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In which European countries is homeownership more financially advantageous? Explaining the size of the tenure wealth gap in 10 countries with different housing and welfare regimes

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ABSTRACT

Previous research consistently shows that homeowners accumulate more wealth compared with tenants. In this paper, we describe the size of this 'tenure wealth gap' for 10 European countries. Furthermore, we explain why the size of the tenure wealth gap differs between countries by including cross-level interactions between institutional variables and housing tenure in a series of country-fixed effects regression models. Cross-country differences arise as the costs of owning versus renting, as well as the profitability of homeownership versus other investments, differ along the lines of welfare policies and housing regime arrangements. We attempt to control for selection bias related to tenure status by using propensity score matching techniques, using data from the Household Finance and Consumption Survey (HFCS). Our findings suggest that the tenure wealth gap is largest in familialistic welfare states, in which marginalised tenants are unable to save, whereas homeownership is a family resource that provides an in-kind retirement income ('passive' asset-based welfare). We find smaller tenure wealth gaps in countries with a financialised promotion of homeownership, where housing wealth functions as a privatised welfare arrangement ('active' asset-based welfare). The smallest tenure wealth gaps occur in countries with more affordable rental housing, allowing tenants to accumulate savings.

KEYWORDS Housing wealth; homeownership; net worth; saving; life course

Introduction

The finding that homeowners have higher net worth than renters is well-known (Belsky, Retsinas, & Duda, 2007; Di, Belsky, & Liu, 2007; Haurin, Parcel,

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& Haurin, 2002; Lersch & Dewilde, 2018; Turner & Luea, 2009). Net worth is the sum of financial wealth and housing wealth, minus any (residential) debts. With every year in homeownership, a household's net worth increases due to mortgage amortisation and house price inflation (Di et al., 2007). Even though gains and losses in the housing market tend to be unequally distributed across space and social groups (Hamnett, 1999; Wind & Hedman, 2018), similar positive results in the long run are found for low- and middle-income owners – who generally buy cheaper properties on less attractive locations (Turner & Luea, 2009). Homeowners are furthermore found to have higher levels of financial wealth than tenants (Pryce & Keoghan, 2002). Hence, housing wealth and financial wealth do not operate like communicating vessels. This paper explains why this tenure wealth gap is larger in some countries than in others, and especially highlights institutional explanations associated with the welfare state and the housing system.

On the individual level, different explanations have been advanced for the finding that homeowners have higher net worth compared with tenants. First, 'different' people select into homeownership. Mortgaged homeownership requires a stable income and employment position, and is therefore more common among people in a better socio-economic position. Thus, higher levels of net worth follow general stratification patterns and their cumulative causation over the life course. However, the positive effect of tenure on net worth remains after controlling for the socio-economic status of the household. Time-constant, unobserved 'latent' characteristics of people determining the decision to become a homeowner (e.g. personality, lifestyle and consumption preferences, psychological or physical condition) might influence their higher propensity to accumulate non-housing wealth (e.g. Dietz & Haurin, 2003; Zavisca & Gerber, 2016). Keister, Benton, and Moody (2016), for instance, identified distinct 'expenditure lifestyles' which transcend well-established socio-demographic associations with consumer spending. Thus, people who select into homeownership may be more likely to save (more) to start with. In order to better evaluate the potential impact of owning versus renting itself on the tenure wealth gap, more advanced statistical modelling techniques such as Propensity Score Matching are required (see further).

Homeowners may accrue financial wealth beyond their original means and gain advantages compared to tenants for several reasons. These 'substantive' pathways are based on savings behaviour and economic benefits derived from homeownership. Soaita and Searle (2016) argue that homeownership should be considered as one of the most effective enforced saving schemes: Whereas savings for tenants are non-committal and a failure to keep up with rent payments 'only' results in eviction (Quigley & Raphael, 2004), 'savings in stone' are mandatory for homeowners. A failure to keep up with monthly interest and amortisation payments is penalised

with both a loss of the house and of potential future housing wealth. Households might also start to actively save (more) additional resources once they enter homeownership, and thus enhance their financial wealth position, e.g. to fund renovation and maintenance; to create a financial buffer against income loss; or because the experience of saving for homeownership positively influences goal-directed saving for other purposes/general life-course planning (Lersch & Dewilde, 2018). Finally, as there is a positive association between parents' and children's homeownership, homeowners tend to receive larger gifts, (informal) loans and inheritances, which in turn contributes to greater wealth accumulation (see Helderma & Mulder, 2007).

In this paper, our focus lies with the economic benefits derived from homeownership, in particular those derived from government regulations, policies, and subsidies that favour homeownership over rental housing (Kemeny, 1981; Quigley & Raphael, 2004). A major reason why homeowners financially outperform tenants is because house price inflation has historically outpaced the consumer price index. However, cross-country variation in the extent to which house prices outperform the consumer price index is largely the result of government regulations, policies and subsidies. While the above-mentioned country studies document the existence of tenure wealth gaps across the western world, they do not systematically investigate or explain international differences regarding the *size of the tenure wealth gap*. In this study, we therefore explicitly focus on the macro-level and study the international variation regarding the size of the tenure wealth gap. Which institutional mechanisms explain why homeowners accumulate more housing and financial wealth in some contexts than in others?

Explaining cross-country differences regarding the size of the tenure wealth gap on the basis of institutional differences starts from Kemeny's (1981) claim that an interaction between ideology and policy produces the 'superiority' of homeownership. Larger tenure wealth gaps are rooted in policy systems that favour homeownership ideologically, and therefore incentivise households to move into homeownership and accumulate housing wealth. These incentives entail that homeowners can 1) invest more in housing or other financial products, or 2) receive a higher rate of return on their investments. Subsidies clearly effectuate the former, whereas the decade-long fixation on house price growth brings about the latter (Crouch, 2009; Hay, 2009). It is important to note that the data used in this paper are collected at a 'historic low' of the European housing market, a few years after the Global Financial Crisis of 2008. Findings regarding the benefits of homeownership over renting may therefore be on the conservative side.

The main aim of this paper is to identify and explain the size of tenure wealth gaps in a range of European countries representing different housing and welfare regimes. The empirical analyses are based on the

Household Finance and Consumption Survey (HFCS) of the European Central Bank (ECB), carried out in 2010/11. The country selection is restricted to a group of 10 Eurozone countries monitored by the ECB, with a sufficiently large sample size (Belgium, Germany, Greece, Spain, France, Italy, the Netherlands, Austria, Portugal, and Finland).

To explain cross-country differences regarding the size of the tenure wealth gap, we control as far as possible for social selection on the micro-level (i.e. the observable and unobservable propensities associated with both households' homeownership and wealth accumulation). We do so in order to better separate causation from selection- and composition-effects (Zavitsca & Gerber, 2016). Our sample exists of an equal number of tenants and homeowners in each country, given that we use a propensity score matching procedure that links every renting household (one-to-one) to an owning household on the basis of shared characteristics (Dehejia & Wahba, 2002). This means, however, that in countries with a small and more 'stigmatised' rental sector, the selected sample of homeowners is not representative for the overall home-owning population. Again, findings regarding the benefits of homeownership over renting may therefore be on the conservative side.

Thanks to this procedure we are able to carry out a quasi-experiment in which we approximate randomisation by investigating the wealth outcomes for a treatment group (homeowners) and a control group (tenants). Iacus, King, and Porro (2012) argue that, as it is likely that the observed characteristics used in the matching procedure are associated with the unobserved ones, the likelihood that the latter are balanced out is higher, and hence is the potential to take care of unobserved heterogeneity. Regarding this more 'household-specific' selection bias arising from time-constant propensities (e.g. personality, lifestyle and consumption preferences), we further pragmatically assume that any selection that remains (after implementing our matching procedure) is more or less similar across European countries, and hence forms a 'constant' part of the otherwise varying tenure wealth gaps. It is important to note that the social selection into homeownership is partly the outcome of (historic) housing policies and market regulations, which are the main explaining mechanisms on the macro-level. Only the part that varies between countries is relevant to this study, as it responds to changes in housing and welfare arrangements. We estimate country-fixed effects regression models (see Möhring, 2012) to investigate the impact of various housing and welfare regime arrangements on the tenure wealth gap, after controlling for the above-mentioned forms of selection.

Tenure wealth gaps in Europe

The tenure wealth gap is the country-specific aggregated difference in net worth (housing and non-housing wealth minus [residential] debts) between tenants and homeowners with similar socio-economic household characteristics. The tenure wealth gap is the sum of the housing wealth gap and the financial wealth gap. The housing wealth gap itself is not further investigated because tenants by definition have no housing wealth. The total wealth gap is further investigated to account for the different composition of the wealth portfolio of tenants (savings and financial investments) and homeowners (savings, financial investments and housing wealth). Hence, a large tenure wealth gap in favour of homeowners exists when they have 1) more savings than tenants, or 2) when their financial and housing wealth holdings together are larger than the savings of tenants. To determine which of both drivers is the major cause of tenure wealth gaps in different countries, we distinguish between the total 'tenure wealth gap' (TWG) and the 'tenure financial wealth gap' (TFWG).

In the remainder of this section, we discuss policies surrounding homeownership, rental housing and pensions in all 10 countries under observation. Their orientation impacts upon the opportunity to accumulate wealth and the necessity to save for tenants and homeowners, and is expected to explain cross-national variations regarding the size of the TWG and the TFWG.

Homeownership policies

Since WWII, many European countries have promoted homeownership based on the ideology that this tenure holds positive externalities for society (Ronald, 2008). The major government interventions since WWII, construction subsidies, subsidies for the costs of borrowing capital (e.g. tax deductions) and, in a later stage, mortgage market deregulations, have reduced the out-of-pocket expenses for investments in homeownership, but have driven up house prices, and consequently influenced the profitability of investments in housing (Angelini, LaFerrere, & Weber, 2013).

Table 1 shows the current taxation of homeownership and the expansion of homeownership among lower-income deciles as indicators of the government promotion of homeownership. Historically, Germany, Austria and Switzerland have been less engaged in promoting homeownership than most other Western-European countries (Matznetter, 2002). Homeownership in these countries is considered a rural housing tenure (associated with self-construction), whereas a majority of the urbanites lives in rental housing. Tax benefits for landlords are however considerable, which increases the attractiveness of owning rental housing (see Bourassa & Hoesli, 2010 on Switzerland). In countries such as Belgium, France and

Table 1. Overview of housing-welfare regimes, based on various institutional characteristics.

	Taxation of HO 2015 ^a	Low-income HO 2010/11 ^b	Loan-to-value ratio 2010 ^c	Social housing 2011 ^d	Rent to income ratio 2010 ^e	Pension wealth/national income ^f	Unemployment benefit generosity 2010 ^g	Social taxes and contributions/national income 2014 ^h
	Score	%	%	%	%	Ratio	Score	% taxes
Austria	5.44	36	84	20	17	8.3x	10.4	38%
Belgium	6.53	56	80	7	23	6.0x	14.0	34%
Germany	5.62	33	70	4	17	6.7x	10.0	33%
Spain	6.52	79	73	2	23	10.8x	11.7	28%
Finland	5.40	60	81	14	24	7.6x	9.2	26%
France	6.78	42	91	17	20	8.3x	11.1	50%
Greece	7.07	72	73	0	27	8.4x	7.3	34%
Italy	6.21	58	65	5	21	9.5x	5.7	30%
The Netherlands	4.75	43	101	33	23	12.1x	11.9	27%
Portugal	6.34	65	71	2	18	7.3x	10.6	28%

Source: ^aEurostat (2015); ^bECB (2013); ^cEMF (2013); ^dHousing Europe (2015); ^eEU-SILC (2016); ^fOECD (2015); ^gScruggs et al. (2014); ^hRogers & Philippe (2014).

Finland homeownership was (and is still) promoted as part of the establishment of the post-war welfare state. These countries favour homeownership by means of fiscal benefits (such as mortgage-interest tax deductions) and (indirect) subsidies (e.g. on construction, or on mortgage loans). In these countries, the entry into homeownership is generally mortgage-funded, allowed for by the higher loan-to-value ratios compared to the German-speaking rental societies. Outright homeownership results in lower monthly expenses in later life, reducing the need for generous second-tier occupational pension schemes. Therefore, (subsidised) homeownership can be considered an integral component of the welfare state (De Decker & Dewilde, 2010). The most favourable tax treatment of homeownership can be found in the Netherlands, where mortgage-interest relief is far larger than all taxes on homeownership together (Hilbers, Banerji, Shi, & Hoffmaister, 2008). However, the promotion of Dutch homeownership has started much later (in the 1980s) than in the before-mentioned Western-European countries. The Mediterranean countries are characterised by an exceptionally high homeownership rate, without having a longstanding tradition of homeownership promotion. As argued by Allen (2006), homeownership became the dominant tenure thanks to a high tolerance towards informal self-construction and the absence of social housing provision. Although homeownership is currently taxed moderately, homeownership is widespread among the lower income deciles, resulting from an historic absence of regulation and the prominent role of the extended family in the provisioning of housing. In recent years, a combination of a stricter approach to informal construction and a lack of rental alternatives has led to an increase of late home-leaving and multi-generational living (Allen, 2006).

Deregulation of mortgage markets has occurred across Europe, but only a subsample of countries geared towards a fully financialised model of homeownership provisioning in the 1990s (in our dataset: the Netherlands, Spain, and to a lesser extent Portugal). The deregulation of mortgage markets allowed lower middle-class households to enter homeownership as it increased loan-to-income and loan-to-value ratios, given larger risk-taking by financial institutions (Schwartz & Seabrooke, 2008). The financialised provisioning of homeownership has impacted upon housing market dynamics in especially Northwestern Europe (The Netherlands, the United Kingdom, Ireland and Scandinavia). It has increased the turnover rate on the housing market (van der Heijden, Dol, & Oxley, 2011) and boosted house prices (OECD, 2014). However, the economic crisis of 2008 has caused house prices to fall much more in countries with liberal housing finance than in others. The stricter credit provision after the crisis has halted the growth of homeownership. Whereas those who entered the market for homeownership before the introduction of liberal housing finance have

made windfall profits, those who bought in the run-up to the crisis might still be confronted with larger debts than the value of their homes. A more conservative model of homeownership finance can be found in the Mediterranean countries (except for Spain and Portugal) and the German-speaking countries. In such a system, required down-payments are high, which makes people enter homeownership at a relatively late moment in the life course (see Kurz [2004] for Germany) or to obtain housing via the family (see Allen [2006] for the Mediterranean countries). The conservative housing finance system has contributed to a stable development of house prices in the German-speaking countries, as the turnover rates in the housing market are lower than in other countries, and the purchasing power of buyers is not artificially boosted (as is the case in countries with a liberal housing finance system). Although house prices might be lower in countries with a conservative housing finance system, this does not mean that homeowners accumulate less housing wealth. On the contrary, because less households prolong the amortisation of their mortgage, they might accumulate more housing wealth (Wind, Lersch, & Dewilde, 2017).

Both the subsidisation of homeownership and the liberalisation of the mortgage market initially contributed to the accessibility of homeownership and subsequently contributed to wealth accumulation among homeowners who (1) have been able to invest more, or (2) have profited more from house price inflation. The low penalty on debt prolongation in liberal mortgage markets might simultaneously suppress housing wealth of lower socio-economic groups due to the prominence of residential debts. The above-mentioned considerations result in the following two hypotheses:

H1a: The tenure wealth gap is larger in countries with a tradition of preferential taxation of homeownership.

H1b: The tenure wealth gap is smaller in countries with a tradition of financialised promotion of homeownership.

Rental policies

The housing-costs-to-income-ratio is mostly higher for private renters than for homeowners, even after controlling for the income level (Dewilde & De Decker, 2016). Evidence shows that the rent-to-income ratio is lower in integrated rental markets than in dualist rental markets (see Kemeny, 1981). In the first type of rental market, social housing providers compete with private landlords, and private rents are regulated or capped. In the second type of housing market, social housing caters for the weakest socio-economic groups only, and rent-setting in the private rental sector is more deregulated. Hence, in an integrated rental market, tenants can (1) afford

larger or more expensive rental units that would be unaffordable without market regulation or (2) accumulate savings due to a relatively low rent-to-income ratio. French evidence suggests that residing in social housing speeds up the transition into homeownership since it allows tenants to accumulate some wealth that can be used as a down-payment (Goffette-Nagot & Sidibé, 2016).

The size of the social rental sector and the regulation of the private rental sector differ across European countries (see Table 1). In the Mediterranean countries, rental housing is a relatively uncommon and social housing is nearly absent. Homeownership, traditionally provided through the family, is the norm. Social housing is stigmatised and caters for households with a minimum income. The German-speaking and Northwestern-European countries have relatively large rental sectors. Germany and Switzerland have large, but regulated private rental sectors (rent caps, regulated yearly rent increases) with consequently moderate rent-to-income ratios. Austria, The Netherlands, France and Finland have moderately-sized rental sectors, but a considerable share consists of social housing (Housing Europe, 2015). In Austria and the Netherlands, the social housing sector has until recently been open to a large part of the population, but has recently become the domain of lower-income households. Belgium, France and Finland are historically characterised by a dualist rental market.

The degree of rent regulation is reflected in the rent-to-income ratio. On the basis of EU-SILC (Statistics on Income and Living Conditions)-information, Table 1 shows that rental housing is least affordable in Greece and Finland, moderately affordable in countries with large social housing sectors such as France and the Netherlands, and most affordable in Germany and Austria with regulated rents. Altogether, we expect tenants to save more where rent-to-income ratios are lower. Therefore, the tenure financial wealth gap is expected to be smaller in these countries, which in turn reduces the gap between tenants and homeowners in terms of total net worth. Whilst in these countries the social housing sector tends to contain more middle-income households (who are hence able to save more), such effects are controlled for with our research design. In other words, our hypothesis and estimated results only pertain to differences arising from differences in the cost of housing for otherwise-similar individuals.

H2: The tenure financial wealth gap is larger in countries with less affordable rental housing and/or smaller social rental sectors.

Pension arrangements

The welfare state can be conceptualised as a provider of ‘transfer wealth’: employees pay a share of their income to the treasury to provide them

with the expectation of a guaranteed income in periods of unemployment and sickness, or in old age (De Swaan, 1988). Therefore, the post-war expansion of the welfare state has partly crowded out households' precautionary private savings. Since the 1980s, the reverse is happening. Welfare responsibilities are increasingly shifted from the state to the individual, which is assumed to have increased the importance of asset-based welfare (Crouch, 2009). We distinguish between three types of asset-based welfare (ABW): passive ABW, active ABW and pro-active ABW (Doling & Ronald, 2010; Ronald, Lennartz, & Kadi, 2017).

The passive form of asset-based welfare lays at the foundation of an alleged trade-off between homeownership and welfare (Kemeny, 1981). Homeownership might function as a supplement to low second-tier¹ public or private pension arrangements, as the financial room to contribute to collective schemes is small because it competes with mortgage amortisation, whereas the need for generous second-tier pensions is small due to low housing costs after the amortisation of the mortgage (Castles, 1998). For most homeowners, first-tier (mostly) PAYG² pensions more or less suffice to sustain their livelihood after retirement. Ronald et al. (2017) describe the imputed income³ from homeownership after the amortisation of the mortgage and house price inflation as the classic, passive form of asset-based welfare (ABW). As countries differ regarding the organisation of the second pillar of their pension system (private/public, occupational/universal, mandatory/voluntary), the need for assets and the opportunity to accumulate wealth differ as well. Passive asset-based welfare can be found in the Mediterranean countries, and some of the Western-European countries such as Belgium and France, where the state has promoted mortgaged homeownership rather than (mostly mandatory) occupational pension funds.

The active form of ABW allows households to tap into their housing wealth to cover their welfare needs. Therefore, they need to liquidate the value of their home by (1) moving into rental housing or a smaller home, or (2) taking a reversed mortgage on their primary residence to supplement second-tier pensions. Especially in North-Western Europe (Scandinavia, Britain and Ireland, the Netherlands and the German-speaking countries), these strategies are implemented in the welfare state. Only where liberal housing finance has become a cornerstone of the housing regime, and where occupational pensions are partly commodified, active asset-based welfare (on the macro level) could gain ground (in the dataset: the Netherlands).

The pro-active form of ABW is not associated with the primary residence, but with rental income from secondary properties. Especially in insurance-based welfare states with a fragmented occupational second-tier pension system (such as the German-speaking countries, Belgium and France), occupational groups that are not well-covered by social security, such as the

self-employed, traditionally engage in private small-scale landlordism (De Decker & Dewilde, 2010; Soaita, Searle, McKee, & Moore, 2017). During working life, income from entrepreneurship is invested in purchasing one or more properties that yield rental income for their owners after retirement. In contrast, the upswing of buy-to-let landlordism in the liberal welfare regime may have very different foundations. For the UK, Soaita et al. (2017) indicate that private landlordism and buy-to-let activities are mostly a pure investment strategy, speculating on house price inflation, sometimes coupled to intergenerational support to children whose entry into homeownership is impeded due to house price inflation.

How the three forms of asset-based welfare affect the size of the tenure wealth gap is dependent on the savings behaviour of tenants and owners in these contexts. Following the logic of the classic trade-off between homeownership and pensions (passive ABW), transfer capital crowds out housing wealth on the macro-level. In countries with less generous second-tier pension arrangements (e.g. Belgium, Germany, Portugal) or less generous unemployment benefits (e.g. Italy, Greece, Finland)⁴, precautionary savings (in the form of housing wealth or financial wealth) are more needed for both tenants and homeowners, as transfer capital cannot cover all welfare risks. Outright homeowners on the other hand benefit from an income-in-kind in old age. Theoretically, this implies that the TWG, but especially the TFWG is smaller in countries with a smaller welfare state. In countries with more generous second-tier pension arrangements (e.g. the Netherlands, Spain, Italy), or unemployment benefit systems (e.g. Belgium, the Netherlands, Spain), precautionary savings are less needed. Therefore, housing wealth and financial wealth should be considered more as investments rather than welfare arrangements in these contexts. As the necessity to save is lower in these contexts, we hypothesise that tenants do not accumulate as much financial wealth as homeowners accumulate housing wealth.

H3a: The tenure wealth gap is larger in countries with generous and universal welfare arrangements, in particular generous mandatory pension systems.

Active and pro-active asset-based welfare are part of a narrative that enables households to cater for their long-term welfare needs by investing in skills and assets throughout the life course (Lennartz & Ronald, 2017). Life-course oriented 'social investment strategies' focus on the employability of workers from an individual and life-course perspective, with high employment of all household members contributing to the ability to sustain larger mortgages and longer mortgage terms. For those who follow this trajectory, high levels of (private) welfare provisioning are complementary with high levels of wealth. Housing assets are key in this process because they represent the largest source of wealth for most households

and because it is generally supported by the state (it can be considered a welfare arrangement itself). The active and pro-active forms of ABW has become more popular in liberal and social-democratic welfare states. In the conservative welfare state, pro-active forms of ABW have always been popular among the self-employed as they are poorly covered by the welfare state. The consequence for those who do not follow the 'golden' route of wealth accumulation might be poverty in case negative life course events occur (Emmenegger, Häusermann, Palier, & Seeleib-Kaiser, 2012). It is likely that active and pro-active asset-based welfare increase disparities in society, or perpetuate them in later life, as only those who have the means to invest in properties receive in-kind income supplements or rental income (Dewilde & Raeymaeckers, 2008).

In Table 1, the generosity of the welfare state is assessed. The indicators only partly capture the difference between Northern- and Southern-European countries regarding the implementation of social investment strategies. However, together they show the generous but stratified nature of the conservative German-speaking welfare states, the small second-tier pensions in several Mediterranean countries and the funded nature of second-tier pensions in countries such as the Netherlands and Spain. Earlier we expected the tenure wealth gap to be larger in countries with more generous welfare state arrangements, and in particular generous second-tier mandatory pension systems. In these countries, housing wealth and transfer capital furthermore do not operate like communicating vessels. This allows homeowners to accumulate housing wealth on top of other forms of wealth, whereas tenants do not need to accumulate as much precautionary savings.

H3b: The tenure financial wealth gap is larger in countries that restructured their welfare state in a more productivist direction (through social investment strategies).

Data and methods

The empirical work is based on the Household Finance and Consumption Survey (HFCS), conducted by the European Central Bank (ECB) in 2010/11 in 15 European countries. We exclude Malta, Cyprus, Luxemburg, Slovenia and Slovakia due to a small sample size among tenants. The HFCS provides multiple imputations (five in total) to overcome the problem of item non-response on questions about income and wealth. The sample is representative for the adult population (ECB, 2013). In total, 62.000 households are included in the dataset. The Netherlands has the smallest sample (1.301), France the largest (15.006).

The analysis sample is restricted to households aged 35 years and older, as moves into homeownership (and thus: tenure choice) generally take

place before or around the age of 35 (Angelini et al. 2013). By excluding relatively young households, we exclude tenants with disproportionately high financial wealth holdings due to savings for a mortgage down payment. As our analysis compares wealth holdings of tenants and homeowners, we exclude tenant-owners (Hulse & McPherson, 2014) who own real estate that is not their primary residence (4% of the sample).

Our analytical sample is the result of a one-to-one nearest-neighbor propensity score matching (PSM) procedure (without replacement) to create a 'balanced' dataset with an equal number of tenants and homeowners, allowing us to control for selection (omitted variable bias) more thoroughly. The analysis can be seen as a 'quasi-experiment' that resembles a randomised control trial (Austin, 2011). The PSM procedure matches every renting household to its 'nearest neighbor' in the same country (within a range of pre-defined propensity score calipers) on the basis of income, age, educational level, marital status and immigrant background (Austin, 2014). When a home-owning household is matched to a renting household, it is no longer available as match for another household (matching without replacement). Due to the one-to-one nearest-neighbor PSM procedure, the sample is reduced with around 60 percent, although the sample is reduced more in countries with a small rental sector, as fewer matches are available. The quasi-experiment shows how much wealth tenants would have accumulated if they had made another tenure choice. Although the social selectivity of rental housing in the countries under observation may still partly influence the results, this is controlled for in the country-fixed-effects regression analysis. As explained before, we mainly resort to matching because we want to better control for the fact that people who select into homeownership may be more likely to save to start with, and such unobservable personality traits potentially vary across countries. In any analysis, we control for the variables that are used during the PSM procedure as there is some variance left after the procedure, given that the matched households are similar to each other, but not identical. The results of these control variables cannot be interpreted, as the largest share of the variance is removed due to their usage in the matching operation (Blackwell, Iacus, King, & Porro, 2009). This thus implies that our models have a very low explained variance; this is however of no consequence as interpretation is meaningless.

Micro-level variables

Household (total) net worth and financial wealth are used to operationalise the tenure wealth gap. Net worth is measured as the self-assessed sum of savings, investments in bonds and stocks, the value of the owned home and other real estate, minus outstanding (mortgage) debts. Unfortunately,

the HFCS does not include information on pension wealth, as its meaning and measurement is very complex and dependent on the welfare regime. Instead, we include macro-level information on pension generosity to investigate the impact on the TWG. Financial wealth is net worth minus housing wealth (for tenants: equal to net worth). For both variables, multiple imputations (five in total) provide estimates for households with missing information. The imputations are based on an algorithm that predicts the scores of missing values, by providing five different estimates centred around the average score within the population. The advantage of using this technique is that the imputations do not alter the results, but reduce the standard errors (Rubin, 2004).

The variable 'tenure status' differentiates between tenants (residing in rental housing/rent-free accommodation), mortgaged homeowners and outright homeowners. As we do not have information about residence in social housing on the micro-level, the size of this sector is added to the analysis as a macro-level variable.

To estimate the 'net' effect of tenure on net worth/financial wealth, we control for the covariates that are used to carry out the one-to-one nearest-neighbor matching procedure, and are associated with both the process of wealth accumulation and tenure choice: gross income (net income is unavailable in the HFCS), educational status of the household reference person (primary, lower-secondary, higher-secondary and tertiary education), immigrant status, age of the oldest person in the household, household size and the receipt of a financial gift (>5000 euro).

Macro-level variables

Three variables measure the support for homeownership: the taxation of homeownership (Eurostat, 2015), the loan-to-value ratio (European Mortgage Federation [EMF], 2013), and the homeownership rate among lower-income groups. We acknowledge that the size of the tenure wealth gap is rather the outcome of historic housing policies than the current regulatory framework. Therefore, the homeownership rate among low-income households is used to approximate historic policies that have contributed to promoting homeownership. Furthermore, the loan-to-value ratio – used to identify countries with a more liberal housing finance system – might be downwardly affected by the Global Financial Crisis of 2008. However, Table 1 sets countries that have geared towards a financialised promotion of homeownership clearly apart from the rest. The nature of the rental sector is operationalised by means of two indicators: the size of social housing relative to the total housing stock (Housing Europe, 2015), and the median share of net income spent on rent in a country, based on

information aggregated from EU-SILC. The structure of the welfare state is operationalised by means of three indicators: the wealth of mandatory-private and public first- and second-tier pension funds relative to the size of national income (OECD, 2015), the generosity of unemployment benefits (based on coverage, contributions and replacement rates) (Scruggs, Jahn, & Kuitto, 2014), and welfare state-related taxes and social contributions as part of the national income (Rogers & Philippe, 2014). Although the theoretical argument connects pension generosity to investments in homeownership, we include two additional welfare state indicators as a robustness check.

Methods

First, we provide descriptive information on the size of the tenure wealth gap and the tenure financial wealth gap in each of the 10 countries under observation. The size of the gap is measured as a ratio between net worth/financial wealth of tenants and homeowners (before the matching procedure). Besides, the tenure wealth gap is presented as a 'controlled ratio' between tenants and homeowners. The controlled ratio is the size of the effect of tenure on net worth/financial wealth, after the matching procedure and controlling for the remainder of the variance related to the variables used for the matching procedure (income, age, educational level, marital status and immigrant status). The latter procedure singles out the share of the tenure wealth gap that could be considered the result of tenure choice among otherwise-similar households, rather than of different types of selection (as discussed earlier). Both measures are displayed graphically (Figures 1 and 2).

Second, we present country-fixed-effects regression analyses, estimating the effect of housing tenure on net worth and financial wealth. In these analyses, we control for all unobserved heterogeneity at the country-level (Möhring, 2012). This means that even if we were not able to include all variables explaining the accumulation of wealth on the micro-level, they are controlled for on the country-level. We further estimate how different institutional characteristics impact upon the size of the TWG and the TFWG, by including an interaction between housing tenure and the above-mentioned macro-level institutional variables. The interaction terms show to what extent country differences regarding the controlled ratio are associated with the promotion of homeownership, the organisation of the rental sector, or the organisation of the welfare state (generosity). Analyses are carried out on five imputates containing imputations and are combined using Stata's multiple imputation package. Due to the structured nature of the HFCS, all results are presented with robust standard errors to allow residuals to vary in a non-random way.

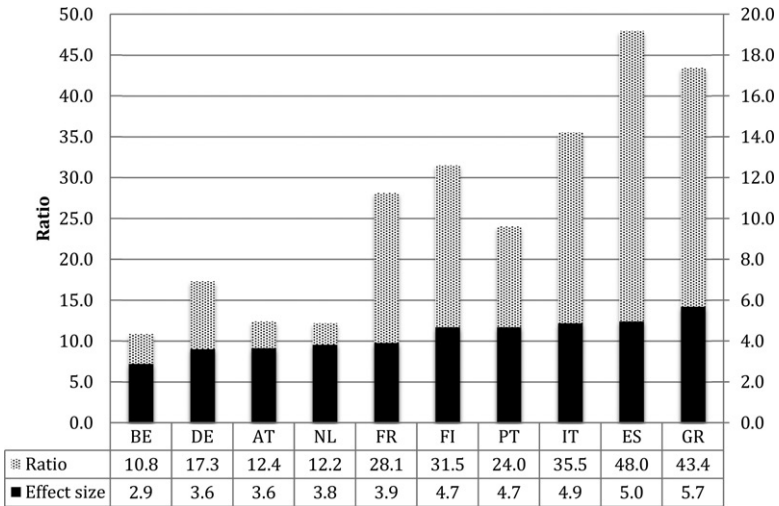


Figure 1. Tenure wealth gaps in 10 European countries.

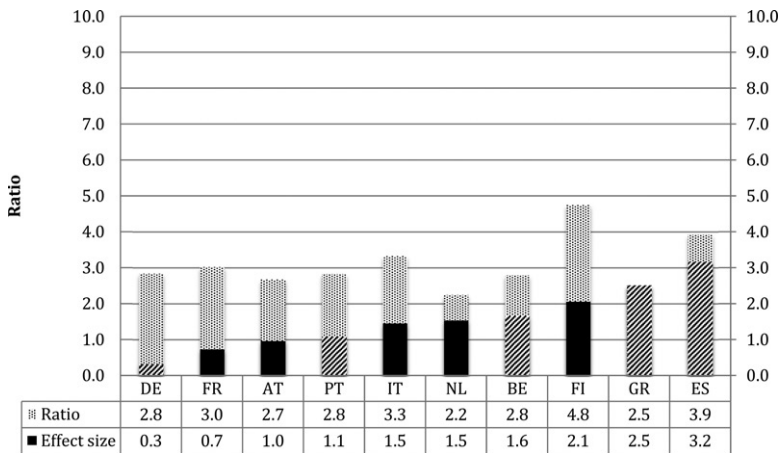


Figure 2. Tenure financial wealth gaps in 10 European countries.

Results

Describing the tenure wealth gap

Figure 1 shows the size of the tenure wealth gap in ten Eurozone countries as 1) the ratio between the wealth holdings of tenants and homeowners regarding net worth based on the entire sample, and 2) the homeowner-ship-effect on net worth, after the PSM procedure, and controlling for covariates (income, education, age, marital status, immigrant status, the receipt of a financial gift). The effect size is derived from regression analyses with net worth as dependent variable and can be understood as a 'controlled

ratio' (as the effects denotes the difference between tenants and homeowners). Figure 2 describes the size of the tenure financial wealth gap in a comparable manner. First, the size of the tenure financial wealth gap is expressed as uncontrolled ratio, second as a 'controlled ratio'.

We highlight three conclusions that can be drawn on the basis of Figure 1. First, in all ten Eurozone countries under observation, homeowners have higher levels of net worth than tenants. Even after the PSM procedure and controlling for the remaining variance in the control variables, the effect of tenure on net worth is positive, rather large and significant ($p < .005$) in all countries. This finding is in line with previous research, arguing that homeowners accumulate more wealth than tenants. Second, TWG's are larger in the Mediterranean countries, and smaller in the Western European and German-speaking countries. Figure 1 shows that in 2011 homeowners own between 25 \times and 45 \times the net worth of tenants in Greece, Spain and Italy. In Belgium, Austria, the Netherlands and Germany the ratio between homeowners and tenants regarding net worth is smallest (between 10 \times and 20 \times the net worth of tenants). We argue this is the result of the importance of outright, family-owned housing in the Mediterranean housing regime, allowing a larger share of households with a relatively low socio-economic status to obtain outright homeownership – consequently, only the poorest households rent. Third, when we express the TWG as a 'controlled ratio' (the effect size of the effect of homeownership on net worth - see above), the TWG is strongly reduced in all countries under observation. This is the 'net' effect of housing tenure, representing the financial outcome of tenure choice, *ceteris paribus*. Interestingly, the ordering of TWG's from low to high is quite similar to the previously presented ratio. Again, Figure 1 shows that the TWG is smallest in Western-European and German-speaking countries such as the Netherlands, Belgium, Austria and Germany (between 2,5 \times and 4 \times). The largest tenure wealth gaps are still to be found in the Mediterranean countries (between 4,5 \times and 6 \times). These results point out that homeowners have much more wealth (10 \times – 45 \times) than tenants in all countries under observation, but that only a limited share can be explained by their tenure choice. Generally speaking, homeowners are *a priori* in a better position to accumulate wealth due to other characteristics (such as their labour market position or family background). Nevertheless, after thoroughly controlling for different forms of (social) selection, the effect of tenure remains and has a significant impact on the wealth accumulation of homeowners. On the basis of their tenure choice, homeowners accumulate between 3 \times and 6 \times more wealth than tenants.

Figure 2 shows that tenure financial wealth gaps (hereafter TFWG's) are much smaller than TWG's across the board. Although the results are not

significant for all countries, homeowners generally accumulate more financial wealth holdings than tenants. On the basis of the ratio's presented in Figure 2 we conclude that the largest ratio between tenants and homeowners in terms of financial wealth gap is found in Finland, and Spain (between 3,5× and 5×), the smallest in the Netherlands and Greece. It is remarkable that the differences between countries are more pronounced when the 'controlled ratio' (see above) is taken into account. Small and/or non-significant effects ($p > .05$, shaded) can be found in Germany, France, Austria and Portugal. Slightly larger TFWG's can be found in Italy, the Netherlands and Finland. The controlled ratios for Belgium, Greece and Spain are larger, but non-significant. Interestingly, countries with large TWG's seem to be characterised by large TFWG's as well. Therefore, we conclude that the tenure wealth gap is the result of homeowners having higher levels of housing wealth than tenants have financial wealth in some countries, whereas homeowners have higher levels of financial wealth than tenants in other countries as well.

Explaining the tenure wealth gap

This paper aims to explain why tenure wealth gaps are larger in some countries and smaller in others. We are unable to draw any conclusions about individual-level factors that might be related to the accumulation of wealth as a consequence the propensity score matching procedure that allows us to carry out a 'quasi-experiment'. In our analysis sample, every tenant is linked to a similar homeowner to better control for unobserved 'latent' characteristics that determine moves into homeownership. As a natural consequence, the variance in variables that are used to match tenants to homeowners (such as income, education, age, marital status, immigrant status and the receipt of a financial gift) is limited. Table 2 shows the effect of tenure on net worth and financial wealth.

Table 2. Country-fixed-effects regression analysis of the effect of housing tenure on net worth and financial wealth.

	Net worth Model 1	Financial wealth Model 2
Tenure		
Rental (ref.)		
Mortgaged ownership	3.123***	-0.67
Outright ownership	4.789***	2.073***
Control variables not shown		
Constant	-1.589***	-2.109
R ²	0.38	0.12
N	17,120	17,120

Source: ECB (2013).

Note: *** $p < 0.001$, ** $p < 0.005$, * $p < 0.05$. The following variables are used in the propensity score matching procedure and as control variables in the analysis and are left out as they have no substantive meaning: income, education, age, marital status, immigrant status, receipt of a financial gift and ownership of secondary properties.

worth and financial wealth, after the PSM procedure and inclusion of the matching variables (not reported as they have no substantive meaning). The overall effect of tenure is the outcome of a country-fixed-effects model in which we control for all unobserved heterogeneity at the macro-level.

Model 1 confirms that mortgaged homeowners and outright homeowners have higher levels of net worth than otherwise-similar tenants, across our ten countries. Furthermore, it confirms that outright owners have higher levels of net worth than mortgaged owners, as part of the home is 'owned by the bank'. Model 2 shows that mortgaged homeowners do not significantly differ from tenants in terms of financial wealth holdings. This means that the higher level of net worth of mortgaged homeowners compared to tenants, is mainly the result of their housing wealth holdings. This result is not surprising as the interest that households pay on their mortgage is generally higher than the interest rate than households receive on their bank accounts. As a result, the wealth portfolio of mortgaged homeowners is heavy on housing. This underlines that during the period of mortgage amortisation, housing wealth crowds out financial wealth. However, the attractiveness of savings for mortgaged homeowners is strongly dependent on national housing policies and mortgage market regulations, such as the availability of mortgage interest-mortgage deduction schemes or interest-only loans. Outright homeowners have significantly higher levels of financial wealth than tenants. This is not surprising, as after the amortisation of the mortgage, the accumulation of housing wealth is just the result of house price gains, which does not demand a long-term financial sacrifice at the expense of the accumulation of financial wealth. Altogether, Model 1 explains 38% of the total variance in net worth, whereas model 2 explains 12% of the total variance in financial wealth. The difference in R-squared for both models shows that differences in net worth between renters and owners are clearly mostly (and, in fact, almost by definition) linked to the housing assets of different categories of owners (hence a rather 'too high' explained variance of 38%). With regard to financial wealth, tenure has a much smaller impact – bearing in mind that most of the 'initial' differences (related to social selection) between owners and tenants have been controlled for already through the matching procedure. When evaluated from this perspective, 12% explained variance (based on individual-level data) is still a fairly large number.

Explaining the gap: Institutional differences

We next explain cross-country variation regarding the size of the (1) tenure wealth gap (TWG) and (2) tenure financial wealth gap (TFWG) by including cross-level interactions between housing tenure (rental versus homeowner-ship) and several macro-level institutional variables in the country-fixed-

Table 3. Country-fixed-effects regression analyses with cross-level interactions between various institutional characteristics and tenure.

	A: Net worth			B: Financial wealth		
	Effect size	Sig.	R ²	Effect size	Sig.	R ²
3.1 Main effect tenure	2.4	**		-2		
Interaction homeownership rate	3.0	**	0.37	5.1	**	0.12
3.2 Main effect tenure	3.9			2.9	*	
Interaction homeownership taxation	0.1		0.37	-0.3		0.12
3.3 Main effect tenure	2.3	***		-0.94		
Interaction Low-income homeownership	3.8	***	0.37	4.2	**	0.12
3.4 Main effect tenure	7	**		2.96	*	
Interaction Loan-to-value rate	-3.5	**	0.37	-2.1	**	0.12
3.5 Main effect tenure	4.8	***		1.55	**	
Interaction social housing rate	-4.4	*	0.37	-2.7		0.12
3.6 Main effect tenure	1.8			-2.2		
Interaction rent to income rate	12.3	+	0.37	16.9	*	0.12
3.7 Main effect tenure	2.7			-0.2		
Interactions size of pension funds	0.2		0.37	0.2		0.12
3.8 Main effect tenure	6.1	***		1.5	*	
Interaction unemployment benefit generosity	-0.2	**	0.37	0		0.12
3.9 Main effect tenure	3.6	***		2.9	***	
Interaction social taxes (% of total tax)	-3.4	**	0.37	-4.6	**	0.12

Source: ECB (2013).

Note: *** $p < 0.001$, ** $p < 0.005$, * $p < 0.05$. For each country-fixed effects regression model, only the main effect of housing tenure and the interaction term between housing tenure and one institutional characteristic is displayed. Control variables are not shown.

effects models presented in [Table 2](#). [Table 3](#) (Model 3 a and b) summarise the results of the addition of each of the institutional characteristics to Model 2 separately. For each of the cross-level interactions, we show the main effect of tenure, the R-squared and the number of observations. In [Table 4](#) (Model 4 a and b), the same procedure is repeated whilst additionally controlling for the cross-level interaction with homeownership rate in the country.

The first cross-level interaction describes the effect of the homeownership rate on the size of the TWG (Model 3.1a) and the TFWG (Model 3.1b). Model 3.1a and 3.1b show that the tenure wealth gap is larger in countries with higher homeownership rates. This matches the findings from [Figure 1](#), in which the largest tenure wealth gaps are found in Mediterranean countries with nearly universal homeownership; in these countries the 'left-over' renters are comparatively worst off. The first cross-level interaction is added to all the subsequent cross-level interactions in Model 4a and 4b, to control for the expansion of homeownership during the post-war period. By doing so, we are able to distil the effect of various strategies of homeownership expansion.

Three cross-level interactions describe the nature of homeownership promotion. Cross-level interaction 3.2a and 3.2b shows the effect of taxation of homeownership on the TWG and the TFWG. Contrary to our expectations, no significant results are found. We argue that 1) the historical taxation of homeownership might better represent the context in which many current homeowners have bought their home, and 2) countries with relatively high taxes on homeownership might still promote homeownership if rental housing is (relatively speaking) more expensive, or 3) when subsidy schemes or fiscal advantages are available for homeowners. The 'outcome' of the historical promotion of homeownership, the penetration of owner-occupancy in lower income groups, coincides with larger tenure wealth gaps (Cross-level interaction 3.3a), even after controlling for the homeownership rate (cross-level interaction 4.2a). This means that, even in countries with relatively high homeownership rates, the structure of homeownership matters. The TWG is larger where lower income groups are over-represented in homeownership because they use additional means on top of their income to access this tenure, such as state subsidies or family help (financial support, inheritance, labour power). Model 3.3b shows that the TFWG is larger in countries when households from the lowest income deciles are overrepresented in homeownership. However, this effect does not remain after controlling for the homeownership rate (Model 4.2b). Loan-to-value ratios measure the promotion of homeownership through the liberalisation of housing finance. Cross-level interaction 3.4 shows the effect of the loan-to-value ratio on the TWG (Model a) and the TFWG (Model b). The

Table 4. Country-fixed effects regression analyses with cross-level interactions between various institutional characteristics and tenure, controlled for the homeownership rate in each country.

	A: Net worth				B: financial wealth			
	Effect size	Sig.	R ²	N	Effect size	Sig.	R ²	N
4.1 Main effect tenure	2.1				-0.2			
Interaction homeownership	3	**			5.2	**		
Interaction homeownership taxation	0		0.37	17,120	-0.3		0.12	17,120
4.2 Main effect tenure	3.2	**			-1.7			
Interaction homeownership	-3.1	**			2.7			
Interaction low-income homeownership	6.1	**	0.37	17,120	2.4		0.12	17,120
4.3 Main effect tenure	5.1	**			-0.8			
Interaction homeownership	2.5	*			4.9	**		
Interaction loan-to-value rate	-3.1	**	0.37	17,120	-1.4	*	0.12	17,120
4.4 Main effect tenure	3.2	**			-1.8	*		
Interaction homeownership	2.6	**			4.9	**		
Interaction social housing rate	-3.5	**	0.37	17,120	-0.7		0.12	17,120
4.5 Main effect tenure	1.8				-2.2			
Interaction homeownership	2.1				4.7	*		
Interaction rent to income rate	6	**	0.37	17,120	2.5	**	0.12	17,120
4.6 Main effect tenure	2	**			3	**		
Interaction homeownership	2.9	*			1.8	**		
Interaction size of pension funds	0		0.37	17,120	0.1	*	0.12	17,120
4.7 Main effect tenure	4.1	***			-1.6			
Interaction homeownership	3.3	**			5.2	**		
Interaction unemployment benefit generosity	-0.2	**	0.37	17,120	0		0.12	17,120
4.8 Main effect tenure	4	**			-0.3			
Interaction homeownership	1.9				4	*		
Interaction social taxes (% of total tax)	-2.4		0.37	17,120	-2.5	**	0.12	17,120

Note: *** $p < .001$ ** $p < 0.005$, * $p < 0.05$. For each country-fixed effects regression model, only the main effect of housing tenure, the interaction term between housing tenure and the homeownership rate in the country, and the interaction between housing tenure and one institutional characteristic is displayed. Control variables are not shown.

results indicate that the TWG is smaller in countries with higher loan-to-value ratios (Model 3.4a), even after controlling for the homeownership rate in the country (Model 4.3a). The deregulation of housing finance has reduced interest rates and inflated house prices, the latter being compensated by a prolongation of the loan term. This has resulted in capital gains for sitting homeowners, but increased indebtedness among newer homeowners. Contrary to countries where homeownership is promoted through state subsidies or with family help, in countries with liberal housing finance, home-owning households in lower socio-economic strata 'rent from the bank', which results in a smaller difference between renting and home-owning households in terms of net worth. The first three cross-level interactions provide mixed evidence for hypothesis 1, indicating that the promotion of homeownership enlarges tenure wealth gaps. Generally, this hypothesis holds, except for cases in which homeownership is encouraged in a financialised way.

The next two cross-level interactions describe the effect of rental regulations on the size of the tenure wealth gap and the tenure financial wealth gap. Cross-level interaction 3.5 and 3.6 show that the size of the social rental sector has a negative impact on the TWG (Model 3.5a), whereas the negative effect on the TFWG is not significant (Model 3.5b). This means that the tenure wealth gap is smaller in countries with a larger social housing sector. After controlling for the homeownership rate in the country (Model 4.4a), the effect on the TWG remains (however, only significant at the $p < .10$ -level). The lower significance level is not surprising, as larger social housing sectors exist in countries with lower homeownership rates. Through reduced rents, social renters have the opportunity to accumulate financial wealth, and catch up with their counterparts in homeownership. However, affordable housing is not in all countries the sole domain of social housing. Therefore, cross-level interaction six describes the effect of the average rent-to-income ratio (a measure of affordability) on the size of the TWG and the TFWG. The results indicate that unaffordable rental housing is associated with larger TWGs (Model 3.6a, significant at the $p < .10$ -level) and TFWGs (Model 3.6b). In countries such as Germany and Austria, where rent-setting is regulated, tenants spend a smaller share of their income on rent, which allows them to save. This in turn, reduces the difference between tenants and homeowners with similar characteristics in terms of wealth. The cross-level interactions describing the structure of the rental sector provide strong evidence for hypothesis 2, stating that affordable (social) rental housing is associated with smaller tenure wealth gaps and tenure financial wealth gaps.

The final three cross-level indicators describe the generosity of the welfare state. Cross-level interaction 3.7 shows the impact of the size of state-mandated pension funds on the TWG (Model a) and the TFWG (Model

b), as pension wealth might crowd out housing wealth. No significant results are found. We argue that this is the case because the relationship between housing and depends on the coverage of the pension schemes and their organising principles. Only in case of voluntary participation in (state-mandated) second-tier pension funds there can be a trade-off between housing wealth and housing wealth (passive asset-based welfare and pro-active asset-based welfare) (Delfani, De Deken, & Dewilde, 2014; Ronald et al., 2017). In conservative welfare states, with fragmented pension coverage, the trade-off might occur for poorly covered sub-populations only (see Wind & Dewilde, 2018). As the HFCS does not contain information about pension wealth at the household level, it is impossible to provide reliable evidence on the above-mentioned trade-off. Cross-level interaction 3.8 describes the effect of unemployment benefit generosity on the TWG (Model 3.8a) and the TFWG (Model 3.8b). The negative effect of unemployment benefit generosity on net worth shows that the TWG is smaller in countries with a more generous welfare state, even after controlling for the homeownership rate in the country (Model 4.7a). We did not find a significant effect on the TFWG (Model 4.7b). We propose two explanations. First, homeowners accumulate less housing wealth in countries with more generous unemployment benefits because they are less in need of assets as welfare arrangement of last resort. Second, tenants accumulate more financial wealth in countries with more generous unemployment benefits because social risks are collectively mitigated rather than individually. Cross-level interaction 3.9 confirms that countries in which welfare-related taxes and contributions (paid by the employers and the employee) represent a larger share of the national income, both TWGs (Model 3.9a) and TFWGs (Model 3.9b) are smaller, even after controlling for the homeownership rate (Model 4.8a and 4.8b). First, the higher (and progressive) tax levels needed to finance generous social security arrangements might hamper wealth accumulation (among homeowners in the higher income strata). Second, generous social security arrangements reduce the need for asset-based welfare, and reduce the chance that savings will evaporate as a consequence of periods out of labour. Altogether, the final three cross-level interactions provide mixed evidence for hypothesis 3. Tenure wealth gaps are smaller in countries with more generous collective social security arrangements. However, due to data restrictions, the connection with the pension system remains unclear.

Conclusion

Homeownership is associated with higher levels of net worth (housing and financial wealth minus (residential) debts) and financial wealth (Belsky et al., 2007; Di et al., 2007; Haurin et al., 2002). In this paper, the effect of

homeownership on wealth accumulation is captured by the 'tenure wealth gap', which indicates the difference regarding net worth between tenants and homeowners with similar characteristics. Tenure wealth gaps are the result of (1) an overrepresentation of individuals with the 'right' characteristics and predispositions for wealth accumulation in homeownership, and (2) government regulations, policies, and subsidies that favour homeownership over rental housing/increase the need of housing assets for welfare provisioning. Our analysis boils down to a quasi-experiment that controls for the first mechanism behind the tenure wealth gap by transforming the sample on the basis of a propensity score matching procedure that couples every tenant to a similar homeowner. Our analyses therefore shed more light on the second mechanism, by investigating the impact of several institutional characteristics on the size of the tenure wealth gap. The importance of the second mechanism varies across Europe, as various countries have promoted homeownership in a different way.

Our findings indicate that, studying a sample of households headed by persons older than 35 years old in 10 European countries, homeownership is indeed associated with higher levels of net worth and financial wealth. This is the case even a few years after the Global Financial Crisis, and after intensive controls for the selection bias on the household level. Whilst housing wealth and financial wealth seem to operate like communicating vessels in the initial phase of mortgage amortisation, homeowners and tenants grow apart over time due 1) higher saving rates resulting from low housing costs after mortgage amortisation, and 2) higher returns on their investment as a result of house price inflation.

The tenure wealth gap shows considerable cross-country variation. The largest tenure wealth gaps are found in Mediterranean countries, such as Greece, Spain and Italy. The smallest tenure wealth gaps are to be found in Western-European countries such as Belgium, Germany, Austria and the Netherlands. The pattern of tenure wealth gaps in Europe is partly caused by institutional differences between countries. We point at three factors. First, in countries where a large share of lower-income households is able to enter homeownership due to state subsidies or family help, the tenure wealth gap is larger (Hypothesis 1a). In these countries, homeowners with limited incomes have been able to accumulate housing wealth beyond the purchasing power their income allows them to exercise on 'the market'. Marginalised tenants, at the other hand, are barely able to save. When homeownership is promoted in a financialised manner, the tenure wealth gap is limited due to the large residential debts among homeowners (and the relatively strong financial position of the large group of social tenants in these countries) (Hypothesis 1b). Second, in countries with more affordable (social) rental housing, the tenure wealth gap is smaller because

tenants have a larger share of their income left after paying their rent, which allows them to save (Hypothesis 2). Finally, our results indicate that more generous collective social security arrangements reduce tenure wealth gaps, as stable incomes and a safety net in times of economic adversity allow tenants to accumulate wealth, whereas they reduce the importance of housing assets in the provisioning of welfare for homeowners (contradictory to Hypothesis 3a). Although we expect these theoretically-derived empirical patterns of relationships to hold should more liberal and social-democratic welfare states be included in the analyses, unfortunately these countries were not included in our sample. This therefore remains to be answered by future research.

The organisation of the welfare state and the promotion of homeownership are linked. We point at the existence of two models. First, there are Mediterranean and Western-European welfare states (amongst others: Italy, Belgium and France) in which passive asset-based welfare is the golden route towards wellbeing in later life as small welfare second-tier state-mandated pensions are not generous enough to cater for all welfare needs (passive asset-based welfare). In previous times, familialistic⁵ and state-sponsored models of housing provisioning allowed households with lower labour market incomes to take part in this golden route, resulting in large tenure wealth gaps as marginalised tenants could not save to the same extent as homeowners could accumulate housing wealth. In countries with a more market-based provisioning of homeownership, the gap is smaller because the share of low-income homeowners is smaller, not because tenants accumulate more financial wealth. Second, there are North-Western European countries that combine relatively generous welfare state arrangements with a financialised promotion of homeownership. Lennartz and Ronald (2017) point out that the implementation of social investment strategies in these generous welfare states paves the road for forms of active asset-based welfare. Due to the spread of mortgaged homeownership, tenure wealth gaps are relatively small (Hypothesis 3b). However, the tenure wealth gap might grow in the coming years because the financialised promotion of homeownership has inflated house prices and it becomes more difficult to enter the market for outsiders without intergenerational transfers. Housing wealth inequality among homeowners in these countries is among the largest in Europe (Wind et al., 2017).

Countries that are characterised by passive asset-based welfare generally have larger tenure wealth gaps than countries that are characterised by active asset-based welfare. However, it would be wrong to conclude that promoting homeownership in a financialised fashion and propagating active asset-based welfare would alleviate the problems associated with large tenure wealth gaps (reduced availability and affordability of

homeownership and limited wealth accumulation among tenants) as both strategies inflate house prices. The results point at a more promising route to alleviate the problems associated with large tenure wealth gaps: an enlargement of the affordable (social) housing sector. This allows tenants to accumulate savings, whereas it does not inflate house prices. More importantly, increasing security for tenants (e.g. by installing parallel arrangements providing welfare for tenants, tenure security, or affordability) might decrease the necessity to participate in the rat race to accumulate housing assets, as they cannot participate in the dominant mode of asset-based welfare in their country (passive, active or pro-active).

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Notes

1. Whereas first-tier pensions are mainly aimed at reducing poverty during old age, second-tier pensions are aimed at maintaining the working-life income (De Deken, 2017).
2. Pay-As-You-Go pension systems use the pension contributions of the current cohort of workers to finance the pensions of the retired population. In funded pension systems, a cohort of workers saves for their own pensions after retirement.
3. The imputed income is the difference between actual housing costs and market rent for the same dwelling, and can be considered as an income in-kind.
4. Note that the higher score for unemployment benefit generosity for Belgium is thanks to the near-'indefinite' duration of entitlement, as employment benefits themselves only provide a comparatively low level of income replacement.
5. Familialistic models of housing provision are common in countries (mainly Southern and Eastern-European) where state provision of welfare arrangements is low and where extended families commonly support redistribution of housing and other welfare resources, including in the form of housing. In these countries family housing wealth is an important dimension of income in later life, commonly referred to as a 'pension in stone' that benefits different generations of the extended family. In western homeownership nations where homeownership is promoted by the state, homeownership is also important as a source of welfare in later life, but typically benefits immediate household members rather than extended families.

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