0051	0.0067	(*)	0.0040	0.0088	(*)	0.0046	0.0056		0.0037
<b>Multi-property ownership &amp; landlordship</b>												
<b>Multi-property ownership</b>	0.0028		0.0041	0.0130	**	0.0041	0.0015		0.0037	0.0123	**	0.0038
<b>Rental-property ownership</b>	0.0476	***	0.0132	0.0135		0.0104	0.0376	*	0.0149	0.0043		0.0118
<b>Intergenerational transfers</b>												
<b>Intergenerational transfer rate</b>							0.0107	***	0.0027	0.0107	***	0.0025
<b>Intergenerational transfer size (ln)</b>							-0.1023	*	0.0504	-0.1051	*	0.0464
<b>Tenure restructuring</b>												
<b>Low-income homeownership rate</b>				-0.0141	**	0.0051				-0.0093	(*)	0.0055
<b>Young-adult homeownership rate</b>				-0.0043		0.0040				-0.0087	*	0.0034
<b>Constant</b>	0.7135	(*)	0.4038	1.6171	***	0.2670	0.7786	*	0.3949	1.6677	***	0.3098
<b>Sigma_u</b>	0.325			0.208			0.283			0.179		
<b>Sigma_e</b>	0.144			0.124			0.137			0.111		
<b>Intraclass correlation</b>	0.835			0.738			0.810			0.722		
<b>F-test (Prob &gt; F)</b>	26.43	***		146.30	***		37.29	***		234.46	***	

Note: (\*): p<0.10; \*: p<0.05; \*\*p<0.01; \*\*\*:p<0.001.

Robust standard errors. A Hausman-test based on Model 4 revealed a non-statistically significant difference between fixed- and random-effects estimates (p>0.10).





**Table 3.14. Panel regression of trends in gross housing wealth concentration (wealth share ratio, log-transformed), young households**

	Model 1 (N=78)			Model 2 (N=78)			Model 3 (N=70)			Model 4 (N=70)		
	B		SE	B		SE	B		SE	B		SE
<b>Control variables</b>												
<b>Income inequality</b>	-0.4036		1.3012	0.8756		0.7614	0.3300		1.2061	1.4751	(*)	0.7835
<b>Affordability of homeownership access</b>												
<b>RMD (ln)</b>	0.0722		0.1048	-0.0533		0.1251	0.0709		0.0689	0.0103		0.0875
<b>Housing value changes</b>												
<b>House price acceleration</b>	-0.0001		0.0087	0.0010		0.0069	0.0063		0.0065	0.0045		0.0055
<b>Multi-property ownership &amp; landlordship</b>												
<b>Multi-property ownership</b>	-0.0102	(*)	0.0052	0.0070		0.0058	-0.0116	**	0.0044	0.0023		0.0033
<b>Rental-property ownership</b>	0.0585	*	0.0227	0.0019		0.0175	0.0649	**	0.0229	0.0146		0.0172
<b>Intergenerational transfers</b>												
<b>Intergenerational transfer rate</b>							0.0047		0.0049	0.0085	(*)	0.0046
<b>Intergenerational transfer size (ln)</b>							-0.0666		0.0922	-0.0674		0.0776
<b>Tenure restructuring</b>												
<b>Low-income homeownership rate</b>				-0.0201	**	0.0074				-0.0101	(*)	0.0052
<b>Young-adult homeownership rate</b>				-0.0062		0.0045				-0.0110	*	0.0046
<b>Constant</b>	0.8961		0.7248	2.3399	**	0.8258	0.7544		0.6538	1.6500	(*)	0.8773
<b>Sigma_u</b>	0.308			0.199			0.231			0.140		
<b>Sigma_e</b>	0.299			0.245			0.295			0.238		
<b>Intraclass correlation</b>	0.515			0.396			0.379			0.258		
<b>F-test (Prob &gt; F)</b>	11.36	*		124.88	***		48.71	***		420.16	***	

Note: (\*): p<0.10; (\*): p<0.05; (\*\*): p<0.01;

\*\*\*:p<0.001.

Robust standard errors. A Hausman-test based on Model 4 revealed a non-statistically significant difference between fixed- and random-effects estimates (p>0.13).





### *Drivers of housing wealth polarization between richer and poorer homeowners*

Tables 3.15-18 show the results of panel regression (random-effects) models for the four dependent variables calculated across all (young) homeowners. These models are aimed at explaining polarization of (gross) housing wealth between richer and poorer homeowners (hence, abstract from 'different/changing tenure structures', see Figure 3.13).

Growing **income inequality** is quite clearly associated with higher inequality of (gross) housing wealth (all homeowners and young homeowners), though there is again no significant association with changes in the wealth share ratio of (young) homeowners between high and low income-households. Similar to results for the total population of households, higher **availability of mortgage credit** has a clearly negative impact on housing wealth inequality amongst young homeowners (indicating improved access of lower-wealth households to higher-value housing). **House price acceleration** appears a less consistent predictor of higher housing wealth inequality and concentration amongst homeowners, with some borderline significant effects across two of the four dependent variables. We could therefore conclude that house price booms mainly work to increase polarization of housing wealth between owners and renters, via their impact tenure restructuring (i.e. access to homeownership of low-income and young-adult households). Upward trends in **multi-property ownership** on the other hand, now have a clear positive and significant effect on both wealth inequality and the wealth share ratio between the top and bottom of the income distribution (all dependent variables). Impacts of trends in **landlordship** are now more limited and mixed (with some counter-intuitive though only marginally significant negative effects on wealth inequality amongst young homeowners). All in all, whilst housing wealth polarization amongst all households seems to be more driven by rental property ownership, housing wealth polarization amongst richer and poor homeowning households seems to be more driven by multi-property ownership.

Within the homeowner-segment, a higher **receipt of intergenerational transfers** again seems to contribute to enhanced housing wealth inequality and especially concentration. A higher **intergenerational transfer size**, on the other hand, seems to





result in some de-concentration of housing wealth, more so for homeowners in general than for young homeowners. Effect of the same variable on wealth inequality, on the other hand, seem to be positive rather than negative. The variables indicating ‘changing tenure structures’ are (logically) of less relevance here, though we still note some statistically significant negative effects (higher low-income and young-adult homeownership is associated with less wealth inequality and concentration of housing wealth amongst homeowners).





**Table 3.15. Panel regression of trends in gross housing wealth inequality (wealth-based Gini), homeowners**

	Model 1 (N=78)			Model 2 (N=78)			Model 3 (N=70)			Model 4 (N=70)		
	B		SE	B		SE	B		SE	B		SE
<b>Control variables</b>												
Income inequality	0.3205	**	0.0970	0.3144	**	0.1051	0.2664	**	0.0931	0.2753	**	0.0991
<b>Affordability of homeownership access</b>												
RMD (ln)	-0.0162	(*)	0.0085	-0.0110		0.0070	-0.0118		0.0091	-0.0087		0.0088
<b>Housing value changes</b>												
House price acceleration	0.0009		0.0007	0.0007		0.0007	0.0007		0.0007	0.0006		0.0007
<b>Multi-property ownership &amp; landlordship</b>												
Multi-property ownership	0.0018	**	0.0007	0.0017	**	0.0006	0.0018	**	0.0006	0.0018	**	0.0006
Rental-property ownership	-0.0009		0.0016	0.0000		0.0022	-0.0014		0.0021	-0.0010		0.0028
<b>Intergenerational transfers</b>												
Intergenerational transfer rate							0.0000		0.0004	0.0002		0.0004
Intergenerational transfer size (ln)							0.0129	*	0.0064	0.0105		0.0065
<b>Tenure restructuring</b>												
Low-income homeownership rate				0.0009	(*)	0.0005				0.0006		0.0006
Young-adult homeownership rate				-0.0007		0.0005				-0.0006		0.0005
Constant	0.3116	***	0.0455	0.2789	***	0.0506	0.2656	***	0.0459	0.2523	***	0.0523
Sigma_u	0.026			0.026			0.029			0.028		
Sigma_e	0.016			0.016			0.016			0.016		
Intraclass correlation	0.727			0.724			0.769			0.758		
F-test (Prob > F)	70.50	***		89.21	***		71.41	***		103.06	***	

Note: (\*): p<0.10; \*: p<0.05; \*\*p<0.01; \*\*\*:p<0.001. Robust standard errors. A Hausman-test based on Model 4 revealed a non-statistically significant difference between fixed- and random-effects estimates (p>0.05).

**Table 3.16. Panel regression of trends in gross housing wealth inequality (wealth-based Gini), young homeowners**

	Model 1 (N=78)			Model 2 (N=78)			Model 3 (N=70)			Model 4 (N=70)		
	B		SE	B		SE	B		SE	B		SE
<b>Control variables</b>												
Income inequality	0.3408	*	0.1327	0.3684	**	0.1239	0.3400	**	0.1064	0.3650	**	0.1175
<b>Affordability of homeownership access</b>												
RMD (ln)	-0.0531	***	0.0137	-0.0498	**	0.0151	-0.0434	**	0.0146	-0.0377	*	0.0146
<b>Housing value changes</b>												
House price acceleration	0.0018	(*)	0.0010	0.0016		0.0010	0.0017	(*)	0.0009	0.0013		0.0010
<b>Multi-property ownership &amp; landlordship</b>												
Multi-property ownership	0.0025	**	0.0007	0.0029	**	0.0009	0.0024	**	0.0009	0.0029	**	0.0011
Rental-property ownership	-0.0033		0.0020	-0.0043	(*)	0.0022	-0.0050	*	0.0032	-0.0063	(*)	0.0033
<b>Intergenerational transfers</b>												
Intergenerational transfer rate							0.0012		0.0012	0.0015	*	0.0013
Intergenerational transfer size (ln)							0.0212	(*)	0.0120	0.0199		0.0157
<b>Tenure restructuring</b>												
Low-income homeownership rate				0.0003		0.0006				0.0004		0.0006
Young-adult homeownership rate				-0.0009	***	0.0003				-0.0012	*	0.0006
Constant	0.3850	***	0.0783	0.3968	***	0.0964	0.2399	**	0.0819	0.2499	*	0.1008
Sigma_u	0.040			0.042			0.044			0.048		
Sigma_e	0.029			0.029			0.028			0.027		
Intraclass correlation	0.643			0.675			0.716			0.761		
F-test (Prob > F)	72.03	***		116.09	***		52.04	***		116.54	***	

Note: (\*): p<0.10; \*: p<0.05; \*\*p<0.01; \*\*\*:p<0.001. Robust standard errors. A Hausman-test based on Model 4 revealed a non-statistically significant difference between fixed- and random-effects estimates (p>0.36).





**Table 3.17. Panel regression of trends in gross housing wealth concentration (wealth share ratio, log-transformed), homeowners**

	Model 1 (N=78)			Model 2 (N=78)			Model 3 (N=70)			Model 4 (N=70)		
	B		SE	B		SE	B		SE	B		SE
<b>Control variables</b>												
<b>Income inequality</b>	-0.5360		0.6329	-0.4464		0.5312	-0.4103		0.5154	-0.2898		0.4017
<b>Affordability of homeownership access</b>												
<b>RMD (ln)</b>	0.0581		0.0405	0.0826		0.0502	0.0488		0.0399	0.0862		0.0529
<b>Housing value changes</b>												
<b>House price acceleration</b>	0.0057	(*)	0.0030	0.0041		0.0033	0.0052		0.0033	0.0030		0.0036
<b>Multi-property ownership &amp; landlordship</b>												
<b>Multi-property ownership</b>	0.0109	**	0.0030	0.0124	**	0.0038	0.0105	***	0.0026	0.0122	***	0.0033
<b>Rental-property ownership</b>	0.0198	*	0.0084	0.0195		0.0125	0.0128		0.0082	0.0101		0.0121
<b>Intergenerational transfers</b>												
<b>Intergenerational transfer rate</b>							0.0045	*	0.0022	0.0061	*	0.0026
<b>Intergenerational transfer size (ln)</b>							-0.0935	*	0.0435	-0.1133	**	0.0396
<b>Tenure restructuring</b>												
<b>Low-income homeownership rate</b>				0.0036		0.0047				0.0050		0.0049
<b>Young-adult homeownership rate</b>				-0.0059	(*)	0.0035				-0.0081	*	0.0032
<b>Constant</b>	0.2346		0.2158	0.2008		0.2768	0.5842		0.2649	0.5915	*	0.2957
<b>Sigma_u</b>	0.210			0.201			0.182			0.181		
<b>Sigma_e</b>	0.102			0.097			0.105			0.097		
<b>Intraclass correlation</b>	0.810			0.812			0.750			0.774		
<b>F-test (Prob &gt; F)</b>	39.38	***		78.21	***		49.69	***		113.94	***	

Note: (\*): p<0.10; \*: p<0.05; \*\*p<0.01; \*\*\*p<0.001.

Robust standard errors. A Hausman-test based on Model 4 revealed a non-statistically significant difference between fixed- and random-effects estimates (p>0.40).



**Table 3.18. Panel regression of trends in gross housing wealth concentration (wealth share ratio, log-transformed), young homeowners**

	Model 1 (N=78)		Model 2 (N=78)		Model 3 (N=70)		Model 4 (N=70)					
	B	SE	B	SE	B	SE	B	SE				
<b>Control variables</b>												
<b>Income inequality</b>	-0.0851	0.6988	0.1767	0.5956	0.0185	0.6186	0.2289	0.5718				
<b>Affordability of homeownership access</b>												
<b>RMD (ln)</b>	-0.0539	0.0602	-0.1083	(*)	0.0640	-0.0631	0.0513	-0.0788	0.0577			
<b>Housing value changes</b>												
<b>House price acceleration</b>	0.0047	0.0043	0.0055	0.0040	0.0059	0.0042	0.0058	0.0041				
<b>Multi-property ownership &amp; landlordship</b>												
<b>Multi-property ownership</b>	0.0077	**	0.0027	0.0111	***	0.0027	0.0089	***	0.0020	0.0117	***	0.0024
<b>Rental-property ownership</b>	0.0043	0.0065	-0.0071	0.0066	0.0027	0.0074	-0.0088	0.0091				
<b>Intergenerational transfers</b>												
<b>Intergenerational transfer rate</b>					0.0056	**	0.0021	0.0066	*	0.0032		
<b>Intergenerational transfer size (ln)</b>					-0.0981	(*)	0.0574	-0.0845	0.0642			
<b>Tenure restructuring</b>												
<b>Low-income homeownership rate</b>			-0.0070	**	0.0022			-0.0027	0.0027			
<b>Young-adult homeownership rate</b>			0.0021	0.0014				-0.0015	0.0028			
<b>Constant</b>	0.5182	0.3534	0.8974	*	0.4140	0.7844	(*)	0.4552	0.9292	(*)	0.5400	
<b>Sigma_u</b>	0.101		0.094			0.062		0.066				
<b>Sigma_e</b>	0.187		0.185			0.181		0.175				
<b>Intraclass correlation</b>	0.227		0.205			0.105		0.124				
<b>F-test (Prob &gt; F)</b>	24.57	***	84.83	***		66.33	***	120.59	***			

Note: (\*): p<0.10; \*, p<0.05; \*\*p<0.01; \*\*\*:p<0.001.

Robust standard errors. A Hausman-test based on Model 4 revealed a non-statistically significant difference between fixed- and random-effects estimates (p>0.08).

## Conclusion

**The first aim of this chapter was to explore, across 22 European countries for the period 2010-2021 (HFCS, waves 1-4), the nature and direction of trends in the inequality and concentration of gross housing wealth.** Given the (very) short time period under consideration, characterized furthermore by strong economic turbulence and house price volatility influencing values of gross housing wealth, along with smaller sample sizes for several countries included in the survey, we assessed developments over time using different approaches, measures and sample selections.

Regarding measures, analyses in this chapter pertained to relative inequality of the housing wealth distribution (captured by the wealth-based Gini-coefficient), and also describe levels of (gross) housing wealth across income quantiles, capturing the extent to which gross housing wealth is concentrated in the hands of the richest vs. the poorest household income groups. Both summary-measures capture different aspects





of the relative inequality distribution. Regarding different sample selections, we assessed trends across all households and young-adult households, and for the subsamples of all homeowners and all young-adult homeowners. The distinction between all households and homeowners is aimed at investigating whether, respectively, there was a polarization of housing wealth between so-called housing market *insiders* (i.e. owners) and *outsiders* (i.e. renters) vs. a potential polarization of housing wealth within the homeownership segment during this period, between high wealth/income and low wealth/income homeowners. The distinction between all households (homeowners) and young households (homeowners) is determined by the fact that processes of tenure restructuring, in particular declining as well as more socially-stratified access to homeownership of younger cohorts, likely contributed significantly to trends in housing





wealth inequality and concentration. Put differently, and in light of the fact that homeownership rates are the main driver of comparative differences in housing and total wealth inequality and concentration, we attempted to abstract from changing tenure structure by decomposing time trends across above-mentioned subsamples.

***Descriptive results indicate that trends in the development of (gross) housing wealth inequality and concentration across all households are strongly diversified by the housing-welfare regime. An overall statistically significant time trend towards increased inequality and concentration of housing wealth is mainly driven by developments across Western-European countries.*** Such a trend is most consistent in several Northern-European countries with a unitary rental market and across Southern-Europe, and is likely driven in part by increased income-based stratification of young-adult homeownership. Hence, ***to the extent that access to homeownership is blocked for young adult-households, in particular for those with a lower income, we also see an emerging trend towards increased inequality and concentration of (gross) housing wealth. Given the strong association between housing wealth and total wealth, furthermore, a societal trend of tenure restructuring is also an important driver of wealth inequality in general.***

***Time trends are far more benign across Eastern-European countries,*** where similar increases are limited to specific countries (Hungary, Slovenia and Slovakia). The Baltics seem mostly characterized by improved access to homeownership along with declining housing wealth inequality and concentration.

***Polarization within the homeowner-segment could arise from several different other mechanisms,*** such as increased cumulative advantage/disadvantage in terms of capital gains returns in relation to initial housing investments (which have also become more socially-stratified in



themselves), the amplifying impact of family support for housing intersecting with socio-economic position (as family support tends to be higher for better-placed young adults compared with less advantaged young adults, allowing the former to purchase more expensive properties earlier in the life-course and in more 'productive' locations), or the suspected growth of multi-property ownership at the high end of the income and wealth distributions. Again, though this time abstracting from trends in the tenure structure, we noted a reasonably consistent but somewhat different pattern of results across housing-welfare regimes. ***Increases in wealth inequality and concentration within the homeownership segment are most outspoken in Southern-Europe, several unitary rental market countries (bar Germany), and also CEE-countries Slovenia and Slovakia. Trends towards increasing inequality and concentration furthermore seem more outspoken for young-adult homeowners, particularly across Southern-Europe.***

Again, there is a clear trend towards declining inequality and concentration of gross housing wealth in the Baltic states, though more so for the total sample of homeowners than for young-adult homeowners. All in all, we find that also within the segment of homeowners, inequality and concentration of (gross) housing wealth seem to be on the increase. Trends are more outspoken when considering the concentration of housing wealth across the income distribution, for younger households, and across Western-Europe. ***Whilst the overall polarization of (gross) housing wealth between owners and renters seems to be driven by changes in young-adult homeownership, a polarization of (gross) housing wealth between low wealth/income and high wealth/income homeowners seems to be more specific to young adult-homeowners.*** This might indicate that there is indeed an enhanced intersection between the socio-economic position of young adult homeowners, and the type of properties they are entering, particularly in Western-Europe (as also suggested by Dewilde & Flynn, 2021 for a smaller selection of countries and over a shorter time period).



Turning to specific countries, wealth inequality and concentration are most consistently increasing across measures and sample selections in: the Netherlands; Austria; Finland; France; Spain; Greece; Italy; Slovenia and Slovakia. Wealth inequality and concentration are most consistently decreasing across measures and sample selections in Latvia and Estonia. Finland stands out as the country with the strongest increase in housing wealth inequality and concentration amongst the traditional homeownership countries of Western-Europe.

***A second main aim of this chapter was to model the impact of various drivers of housing wealth polarization identified from the literature*** (see Chapter 1 of Deliverable 3.1). We identified four groups of drivers, each indicated by several variables: trends/differences in affordability of homeownership access; housing value changes; trends/differences in intergenerational transfers; and changes/differences in multi-property ownership and landlordship. These drivers are hypothesized to have a direct or an indirect (via mediating patterns of tenure restructuring, i.e. declining and more stratified entry into homeownership) impact on the inequality and concentration of (gross) housing wealth. Impacts of these drivers were evaluated by means of panel regression random-effects models estimated on an unbalanced panel of 78 country-years, again for all (young) households and (young) homeowners only. Given strong economic volatility during the post-GFC period (2010-2021), we controlled for trends in economic affluence, trends in household income inequality, and trends in urbanization. Though we hypothesized a positive effect on housing wealth inequality and concentration for all three control variables, only differences and trends in income inequality seemed to matter: higher income inequality was associated with higher inequality of (gross) housing wealth for young households, all homeowners and young homeowners.

***Regarding cross-country and over-time differences in housing wealth polarization between owners and renters, we indeed find that declining***





***(increasing) young adult-homeownership and low-income homeownership rates appear to be an important driver of increasing (decreasing) housing wealth inequality and concentration, and therefore also of total wealth inequality and concentration. These two indicators of tenure restructuring also act as partial mediators, channelling the impacts of various anterior drivers:*** changes/differences in available ***mortgage credit*** (we note a positive effect of this variable on the concentration of housing wealth across all households (indicating perhaps the leveraging of mortgage credit for SPO of older generations), in combination with a negative effect on wealth inequality for young-adult households (e.g. easier access to first-time homeownership); the extent of ***house price acceleration*** (booming house prices resulting in differential capital gains for different wealth levels); ***multi-property and particularly rental property ownership***, concentrating housing assets in the hands of higher income/wealth households, potentially blocking access to homeownership for younger housing market entrants. The ***intergenerational transfer rate*** has a strong direct positive effect on the concentration of housing wealth across the income distribution of all households, rather than of young households, possibly pointing at the importance of inheritance.

***Regarding cross-country and over-time differences in housing wealth polarization between low income/wealth and high income/wealth homeowners, we find that inequality and concentration of (gross) housing wealth are driven by more or less the same drivers*** (bar the variables indicating tenure restructuring, which are less relevant for this subgroup). Higher availability of ***mortgage credit*** has a clearly negative impact on housing wealth inequality amongst young homeowners, indicating improved access of lower-wealth households to higher-value housing. House price acceleration appears a less consistent predictor of higher housing wealth inequality and concentration amongst homeowners, with some borderline significant effects across two of the four dependent variables. We could therefore conclude that house price booms



mainly work to increase polarization of housing wealth between owners and renters, via their impact tenure restructuring (i.e. access to homeownership of low-income and young-adult households). Upward trends in **multi-property ownership** on the other hand, now have a clear positive and significant effect on both wealth inequality and the wealth share ratio between the top and bottom of the income distribution (all dependent variables). Impacts of trends in landlordship are however more limited and mixed. Within the homeowner-segment, a higher receipt of **intergenerational transfers** again seems to contribute to enhanced housing wealth inequality and especially concentration.

Whilst we also operationalized and estimated the impact of variables capturing the size of income or wealth streams (e.g. intergenerational transfer size, rental income streams), results for these variables were either non-significant or inconsistent. **This indicates that ownership of housing wealth in itself, and associated value changes, are more important drivers of housing wealth inequality and concentration, compared with generated income/wealth streams.** On the other hand, it is also entirely possible that our measures of such income and wealth streams were too crude, or that the relationship between such streams and housing wealth inequality and concentrations is more complicated, takes more time to materialize, or is more relevant to the inequality and concentration of non-housing (financial) wealth.

### **Acknowledgement**

This chapter has greatly benefited from comments and suggestions by Dr. Márton Czirfusz. Interpretations of results and/or remaining errors are the responsibility of the author.





## Appendix

**Table A3.1 Overview of sample sizes by wave and country (household level)**

Country	Wave 1 (n=15)		Wave 2 (n=20)		Wave 3 (n=22)		Wave 4 (n=22)	
	Original	Implicates	Original	Implicates	Original	Implicates	Original	Implicates
AT	2380	11900	2997	14985	3072	15360	2293	11465
BE	2327	11635	2238	11190	2329	11645	2130	10650
CY	1237	6185	1289	6445	1303	6515	1332	6660
CZ							3122	15610
DE	3565	17825	4461	22305	4942	24710	4119	20595
EE			2220	11100	2679	13395	2247	11235
ES	6106	30530	6120	30600	6413	32065	6313	31565
FI	10989	54945	11030	55150	10210	51050	9474	47370
FR	15006	75030	12035	60175	13685	68425	10253	51265
GR	2971	14855	3003	15015	3007	15035	3386	16930
HR					1357	6785	1357	6785
HU			6207	31035	5968	29840	6032	30160
IE			5419	27095	4793	23965	6020	30100
IT	7951	39755	8156	40780	7420	37100	6239	31195
LT					1664	8320	1676	8380
LU	950	4750	1601	8005	1616	8080	2010	10050
LV			1202	6010	1249	6245	1219	6095
MT	843	4215	999	4995	1004	5020	1018	5090
NL	1301	6505	1284	6420	2556	12780	2690	13450
PL			3455	17275	5858	29290		
PT	4404	22020	6207	31035	5924	29620	6107	30535
SI	343	1715	2553	12765	2014	10070	1951	9755
SK	2057	10285	2135	10675	2179	10895	2174	10870
<b>Households</b>	62430	312150	84611	423055	91242	456210	83162	415810
<b>Individuals</b>	154239	771195	210345	1051725	221865	1109325	197006	985030

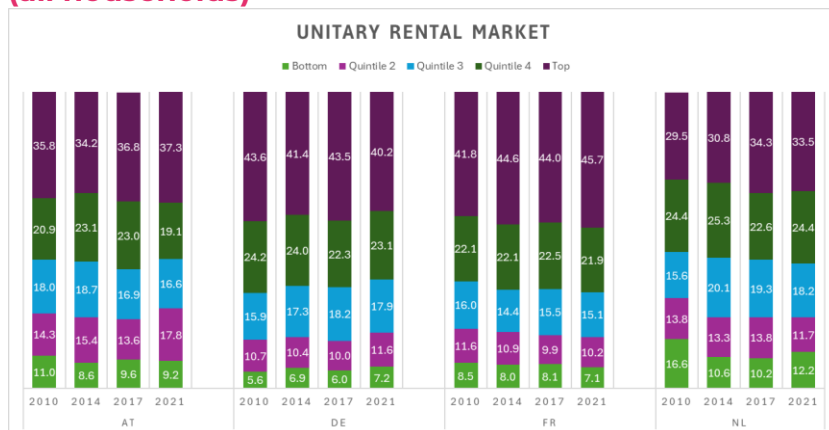




**Table A3.2 Overview of original sample sizes by country for different sample selections wave 4, 2021, household level)**

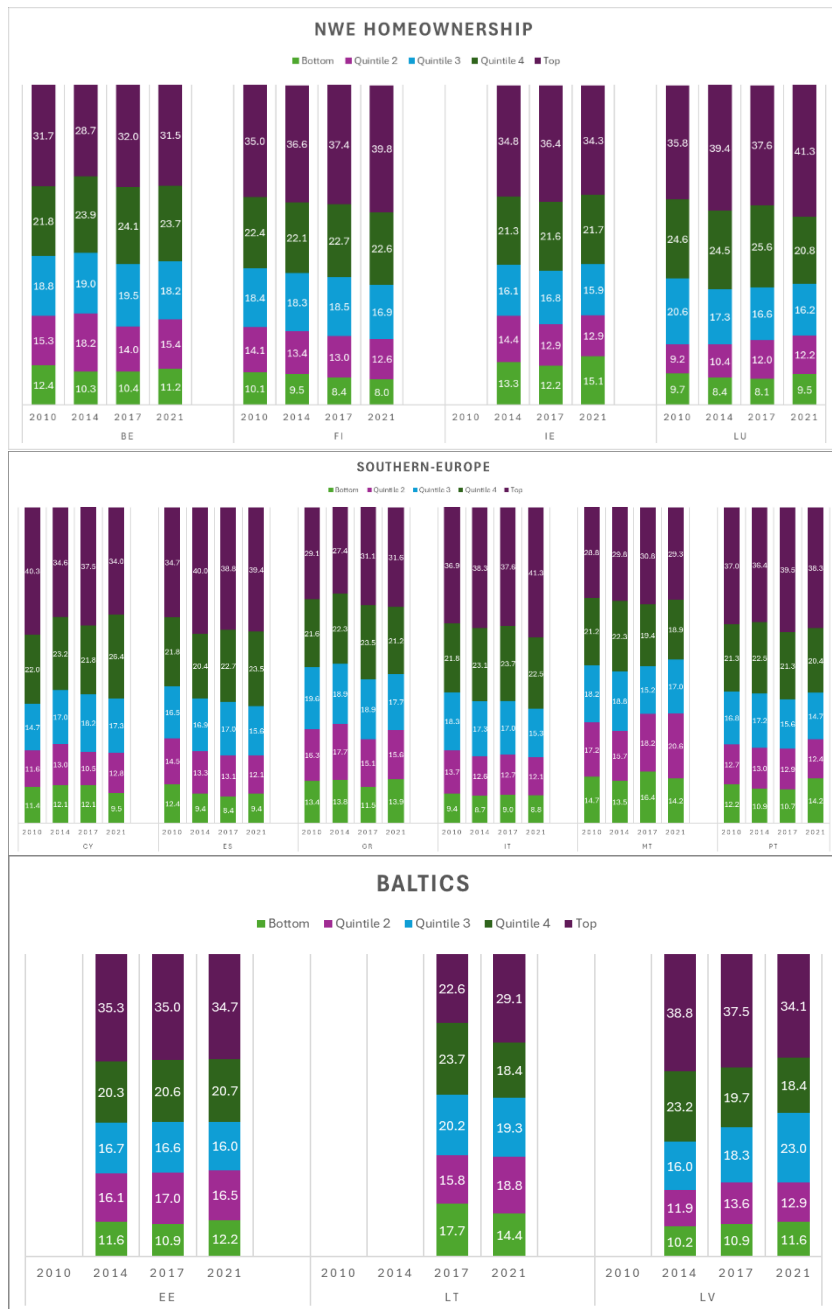
Country	All households	Young households	Homeowners	Young homeowners
AT	2293	362	983	98
BE	2130	407	1537	225
CY	1332	166	1015	90
CZ	3122	481	2463	326
DE	4119	656	2432	179
EE	2247	619	1844	429
ES	6313	691	5072	370
FI	9474	2352	7418	1234
FR	10253	2000	7415	968
GR	3386	873	1806	174
HR	1357	163	1146	90
HU	6032	1176	5082	773
IE	6020	1301	5025	848
IT	6239	472	5038	303
LT	1676	327	1565	266
LU	2010	530	1484	302
LV	1219	337	1035	261
MT	1018	254	833	218
NL	2690	543	1752	274
PL (2017)	5858	1253	4638	825
PT	6107	320	5383	249
SI	1951	306	1588	172
SK	2174	302	1920	239
<b>Average</b>	<b>3870</b>	<b>691</b>	<b>2977</b>	<b>387</b>

**Figure A3.1 Trends in gross housing wealth concentration over time across the income distribution (HFCS, 2010-2021, household level, weighted results) (all households)**



(Continued next page)







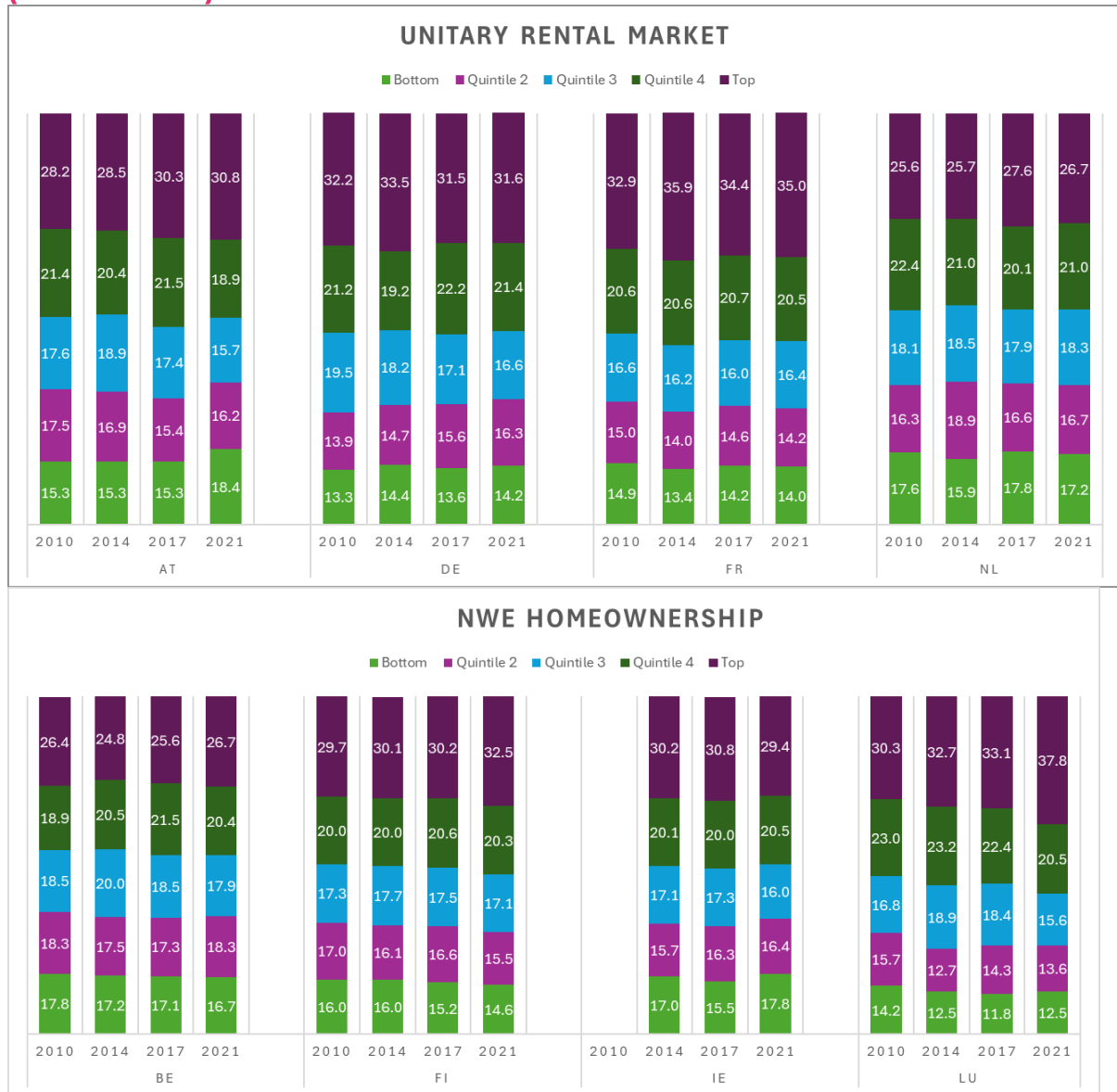
**Figure A3.2 Trends in gross housing wealth concentration over time across the income distribution (HFCS, 2010-2021, household level, weighted results) (young households)**

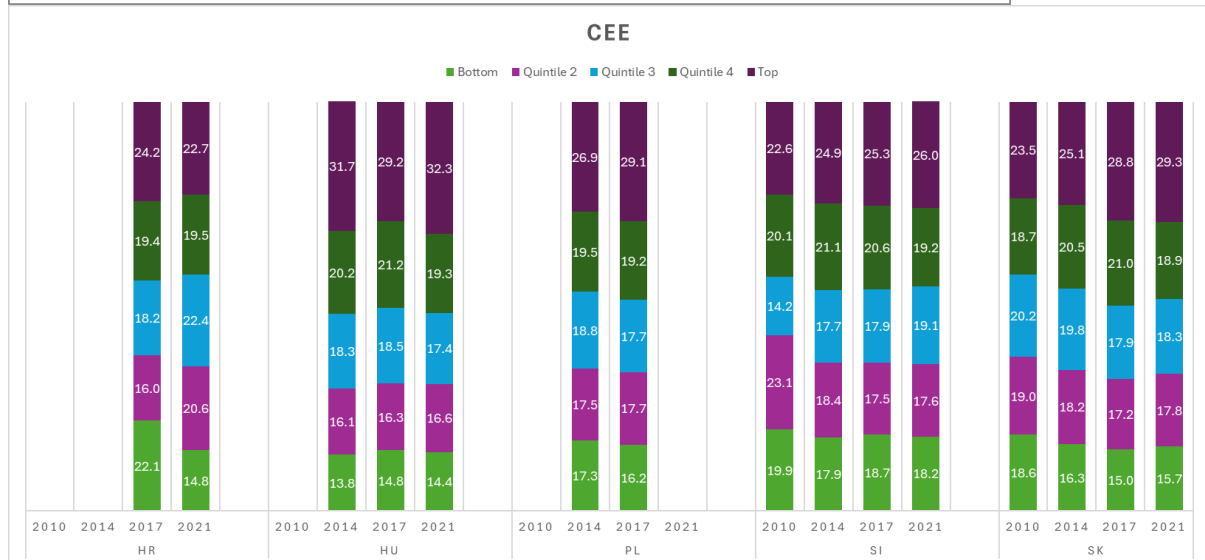
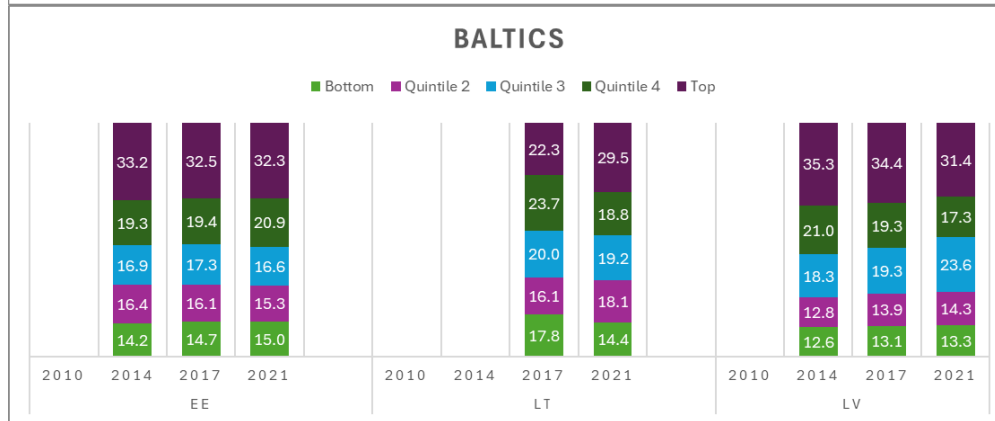
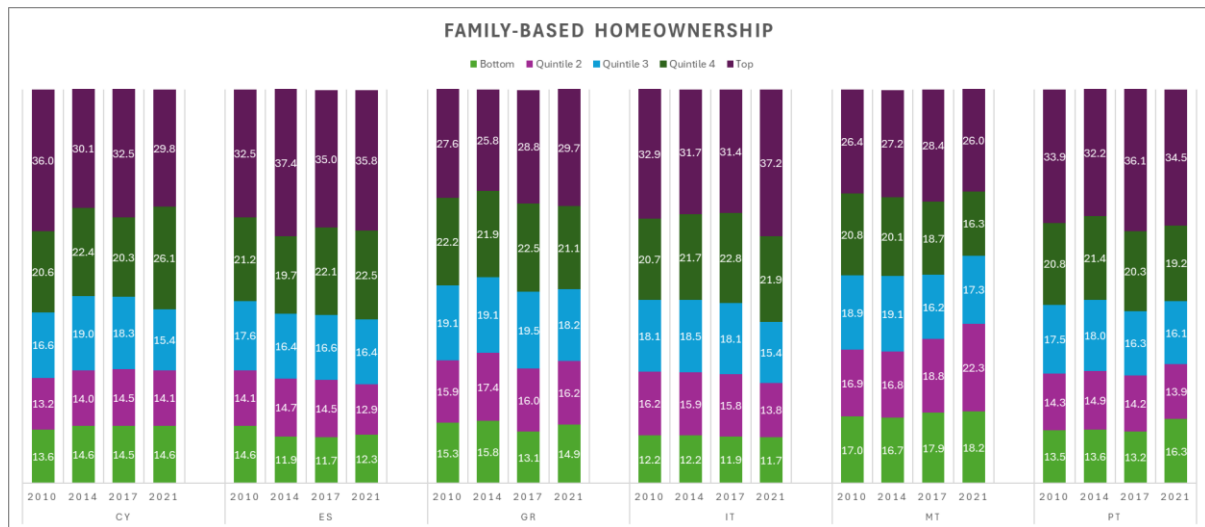






**Figure A3.3 Trends in gross housing wealth concentration over time across the income distribution (HFCS, 2010-2021, household level, weighted results) (homeowners)**

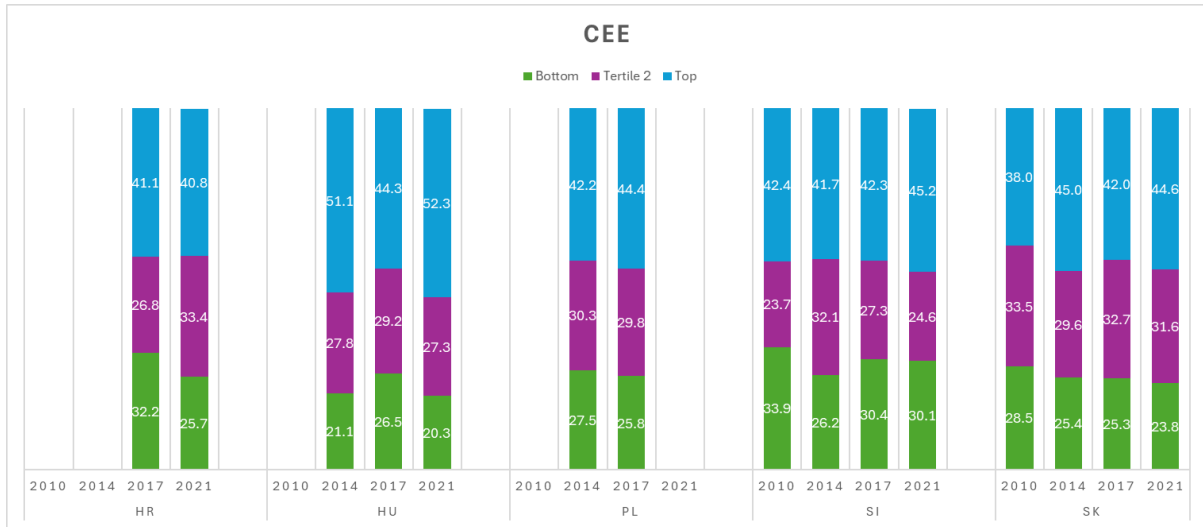




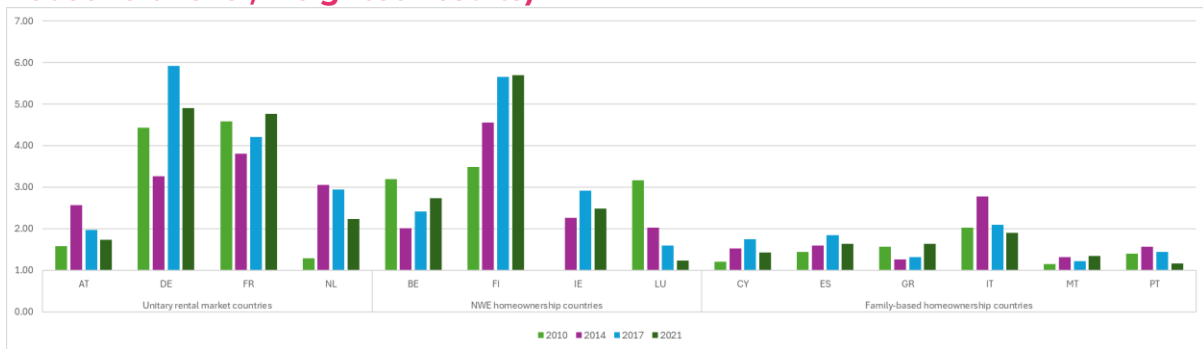


**Figure A3.4 Trends in gross housing wealth concentration over time across the income distribution (HFCS, 2010-2021, household level, weighted results) (young homeowners)**

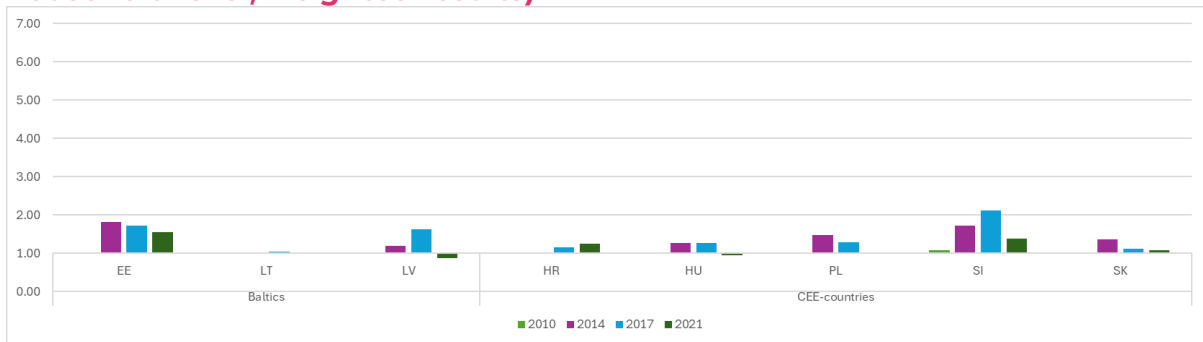




**Figure A3.5A Trends in income-based stratification of young adult homeownership across Western-Europe (ratio between high-income and low-income homeownership rate, based on income tertiles) (HFCS, 2010-2021, household level, weighted results)**



**Figure A3.5B Trends in income-based stratification of young adult homeownership across Eastern-Europe (ratio between high-income and low-income homeownership rate, based on income tertiles) (HFCS, 2010-2021, household level, weighted results)**







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