The Polarization of Real Estate Ownership and Increasing Wealth Inequality in Spain

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Abstract

Recent research has shown that differences in the distribution of real estate wealth across households are the most important explanation for cross-national variation in wealth inequality. We extend this line of research by quantifying to what extent real estate wealth can also explain increases in wealth inequality over time. Our analysis is based on data from the Spanish survey Encuesta Financiera de Familias covering the period 2002-2017. We show how real estate ownership is becoming increasingly polarized: both the share of households without any property at all as well as the share of households with multiple properties is increasing. Decomposition models show, first, that inequality between home owners and non-owners is becoming a more important component of wealth inequality between households. Second, whereas real estate that is not used by households as their main residence constituted a relatively small part of wealth inequality in 2002, its absolute contribution had almost doubled by 2017. We conclude that household investments in non-residence real estate are an important channel through which wealth inequality increased over time in Spain.

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Wealth inequality is on the rise across the globe (Piketty, 2014; Piketty & Zucman, 2014). Existing research has shown how especially the very wealthy keep increasing their share of the pie. Explanations for this increased concentration of wealth at the top have focused on a variety of factors including returns to investments, CEO pay, offshore wealth and (low) taxation (Saez & Zucman, 2016). Recent research has called attention to forms of wealth that are held by larger shares of the population, noting that differences in the distribution of housing wealth are the most important explanation for cross-national variation in wealth inequality (Kaas et al., 2019; Pfeffer & Waitkus, 2021). The extent to which changes in housing wealth form an explanation for increases in wealth inequality over time has received little attention so far.

There are important reasons to expect housing wealth to have played a role in increasing wealth inequality across high-income countries. Research on housing has shown that developments in real estate ownership take on two very different faces. On the one hand, increasing housing prices and changes in access to mortgages have made it harder to become a home owner in many countries (Lennartz et al., 2016). On the other hand, increasing housing prices make real estate a lucrative investment, contributing to the so-called financialization of housing (Aalbers, 2016; Byrne, 2020; Rolnik, 2019). These developments could have led to a polarization of housing wealth: Both the share of households without any real estate property *and* the share of households with multiple properties might have increased over time. Because of the central role housing wealth plays in levels of wealth inequality (Kaas et al., 2019; Pfeffer & Waitkus, 2021), polarization in housing wealth could have been an important channel through which wealth inequality increased over time in high-income countries.

In this paper, we use data from the Encuesta Financiera de Familias (EFF) to quantify to what extent changes in home ownership rates and real estate investments are channels through which wealth inequality increased between 2002 and 2017 in Spain. There are several features of the Spanish context that make it particularly relevant for the objectives of this study. First of all, home ownership rates are comparatively high in Spain (Mulder et al., 2015; Pareja-Eastaway & Sánchez-Martínez, 2012) but have recently declined (Fuster et al., 2018). Secondly, real estate

investments play a particularly important role in Spain and have received considerable attention due to their possible impact on housing prices and neighborhood processes in urban areas such as gentrification (Alexandri & Janoschka, 2018). Thirdly, Spain experienced both a housing boom and bust during this period (Martínez-Toledano, 2020), allowing us to see how wealth inequality and its composition develop when housing prices go up and down. Fourthly, even though wealth inequality was relatively low in Spain it has increased considerably over time. Finally, Spain has the record of the highest wealth-income ratio recorded so far during the 21st century (Artola Blanco et al., 2021), making wealth a particularly important economic resource for many Spanish households.

Previous research on Spain has primarily focused on the role of non-real estate assets (Martínez-Toledano, 2020). During the housing bust that occurred after the financial crisis of 2008, non-real estate assets took on a larger share of overall household wealth. Because non-real estate assets are less equally distributed across households than real estate, wealth inequality increased in Spain. In this paper, we make an important addition to this argument. Even though the importance of real estate assets changed little over time overall, this is produced by two counteracting processes: a declining weight of main residences in overall wealth inequality and an increasing importance of real estate investments for wealth inequality over time. Whereas real estate investments by households constituted a relatively small part of wealth inequality between households in 2002, its absolute contribution had almost doubled by 2017. Hence, investments in real estate by households are, among others, an important channel through which wealth inequality increased over time in Spain.

Wealth Inequality on the Rise

Wealth can be defined as the total value of assets an individual or household owns minus the total debt owed (Killewald et al., 2017). Assets include homes, businesses, stocks, or other real estate, whereas debts include mortgages, loans and credit card debts. Households differ in the

extent to which they own certain assets and debts. For many households, assets solely consist of some savings on a bank account, whereas others have a wide portfolio of assets. The most commonly held form of wealth is housing, whereas other real estate and businesses are forms of assets that are only held by few, primarily wealthy, households (Azpitarte, 2008).

Wealth provides households with financial resources and can work as a safety net during economically difficult times (Pfeffer & Schoeni, 2016). The benefits of wealth are not purely economic as wealthy individuals also live longer; have better health; and enjoy more stable relationships (Eads & Tach, 2016; Thompson & Conley, 2016). Individuals who have more debt than assets have negative wealth and can be among the most economically disadvantaged in society if they also have low income.

Comprehensive data collection efforts have revealed that wealth is taking on an ever larger share of societies' economic resources, and that wealth is increasingly held by a small group of households in society (Piketty, 2014; Piketty & Zucman, 2014). These developments have been met with alarming concern by academics and the general public alike for various reasons including its more unequal distribution as compared to income and the easily transferable nature of wealth which makes it an important source of inequality of opportunity (Charles & Hurst, 2003; Hällsten & Pfeffer, 2017).

Most explanations of increasing wealth inequality have focused on the United States and particularly on changes at the top of the wealth distribution. Increases in top labor incomes are an important factor, which boomed over time in the United States (Saez and Zucman, 2016). Attention has been paid to rising CEO pay and its determinants including increasing firm size and the wage-setting process within large companies. Other research has focused on how wealth begets more wealth and how the returns to wealth might have increased over time (Piketty, 2013). These studies showed how the returns to wealth increase with the total amount of wealth held, and that such differential returns might have become greater over time (Garbinti et al., 2021). Another area of research has focused on reductions in taxes levied on the returns from wealth, tax-avoidance and the holding of offshore wealth (Alstadsæter et al., 2019). In Spain,

the focus has been primarily on how the role of non-real estate assets gained more weight after the financial crisis (Martínez-Toledano, 2020).

Recent cross-national research on wealth inequality has focused on processes that are relevant to larger parts of the population. Even though income is an important pathway through which wealth is accumulated, income inequality is a very poor predictor of a country's level of wealth inequality (Pfeffer & Waitkus, 2021). Kaas and colleagues (2019) show that there is much more variation across countries in the wealth of the bottom 50% of households than in the wealth that the 50th to 90th percentiles hold (see also Lindner, 2015). Pfeffer & Waitkus (2021) used a decomposition approach to show that differences in inequality in housing wealth across countries are the most important contributor to cross-national variation in wealth inequality overall. This raises the question to what extent changes over time in the distribution of housing wealth have contributed to wealth inequality, a question we aim to provide a first answer to in this paper. Even though inequality in housing is only recently receiving more attention in research on wealth inequality (Kaas et al., 2019; Pfeffer & Waitkus, 2021), other bodies of literature, primarily from housing research, have depicted several trends that suggest that housing wealth inequality probably increased across high-income countries.

Firstly, the continuous and increasing concentration of population in metropolitan areas has led to a shortage of housing and housing prices that rise faster than incomes (Fuller et al., 2020). Together with stricter rules to obtain mortgages, this has made it more complicated for households to buy a home (Arundel, 2017). Across high-income countries, home ownership has declined particularly among young persons (Fuster et al., 2018; Lennartz et al., 2016). From a wealth perspective, decreasing home ownership is concerning as it is the primary route through which households accumulate wealth. In addition, lower home ownership rates seem to translate into higher wealth inequality because in countries where few households own their home, housing wealth is not substituted by financial wealth among non-owners as much as one might expect (Kaas et al., 2019). We therefore expect that decreases in home ownership rates have contributed to increased wealth inequality over time.

Secondly, housing has become more “financialized” across high-income countries: an increasing presence of financial actors in the real estate market, and the increasing focus on real estate as an investment, rather than a way of providing housing to the population (Aalbers, 2016; Byrne, 2020; Rolnik, 2019). Investments by companies in real estate can have an impact on wealth inequality through its impact on housing availability and prices. However, households also invest in housing and, if such investments have become more common, a situation arises where both the share of households with multiple properties and the share of households without any properties at all increase. Our second hypothesis is that real estate investments by private households (which we define as real estate not used as the household’s main residence) are a channel through which wealth inequality increased over time. Before moving to our empirical analysis, we present more information on the context of our empirical study: Spain.

Housing and wealth inequality in Spain

Wealth inequality in Spain is often marked as being relatively low as compared to other countries (Balestra & Tonkin, 2018; Lindner, 2015). But wealth inequality has increased considerably over the last years. Alvaredo and Saez (2009) used tax return data to show that wealth inequality remained relatively stable during the 1980s, dropped during the 1990s and returned to initial levels in the early 2000s. During the 21st century, a clear upward trend has become visible. In 2002, the wealthiest 10% of people owned 42% of all wealth in Spain. By 2014, they owned 53% of all household wealth (Anghel et al., 2018), an 11-percentage point increase in 12 years of time.

Even though this trend predates the financial crisis of 2008, a strong increase was observed after the crisis when real estate prices dropped. Amuedo-Dorantes and Borra (2018) found that wealthy households lost considerably during the crisis, but less so than less wealthy households. The more diverse portfolios of wealthy households implied that smaller shares of their wealth were affected by drops in real estate values. In addition, Martínez-Toledano (2020) showed that

wealthy households could also more easily convert their real estate investments into other forms of wealth once real estate prices declined.

Hence, previous research has shown that non-real estate assets, in a context of decreasing real estate prices, form a main channel through which wealth inequality increased over time in Spain. However, there are some indications that real estate might have played a role too beyond decreases in prices once one distinguishes real estate held in the form of the main residence from other forms of real estate wealth. Several studies showed that, after the crisis, investments in real estate increased again among households in Spain (Amuedo-Dorantes & Borra, 2018; Martínez-Toledano, 2020). It is still unclear to what extent these investments are a channel through which wealth inequality increased over time.

Furthermore, it remains unclear to what extent longer-term trends related to real estate, such as the decreasing access to home ownership, and increases in housing prices before and after the crisis, affected levels of wealth inequality. Azpitarte (2008) decomposed wealth inequality in 2002 by its components and showed how gross housing wealth suppressed inequality, whereas housing debt and financial wealth contributed to wealth inequality. The cross-national analysis of Lindner (2015) indicated for 2011 that increases in the value of main residences would reduce wealth inequality, but augmenting the value of other real estate would increase inequality in Spain. It is our aim to provide a comprehensive effort that documents changes over time, rather than a single snapshot of wealth inequality in Spain at a given point in time. More specifically, we aim to show how the role of real estate for wealth inequality changed during the first decades of the 21st century (2002-2017). In the next section, we discuss some specific trends that occurred in the real estate market in Spain during that period.

Housing and Real Estate in Spain

Studies on housing in Spain suggest that a polarization of ownership of real estate properties is likely to have taken place over the last decades. During the second half of the 20th century, housing policies in Spain provided access to homeownership to a broad segment of the population (Fernández et al., 2020; García Pérez & Janoschka, 2016). The presence of a weak welfare state, strong family support, and a powerful real estate sector largely contributed to both the predominance of homeownership and the practically absent social housing sector in Spain (Pareja-Eastaway & Sánchez-Martínez, 2012). These features are also present in the housing systems of other Southern European countries (Allen et al., 2004).

It is in this context that the golden age of Spanish real estate emerged, which lasted until the financial crisis of 2008 and overlapped with other international expansionary periods, such as those in Ireland or the UK (Romero et al., 2012). The so-called Spanish real estate bubble unleashed a period of extraordinary housing production, widespread access to property ownership, sustained by the expansion of mortgage credit and household over-indebtedness, and an unprecedented rise in prices (Rodríguez & López, 2011). The period saw a great ease in obtaining low-interest mortgage loans. According to data from the Spanish Ministry of Development, the appraised value of one square meter of private housing increased threefold between 1995 and 2008.¹ Although access to homeownership during this expansive period only registered minor disparities among different age groups and socioeconomic levels (López-Gay & Recaño, 2009), there was a significant socioeconomic gap in the characteristics of mortgages, such as its length or the household economic effort required to cover payments.

The expansion of home ownership rates came to an end with the financial crisis. Housing prices dropped by more than 30% between 2008 and 2014 and many households ended up having mortgages higher than the value of their property (Fuster et al., 2019). Evictions rose due to non-payment in the worst-off groups (Méndez & Plaza, 2016). After the crisis, a strong upturn in renting as an option to access housing was observed, a trend mainly led by young adults, the foreign born and the most vulnerable households (Módenes & López-Colás, 2014). Growing unemployment, credit restrictions and the tightening in the conditions of access to mortgage

loans hindered the purchase of homes for significant parts of the population (Leal & Martínez del Olmo, 2017). These new features led to a further complication of access to housing for vulnerable populations when prices started rising again after 2015 (Módenes, 2019). Overall, these developments suggest that housing wealth decreased among households with fewer economic resources after the financial crisis, and did not recover in the years after that despite the recovery of the economy and the housing market.

At the same time, the possibilities to invest in real estate seem to have increased for wealthy households during this recent expansion period. The financialization of real estate has been particularly visible in Spain due to a substantial inflow of international capital, often from private equity firms, hedge funds and real estate investment trusts (Byrne, 2016; Vives-Miró, 2018). Additionally, tourism and the growth of tourist apartments has also become a new means to facilitate the intensification of the commodification and financialization of housing in Spain (Gutiérrez & Domènech, 2020). Despite these trends, little consideration has been given to investments in real estate by Spanish households; a gap we aim to fill within this paper. More specifically, we aim to answer two sub-questions in our empirical part: Have changes in home ownership rates contributed to wealth inequality in Spain? And: are investments in real estate by households (i.e. real estate not used as the main residence) a channel through which wealth inequality increased over time?

Data and Method

We use data from the Encuesta Financiera de Familias (EFF) collected every three years by the Bank of Spain. Data now cover the period from 2002 to 2017 with a representative set of around 6,000 households interviewed in each wave. The data have been harmonized by internationally comparative projects such as the Luxembourg Wealth Studies and the Household and Finance Consumption Survey. Strengths of the data include detailed information on assets and debts, as well as an oversampling of the richest households, an important feature for studies on wealth

inequality, even though the very top wealth holdings might still not be captured in surveys (Piketty & Saez 2014). Estimates of wealth inequality and the development of its components appear similar to estimates derived from income and wealth tax data (Martínez-Toledano, 2020). We use the five imputations of the data provider, which allows us to include all households in each wave, resulting in sample sizes of 5,143; 5,962; 6,197; 6,106; 6,120; 6,413 households for the years 2002, 2005, 2008, 2011, 2014 and 2017, respectively (representing 14,112; 16,054; 15,850; 15,852; 15,536; and 16,335 individuals). Sampling weights are used in all analysis and, in addition, results are weighted by the number of household members.

Measures

The main measure of interest in our paper is household net worth. Net worth is calculated as the total value of all assets minus debts. Assets include the main residence, other real estate, businesses, valuables, money in checking accounts, saving accounts, shares, bonds, stocks, investment funds, private pension schemes, life insurance, and money owed to the household. Debts include mortgages as well as other loans and debt. Wealth and its components are reported on by respondents. All amounts are adjusted to 2017 prices.²

Besides household net worth, other main variables used in the analysis are the amount of real estate properties owned. First, a distinction is made between households that do and do not own their main residence. Second, a further distinction is made between the total amount of real estate properties owned (0, 1, 2, 3, 4 or more). These real estate properties include housing, but also, for instance, land, offices and garages that are not part of the residence.

The number of properties of a household is also essential in a second part of our analysis where we look at wealth components. For this part of the analysis, a household's real estate wealth is divided into the net value of the main residence, the net value of the most valuable other real estate property (labelled second properties),³ the next most valuable real estate property (third properties), and all other real estate properties (fourth and more properties). These quantities are calculated net of any outstanding mortgages or debts related to those properties. All other

household wealth is put together into one component called non-real estate assets and debts. Additional analysis using more specific asset groups is referred to in the results section (See Online Appendix A).

Figure 1 displays descriptive statistics of how average total household net worth developed over time, as well as average total household net worth broken down by its components. Total household wealth increased drastically before 2008, after which household wealth declined again. These trends correspond with the housing boom of the 2000s and the housing bust after the financial crisis of 2008. It is therefore not surprising that these overall trends are mainly produced by household wealth held in the form of main residences. Besides declining housing values, decreases in wealth held in the form of main residences are also driven by a steady increase in the value of mortgages related to the main residence (See Online Appendix A).

Figure 1. Average household wealth across survey years broken down by its components

Source: Authors' calculations based on Encuesta Financiera de Familias (Banco de España). Weighted by household size and sample weights, averaged over five imputations.

Interestingly, the amount of household wealth held in all other wealth components steadily increased over time, including real estate properties that are not main residences. Summing

across second, third, and fourth properties, the average wealth held by households in the form of other real estate increased from 45.273 euros in 2002 to 74.209 euros in 2017. A similar increase is observed for non-real-estate assets, primarily driven by wealth held in the form of bonds, stocks and investment funds. See Figure A1 in the Online Appendix for a detailed breakdown of wealth components.

Decomposition Methods

Our analysis relies on two main methods. First, we follow Kaas and colleagues' (2016) Gini-decomposition approach used in their analysis of cross-national differences in wealth inequality. We decompose the Gini-coefficient G of inequality in wealth w into between- and within-group components:

$$G_w = G_B + \sum_{h=1}^H p_h a_h G_h + R \quad 1)$$

Where G_B indicates between-group inequality, calculated as the Gini-coefficient of average wealth across groups h (e.g. home-owners and non-owners). $\sum_{h=1}^H p_h a_h G_h$ indicates within-group inequality, where p_h is the population share of group h , a_h the share of wealth held by group h , and G_h is the Gini-coefficient of wealth inequality within group h . R is a residual that arises from overlap of the wealth distributions between groups. We run robustness checks using the decomposition of the Theil-index, which does not produce a residual term but does not allow for negative values or zeroes.⁴

Second, we decompose wealth inequality into parts attributable to each component of household wealth based on the source decomposition method of Lerman and Yitzhaki (1985).⁵ This method decomposes the Gini-coefficient G as follows:

$$G(w) = \sum_{k=1}^K s_k g_k r_k \quad 2)$$

Where k indicates the components of household wealth w . The overall contribution of each component to wealth inequality is based on three numbers of interest. s_k indicates the share of

component k in overall household wealth in the sample. g_k is the gini-coefficient of component k and indicates how unequally distributed component k is across households. Finally, r_k is based on the extent to which households' wealth held in the form of component k is related to the overall wealth distribution:

$$r_k = \frac{\text{cov}(w_k, F(w))}{\text{cov}(w_k, F(w_k))} \quad 3)$$

Where $F(w)$ indicates the cumulative distribution of wealth. In other words, r_k indicates to what extent this wealth component is primarily held by the wealthy or by the less wealthy.

The quantities s_k , g_k , and r_k will give insight into why a certain component contributes to wealth inequality. However, that a given component contributes to wealth inequality does not necessarily imply that declines in the importance of that wealth component would reduce wealth inequality. For instance, because housing is such a major component of household wealth it is likely to be an important contributor to wealth inequality (driven by the component s_k indicating the share of total wealth held in the form of housing). However, if housing wealth declines, this could give more weight to other, less equal, forms of wealth. To understand the extent to which a hypothetical variation in the amount of wealth held in the form of a given component would affect wealth inequality, we calculate the local elasticity of the wealth distribution in relation to component k :

$$\varepsilon_k^* = \frac{s_k g_k r_k}{G(w)} - s_k \quad 4)$$

In robustness checks, we follow earlier research (Lindner, 2015) by rerunning the source decomposition analysis for gross wealth only (i.e. value of assets without considering debts; See Online Appendix C). All code used for data management and analysis will be made available on the authors' website.

Results

We start the analysis by examining changes in real estate ownership. Figure 2 shows how real estate ownership changed across the study period. The share of households with at least one property increased until 2011, but declined thereafter. Between 2011 and 2017 the percentage of households with at least one property dropped from 87% to 82%. At the same time, the number of households with more than one property increased considerably over time. Whereas 29% of households owned two or more properties in 2002, this had increased to 42% by 2017. To an important extent, this is driven by an increase in households with four or more properties (which increased from 5% to 11%). These numbers reveal a polarization in real estate ownership in Spain with decreasing home ownership rates and increasing shares of multi-property owners. Additional analysis showed that many of these properties are used to rent out to others and not for own use. The increase in households that have a property over which they receive rent increased from 4% to 11% between 2002 and 2017 (See Online Online Appendix D).

Figure 2. Number of properties held by Spanish households

Source: Authors' calculations based on Encuesta Financiera de Familias (Banco de España). Weighted by household size and sample weights, averaged over five imputations.

Table 1 shows the extent to which differences between owners and non-owners have become a more important component of wealth inequality over time. The first panel considers differences

between main residence owners and non-owners, whereas the second panel distinguishes by the total number of properties owned.⁶ The last column of both panels indicates how the Gini-coefficient developed across this period and confirms considerable increases in wealth inequality, particularly after the financial crisis.

The column “Between-groups” indicates the absolute part of each year’s Gini coefficient that is attributable to average differences in wealth between the groups considered. Almost half of the overall increase in wealth inequality is produced by increasing inequality between home owners and non-owners. Between-group inequality increased from 0.14 to 0.19 points, or from 25% in 2002 to 28% of overall inequality in 2017. The rest of increases in inequality are produced by inequality among home owners.

Table 1: Gini-decomposition of wealth inequality in between and within group components

Panel 1: Home owners versus non-owners					
	Between- groups	Among non-owners	Among owners	Residual	Gini: Total
2002	0.14	0.01	0.40	0.03	0.57
2005	0.17	0.01	0.39	0.02	0.57
2008	0.15	0.01	0.41	0.03	0.60
2011	0.13	0.01	0.45	0.03	0.62
2014	0.15	0.01	0.48	0.04	0.68
2017	0.19	0.01	0.45	0.04	0.69

Panel 2: Groups defined by number of properties owned by household								
	Between- groups	Among: Zero properties	Among: One property	Among: Two properties	Among: Three properties	Among: Four+ properties	Residual	Gini: Total
2002	0.37	0.00	0.10	0.03	0.00	0.00	0.08	0.57
2005	0.39	0.00	0.07	0.02	0.00	0.01	0.08	0.57
2008	0.39	0.00	0.07	0.03	0.01	0.01	0.09	0.60
2011	0.42	0.00	0.07	0.03	0.01	0.01	0.08	0.62
2014	0.45	0.00	0.07	0.03	0.01	0.01	0.10	0.68
2017	0.47	0.00	0.04	0.03	0.01	0.02	0.10	0.69

Source: Authors’ calculations based on Encuesta Financiera de Familias (Banco de España). Gini-decomposition following Kaas et al (2016). Weighted by household size and sample weights, averaged over five imputations. Home owners are households where (one of) their members own the main residence.

Between-group inequality plays an even greater role when groups are defined based on the number of real estate properties they own, accounting for 83% of the overall increase in wealth

inequality between households. A smaller role is played by inequality among households that own one property, which decreased over time. The importance of inequality among households with three or more properties was negligible in 2002, but emerged as a contributor to inequality over time.

Increasing between-group inequality can be produced by changes in how many households fall into each group (Figure 2) and by changes in the average wealth of these groups (Online Appendix D). Differences in average wealth between groups increased considerably before the crisis and compressed again thereafter (although to a smaller extent). In contrast, increases in the number of non-home owners and households owning multiple properties took place most clearly after the crisis. The increases in between-group inequality before the crisis could therefore be primarily attributed to increasing group differences in terms of average wealth (i.e. home owners and multi-property owners becoming wealthier). In contrast, changes in the number of households without property and with many properties form the main explanation for the big post-crisis surge in between-group inequality.

Robustness checks using gross wealth (Online Appendix C) show very similar results. Decompositions based on the Theil-index do also find an increasing importance of between-group inequality (Online Appendix B), but in a less pronounced manner. Because the Gini index is relatively sensitive to changes at the middle of the wealth distribution (Atkinson, 1970), between-group inequality could be relatively less relevant for explaining changes at the extremes of the wealth distribution (and probably the top of the distribution in specific, as excluding negative and zero values had little impact on results; see Online Appendix B).

In short, differences between home owners and non-owners have become a more important component of wealth inequality over time. When also taking into account the number of properties households have, the majority of increases in wealth inequality can be explained by changes in between-group inequality rather than increasing differences within groups of households (with the qualification that between-group inequality explains 42% of increases in wealth inequality once using the Theil). The main driving force behind this trend is the

increasing polarization of real estate ownership: simultaneous increases in the share of households without properties as well as households with many properties.

Decomposition of wealth inequality by components

Figure 3 decomposes wealth inequality by households' wealth components. The bars of Figure 3 are broken down according to how important different components are for levels of wealth inequality in the different years considered. Once considering the contribution of all different real estate wealth components together, their contribution to inequality changed little over time. From that perspective, we find that non-real estate assets are clearly the most important channel through which wealth inequality increased over time, in line with previous research (Martínez-Toledano, 2020). However, once breaking down real estate into different categories, a second main channel through which wealth inequality increased over time emerges. In 2002, main residences were the most important component of wealth inequality, but their importance decreased over time. The importance of other real estate increased considerably over time and, by 2017, was as important for wealth inequality as wealth held in the form of main residences. Especially the contribution of fourth and higher properties increased over time.

Table 2 gives a more detailed insight into how the contributions of these wealth components changed over time. The table shows the share of each wealth component in total wealth of the sample, how unequally distributed the wealth component is across households, and how values of the wealth component relate to the overall wealth distribution.

The relationship of wealth held in the form of main residences to overall wealth remained relatively equal over time, but its distribution across households became less equal. Despite this less equal distribution across households, the drop in the total value of main residences reduced its contribution to wealth inequality across time. Hence, the decreasing importance of main residences for wealth inequality is produced by its decreasing share of total household wealth in Spain.

Figure 3. Source decomposition of inequality by its components

Source: Authors' calculations based on Encuesta Financiera de Familias (Banco de España). Weighted by household size and sample weights, average over five imputations. If households do not own their main residence but have other real estate, the first most valuable property is categorized under "second properties", the second under "third properties", etc.

For other real estate, the opposite is observed. Its contribution to inequality increased despite a slightly more equal distribution across households of second, third, and fourth or more properties. The increasing shares of households having multiple properties over time, and the related increase in the share of total wealth held in terms of other real estate, have contributed to increases in wealth inequality.

Finally, the contribution of non-real estate wealth to inequality is also primarily produced by the larger weight non-real estate wealth has gained in overall household wealth. The distribution of non-real estate wealth across households changed little, and its relationship to overall wealth increased slightly, but most of the action comes from its increasing share in total household wealth.

Table 2: Detailed results of source decomposition analysis

	Residence	Second Properties	Third Properties	Other properties	Non-Real Estate
<i>Year 2002</i>					
Share of total wealth	0.57	0.14	0.04	0.04	0.22
Gini of wealth component	0.50	0.87	0.96	1.00	0.91
Relation with wealth distribution	0.87	0.80	0.85	0.89	0.85
Total contribution	0.25	0.09	0.03	0.03	0.17
Elasticity	-0.14	0.03	0.02	0.02	0.07
<i>Year 2005</i>					
Share of total wealth	0.57	0.14	0.05	0.03	0.21
Gini of wealth component	0.49	0.85	0.96	1.00	0.95
Relation with wealth distribution	0.87	0.79	0.87	0.91	0.86
Total contribution	0.24	0.09	0.04	0.03	0.17
Elasticity	-0.15	0.02	0.02	0.02	0.09
<i>Year 2008</i>					
Share of total wealth	0.53	0.15	0.04	0.04	0.23
Gini of wealth component	0.50	0.87	0.97	1.00	0.95
Relation with wealth distribution	0.86	0.80	0.84	0.90	0.87
Total contribution	0.23	0.11	0.04	0.04	0.19
Elasticity	-0.15	0.03	0.02	0.02	0.08
<i>Year 2011</i>					
Share of total wealth	0.48	0.16	0.04	0.04	0.28
Gini of wealth component	0.53	0.85	0.96	1.01	0.90
Relation with wealth distribution	0.85	0.79	0.87	0.95	0.88
Total contribution	0.22	0.11	0.04	0.04	0.22
Elasticity	-0.13	0.01	0.02	0.02	0.08
<i>Year 2014</i>					
Share of total wealth	0.43	0.17	0.05	0.04	0.31
Gini of wealth component	0.60	0.88	0.94	0.98	0.91
Relation with wealth distribution	0.86	0.86	0.86	0.91	0.89
Total contribution	0.22	0.13	0.04	0.04	0.25
Elasticity	-0.10	0.02	0.01	0.01	0.06
<i>Year 2017</i>					
Share of total wealth	0.40	0.17	0.06	0.06	0.32
Gini of wealth component	0.63	0.82	0.93	0.97	0.88
Relation with wealth distribution	0.87	0.84	0.87	0.93	0.90
Total contribution	0.22	0.11	0.05	0.05	0.25
Elasticity	-0.08	0.00	0.01	0.02	0.05

Source: Authors' calculations based on Encuesta Financiera de Familias (Banco de España). Source decomposition of Lerman and Yitzhaki (1985). Weighted by household size and sample weights. If households do not own their main residence but have other real estate, the first most valuable property is categorized under "second properties", the second under "third properties", etc.

These results fit with the story that wealth inequality increased because wealthier households have more non-real estate wealth and that this unequal distribution became more visible as housing prices dropped (Martínez-Toledano, 2020). However, the same story also applies to real

estate not used as households' main residence. This is further illustrated by the elasticities of Table 2. In all years, increases in wealth related to the main residence would decrease inequality, whereas increases in the other forms of wealth would amplify inequality. Hence: wealth inequality increased considerably between 2002 and 2017 because the share of wealth held in the form of main residences decreased considerably and other forms of wealth, non-real assets but also real estate investments, took on a larger share of overall wealth.

Discussion

Wealth inequality has increased considerably over time in Spain. Previous research had shown that wealth inequality increased during the housing bust because wealthier households own larger shares of non-real estate assets (Amuedo-Dorantes & Borra, 2018; Martínez-Toledano, 2020). In this paper, we add another important element to this story. Even though the housing bust led to a decrease in household wealth in the form of household's main residences, wealth held in the form of other real estate increased over time, driven by an increase in households having multiple real estate properties. Because such types of real estate assets are also primarily held by wealthier households, the housing bust increased wealth inequality by putting more weight on these forms of real estate. The housing bust after the financial crisis therefore seems to have been an opportunity for wealthier households to invest in real estate.

That said, the proportion of households having more than one real estate property already increased before the crisis too, as did its contribution to wealth inequality. The increasing importance of having multiple properties for wealth inequality therefore appears to be a trend that has been amplified by the financial crisis. To illustrate, once using the Gini-coefficient, the great majority of increases in wealth inequality occurred between groups of households with a given number of real estate properties, rather than within such groups. This shows that, in Spain, a household's wealth has become increasingly dependent on whether the household owns any property at all, and if so how many.

These observations are likely to be relevant beyond the Spanish context. The trends underlying the polarization in access to real estate observed in Spain have been observed in other countries too: increasingly difficult access to home ownership and increasing investments in real estate (Aalbers, 2016; Arundel & Hochstenbach, 2019). One aspect that our analysis highlights, but that has received relatively little attention so far, is that not just companies and funds are investing in real estate, households do so too and the share that does so is increasing. We found that the share of households having three properties or more doubled between 2002 and 2017. These properties can differ in the extent to which they are acquired for the household's consumption or as a strategy to accumulate more wealth (or both). However, we found that the percentage of households that has a property over which they receive rent increased from 4% to 11% between 2002 and 2017. This indicates that more households are investing in real estate and that such acquisitions are not for own use. Additional analysis also shows that the increasing importance for wealth inequality of real estate properties not used as the main residence is primarily driven by real estate properties over which households receive a rent (See Online Appendix D).

One of the main limitations of this article is that we decompose repeated cross-sectional data. One of the complications of studying wealth components is that assets can be sold and transformed into another type of wealth relatively quickly (depending on the asset considered). It is therefore not clear at all whether wealth inequality would be lower in the absence of the option to invest in real estate, as households might have invested their wealth in non-real estate assets instead. However, this paper did show that real estate investments form an important channel through which wealth inequality increased. This not only puts forward that considering real estate investments is important to understand increasing wealth inequality, but also raises questions about the impact certain types of investments have. If real estate investments drive up housing prices, complicate the possibilities to become a home owner for other households (Fuller et al., 2020), and contribute to precarious housing situations (Hulse et al. 2019; Byrne,

2020), the question arises to what extent household's investments in real estate (not used as a main residence) should be discouraged or not; a question we leave open for future debates.

The future will also show whether wealth inequality will keep increasing in Spain. In this regard, some expectations can be formulated based on the results of our analysis. As the housing bust increased inequality by reducing the weight of main residences in overall household wealth, the question arises to what extent wealth inequality might decrease again as housing prices recover. There is some reason for pessimism in that regard. Less households today own their main residence than in the past, and wealth held in the form of main residences is less equally distributed today as compared to before the financial crisis (note the Gini coefficients of main residence wealth in Table 2). Next to decreases in home ownership rates, this unequal distribution of main residence wealth could also be due to the increasing importance of mortgages, a development we paid little attention to but would merit more research. In any case, increases in housing prices are unlikely to have an equalizing effect that is similar in magnitude to the increases in inequality observed after the crisis, as less households will benefit from increasing housing prices today. This is also exemplified by the elasticities reported in Table 2, hypothetical increases in wealth held in the form of main residences were more strongly related to wealth inequality decreases in 2002 as compared to 2017.

Furthermore, increasing housing prices are also likely to benefit households that have invested in real estate during the crisis. Wealth held in the form of real estate (but not used as the main residence) is very unequally distributed and correlates highly with overall levels of wealth (See Table 2). Increasing housing prices will therefore not benefit less wealthy households to the same extent in the past, and, in addition, will benefit wealthy households more than in the past by increasing the value of their real estate investments.

There is another reason to be concerned about wealth inequality in the future. Home ownership is the main route through which most households accumulate wealth. This is especially so at the bottom of the wealth distribution, as savings made by non-owners do not match the housing wealth made by owners (Kaas et al., 2019). In our analysis, we found that differences between

home owners and non-owners are becoming a more important component of wealth inequality. As declines in home ownership are relatively recent, the wealth of households at the bottom of the wealth distribution might erode further as time passes.

Indeed, much attention in this article has gone out to the consequences of recent real estate developments for the wealthy (i.e. real estate investments). But, the consequences for the less wealthy might become more visible in the future. Home ownership rates are decreasing and the increasing investments made in real estate are likely to further complicate access to home ownership, and therewith wealth accumulation, for economically vulnerable Spanish households. This is especially problematic in the Spanish context in which the economic well-being of households depends to an important extent on wealth (Artola Blanco et al., 2021; Fuller et al., 2020). High unemployment, low earnings and relatively limited social security also mean that Spanish households have to access their wealth to deal with losses of income relatively often (or rely on cost-reductions related to housing wealth). The wealth distribution in Spain was relatively compressed as compared to other countries (Balestra & Tonkin, 2018) and provided economic resources to many also vulnerable households. The results of this article show that this is rapidly changing and the situation of vulnerable households in Spain could become increasingly precarious.

Notes

¹ Appraised value of private housing, Ministerio de Fomento, accessed in April 2021:

<https://apps.fomento.gob.es/BoletinOnline2/?nivel=2&orden=35000000>

² More specifically, using the following deflators: 0.75 (2002); 0.82 (2005); 0.91 (2008); 0.95 (2011); 0.99 (2014); 1 (2017).

³ If the household does not own the main residence, the first other real estate property still falls into this category of “second properties” for the wealth component analysis only.

⁴ See Online Appendix B; In one set of robustness checks we exclude zeroes and negatives, whereas in others we set them at having 1 euro of wealth.

⁵ We use the *sgini* package in Stata developed by Van Kerm (2020).

⁶ See online Online Appendix E for trends in average wealth for the different groups considered.

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Online Appendix

Figure A1. Average household wealth broken down into components

Source: Authors' calculations based on Encuesta Financiera de Familias (Banco de España). Weighted by household size and sample weight

Table B1: Theil-decomposition of wealth inequality in between and within group components (excluding cases with negative and zero wealth)

Panel 1: Home owners versus non-owners

	Within- groups	Between- groups	Total Theil
2002	0.60	0.07	0.67
2005	0.57	0.09	0.65
2008	0.65	0.05	0.70
2011	0.73	0.06	0.79
2014	0.85	0.07	0.92
2017	0.93	0.09	1.02

Panel 2: Groups defined by number of real estate properties

	Within- groups	Between- groups	Total Theil
2002	0.43	0.24	0.67
2005	0.40	0.25	0.65
2008	0.47	0.23	0.70
2011	0.49	0.30	0.79
2014	0.62	0.30	0.92
2017	0.69	0.33	1.02

Source: Authors' calculations based on Encuesta Financiera de Familias (Banco de España). Theil-decomposition using sgini package in STATA. Weighted by household size and sample weights, averaged over five imputations. Home owners are households where (one of) their members own the main residence.

Table B2: Theil-decomposition of wealth inequality in between and within group components (recoding wealth of households with negative and zero values to 1)

Panel 1: Home owners versus non-owners

	Within- groups	Between- groups	Total Theil
2002	0.61	0.09	0.70
2005	0.58	0.12	0.70
2008	0.68	0.10	0.77
2011	0.77	0.08	0.85
2014	0.92	0.10	1.02
2017	0.99	0.13	1.11

Panel 2: Groups defined by number of real estate properties

	Within- groups	Between- groups	Total Theil
2002	0.43	0.26	0.70
2005	0.41	0.30	0.70
2008	0.49	0.28	0.77
2011	0.51	0.34	0.85
2014	0.66	0.36	1.02
2017	0.72	0.39	1.11

Source: Authors' calculations based on Encuesta Financiera de Familias (Banco de España). Theil-decomposition using sgini package in STATA. Weighted by household size and sample weights, averaged over five imputations. Home owners are households where (one of) their members own the main residence.

Table C1: Gini-decomposition of wealth inequality in between and within group components using gross wealth (only assets)

Panel 1: Home owners versus non-owners								
	Between- groups	Among non-owners	Among owners	Residual	Total			
2002	0.14	0.01	0.38	0.03	0.55			
2005	0.16	0.01	0.36	0.02	0.54			
2008	0.14	0.01	0.37	0.02	0.55			
2011	0.13	0.01	0.40	0.03	0.56			
2014	0.15	0.01	0.40	0.03	0.59			
2017	0.18	0.01	0.39	0.04	0.62			
Panel 2: Groups defined by number of properties								
	Between- groups	Among: Zero properties	Among: One property	Among: Two properties	Among: Three properties	Among: Four+ properties	Residual	Total
2002	0.35	0.00	0.09	0.03	0.00	0.00	0.07	0.55
2005	0.37	0.00	0.07	0.02	0.00	0.01	0.07	0.54
2008	0.37	0.00	0.06	0.03	0.00	0.01	0.07	0.55
2011	0.39	0.00	0.06	0.03	0.01	0.01	0.07	0.56
2014	0.40	0.00	0.06	0.03	0.01	0.01	0.09	0.59
2017	0.44	0.00	0.04	0.03	0.01	0.02	0.09	0.62

Source: Authors' calculations based on Encuesta Financiera de Familias (Banco de España). Gini-decomposition following Kaas et al (2016). Weighted by household size and sample weights, averaged over five imputations. Home owners are households where (one of) their members own the main residence.

Figure C1. Source decomposition using only assets (gross wealth)

Source: Authors' calculations based on *Encuesta Financiera de Familias* (Banco de España). Source decomposition of Lerman and Yitzhaki (1985). Weighted by household size and sample weights. If households do not own their main residence but have other real estate, the first most valuable property is categorized under "second properties", the second under "third properties", etc.

Figure D1. Trend in share of households holding type of real estate asset

Note: Landlord = households receiving rent over one or more real estate properties. Owns Other Real Estate = Owns real estate that is not used as the main residence of the household.

Figure D2. Source decomposition by detailed wealth components

Note. Source decomposition of Lerman and Yitzhaki (1985). Weighted by household size and sample weights. Bought residence = main residence bought by household member; Inherited residence = main residence inherited by household member; Other Real Estate Own Use = Real estate not used as main residence, no rent received over it; Other Real Estate Rented Out= Real estate not used as main residence, rent received over it;

Figure E1. Average household wealth by year and group (defined by number of real estate properties owned)

Source: Authors' calculations based on Encuesta Financiera de Familias (Banco de España). Weighted by household size and sample weights, averaged over five imputations.