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The Wealth Inequality of Nations.

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Abstract

Comparative research on income inequality has produced several coherent frameworks to study the institutional determinants of income stratification. In contrast, no such framework and much less empirical evidence exist to explain cross-national differences in *wealth* inequality. This situation is particularly lamentable as cross-national patterns of inequality in wealth diverge sharply from those in income. We seek to pave the way for new institutional explanations of cross-national differences in wealth inequality by tracing them to the influence of different wealth components. Using harmonized data on thirteen countries included in the Luxembourg Wealth Study (LWS), we demonstrate a lack of association between national levels of income and wealth inequality and concentration. Using novel decomposition approaches, we then estimate the degree to which national levels of wealth inequality and concentration relate to cross-national differences in wealth portfolios and the distribution of specific asset components. Considering the role of housing equity, financial assets, non-housing real assets, and non-housing debt, we reveal that cross-national variation in wealth inequality and concentration is centrally determined by the distribution of housing equity. As a result, we suggest the development of a theoretical framework for the comparative analysis of wealth inequalities that focuses on the role of housing markets.

Introduction

Cross-national differences in income inequality have been subject to decades of comparative empirical research (e.g., Smeeding et al. 1990; Gottschalk and Smeeding 1997; Kenworthy 2004; Salverda et al. 2009). Elaborate theories and influential typologies – such as the Worlds of Welfare Capitalism (Esping-Andersen 1990) and Varieties of Capitalism (Hall and Soskice 2001) – have been developed to explain why income is distributed more unequally in some countries than in others. An entire industry of scientific work has expanded these typologies to further elucidate the institutional drivers behind cross-national differences in income inequality (e.g., Orloff, 1996; Korpi and Palme, 1998; Arts and Gelissen, 2002; Hemerijck, 2013). In contrast, a cohesive framework to understand cross-national differences in *wealth* inequality does not exist. This lack of progress would be largely unproblematic if cross-national differences in wealth inequality coincided with those in income inequality. However, that is not the case. In fact, income and wealth appear to constitute largely independent dimensions of national levels of inequality. This contribution will begin by probing this finding further and carefully documenting the lack of relationship between national levels of income inequality and wealth inequality, considering measures of broad inequality as well as concentration at the top of the distribution.

The non-association between national levels of income inequality and wealth inequality suggests that the two may be driven by distinct institutional influences. Here, we take a first step to help connect the study of wealth inequality to emerging theoretical work that holds explanatory potential. To do so, we document the role of different wealth components in accounting for national levels of wealth inequality, showing that cross-national differences in asset portfolios and in distributions within asset components are large and closely related to overall levels of wealth inequality. Uncovering the central role of housing wealth, we suggest that future efforts to construct cohesive institutional explanations of wealth inequality should pay particular attention to the emerging literatures on housing and, potentially, financialization.

We proceed as follows: We review existing evidence on the relationship between wealth and income inequality as well as prior studies of the determinants of wealth inequality. We then motivate the study of asset portfolios and their relationship to net worth inequality by drawing on emerging comparative literatures on housing markets, financial markets, and lending regimes. After describing our data and analytic approach, we investigate the bivariate correlation between income inequality and wealth inequality using measures that cover the full distribution of each as well as measures focused on the upper tails of the distribution. We then describe the role of different asset components in determining national levels of wealth inequality, first via bivariate description and then using a formal decomposition approach that considers all asset components jointly. We conclude with guidance for future research on the institutional determinants of wealth inequality.

Background and Motivation

Income and wealth inequality in comparison

One of the earliest findings of comparative research on wealth is that inequality in net worth is surprisingly high in contexts that are typically considered more egalitarian based on their level of income inequality. For instance, the first series of findings based on a small set of countries included in the first wave of the Luxembourg Wealth Study (LWS) showed that egalitarian Sweden had a remarkably high level of wealth inequality and, more generally, that the inequality rank of Western industrialized countries differed greatly between measures of income and wealth (Sierminska et al. 2006; Jaentti et al. 2013, 2015). Skopek and collaborators (2012; 2014) draw similar conclusions based on different comparative data (the Survey of Health, Ageing and Retirement in Europe, SHARE, and the Global Wealth Databook, GWD): wealth inequality varies greatly across countries and is weakly related to countries' levels of income inequality. Besides confirming the surprising position of Scandinavian countries, their findings also reveal that Southern European countries show comparably high

levels of income inequality but low levels of wealth inequality. Semyonov and Lewin-Epstein conclude from their analysis of sixteen industrialized countries that "income inequality [is] a poor predictor of societal wealth inequality" (2013: p. 1136).

Given the important role of income for the accumulation of wealth and the resulting correlation between income and wealth at the household level (Killewald et al. 2017), these findings may still be surprising. At least two skeptical concerns may be raised: First, given the highly skewed distribution of wealth with a sizable part of the population holding no wealth at all and a wealthy few possessing a large share, distribution-wide measures of inequality used in most prior research, such as gini coefficients, may fail to reveal a strong association between the *concentration* of wealth and income at the top. In contrast, Skopek et al. (2014) find that the correlation between income inequality and wealth inequality is somewhat weaker at the top of the income distribution. We probe this finding further by also considering measures of wealth and income concentration, namely the income and wealth share held by the top five percent of the income and wealth distribution, respectively. Second, one reason why one may expect wealth and income inequality to be more closely correlated is that, at the household level, income and wealth overlap partly because income measures include asset income, i.e., income derived directly from wealth (examples include interest, realized capital gains, rent from real estate, and others). We also assess whether a cross-national income-wealth correlation emerges once we focus on asset income.

Macro-structural determinants of wealth inequality

Few prior contributions have sought to relate national levels of wealth inequality to institutional and macro-structural features of nations. One contribution that focuses on institutional predictors of wealth levels – rather than wealth inequality – does not find any notable correlations between wealth and a country's level of economic development, social expenditures, tax rates on income, inheritance taxation, or accessibility of housing (Semyonov and Lewin-Epstein 2013). Another series of contributions investigates the relationship between

countries' demographic structure – the distributions of age, household size, family structures, or educational attainment – and their level of wealth inequality, revealing a similarly surprising lack of associations (Bover 2010; Christelis et al. 2012; Semyonov and Lewin-Epstein 2013; Cowell et al. 2017; Sierminska and Doorley 2018). Macro-structural drivers of wealth inequality are also the focus of Piketty's explanation of trends in wealth inequality. The now famous claim is that increasing wealth inequality results from the rate of asset returns outpacing the economic growth rate (Piketty 2014). Since this rule is assumed to apply to all capitalist societies, differences between them have to be ascribed largely to differences in the timing of capitalist development rather than specific institutional arrangements (see also Acemoglu and Robinson 2015).

Overall, then, the few existing empirical studies geared at identifying macro-structural determinants of wealth inequality have thus not found institutional nor demographic features of nations that clearly relate to wealth inequality or, alternatively, have largely negated or subsumed the importance of institutional features to general economic laws. Our central supposition is that the lack of progress in *explaining* cross-national variation in wealth inequality stems from a lack of attention to the separate components of household wealth. That is, underlying cross-national differences in wealth inequality are cross-national differences in wealth portfolios that may help illuminate the institutional bases of wealth stratification. Hence, to advance our understanding of the determinants of national levels of wealth inequality, we first need to identify the components of wealth that account for international variation in net worth inequality.

The role of housing and financialization

Net worth is composed of financial assets, housing assets, other real assets, and debts. The wealth components most commonly held by households are housing assets and mortgages (Davies 2008; Wolff 2017). *Prima facie*, these assets and obligations should thus also play a substantial role in determining a country's overall level of wealth inequality. While the

analyses reported below empirically test this supposition, an emerging field of research has begun to document the variation in and provenance of different housing market regimes and, importantly, associated lending regimes as the two are intertwined through mortgage financing (Aalbers 2008; 2016). Housing markets vary substantially across countries in terms of ownership rates, the regulation of tenure rules, the structure of subsidized rental housing, and access to mortgages (Aalbers 2016; Schwartz and Seabrooke 2009). This cross-national variation in housing markets defies classification along traditional welfare state typologies (Kurz and Blossfeld 2004), largely because the latter neglect the independent role of credit markets. The recent literature on financialization, in contrast, focuses on the role of credit and, in particular, home mortgage lending as important aspects of the political economy and stratification order (e.g. Tomaskovic-Devey and Lin 2011; Lin and Tomaskovic-Devey 2013; Krippner 2017; Dwyer 2018). For instance, in the case of the United States, the reliance on consumption-driven economic growth has fueled an expansion of credit, partly in response to the economic crises of the 1930s (Prasad 2012) and 1970s (Krippner 2011). As the deregulation of financial markets progressed, a large share of households developed "financial cultures" that shifted their asset portfolios towards leveraging debts for investment (Fligstein and Goldstein 2015).

In this contribution, we provide a detailed comparative assessment of the composition of wealth portfolios. Guided by the literature on financialization, we expect a particularly pronounced role of home ownership and mortgages in explaining cross-national differences in wealth inequality.

Some prior comparative contributions have documented cross-national differences in wealth portfolios (e.g. Christelis et al. 2012; Sierminska and Doorley 2018; Doorley and Sierminska 2014). As one of few contributions that seek to relate these cross-national differences in wealth portfolios to differences in overall wealth inequality, Skopek et al. (2012) find that, among elderly households, home equity is the most widely shared and thereby also the most equal form of wealth across many industrialized countries. They conclude that

housing equity tends to have an equalizing effect on the wealth distribution in most countries (2012: p.182). In this contribution we assess whether this finding extends to the working-age population for a larger set of countries and bring it in direct conversation with the emerging literature on financialization.

Analytic Approach

Data and samples

Progress in documenting and understanding cross-national differences in wealth inequality has long been limited by the availability of comparative data on household wealth. The Luxembourg Wealth Study (LWS; Sierminska et al. 2006) ameliorates this situation. It currently provides the broadest collection of harmonized, population-representative wealth data.[1] Its wealth measures are derived from existing, high-quality national surveys and administrative data and are ex-post harmonized following the same type of meticulous process that underlies the widely used Luxembourg Income Study (LIS). In contrast to other comparative work on wealth inequality and asset portfolios that relies on samples of the aging population (e.g. Christelis et al. 2012; Skopek et al. 2014), the LWS allows us to study wealth and income among the working-age population (25-64 years). The restriction to households (with heads) of working-age is important for two reasons. First, it captures the current circumstances of households actively engaged in both income production and asset accumulation and thereby also the potentially more proximate institutional determinants of current wealth holdings. Second, prior work has documented important differences in the wealth portfolios between elderly and non-elderly households (Sierminska and Doorley 2018) and, in the case of the U.S., an increasing wealth gap between those populations (Gibson-Davis and Percheski 2018) that also plays a major role in determining overall wealth inequality (Pfeffer et al. 2019).

[1] In particular, the LWS provides a more heterogeneous set of countries compared to the Household Finance and Consumption Survey (HFCS) of the European Central Bank, which is restricted to Eurozone countries (but provides the data for several of the countries included here; see Table A.1).

Drawing on the latest available LWS and LIS data, we can compare wealth and income inequality as well as the structure of wealth portfolios across thirteen countries: Austria, Australia, Canada, Finland, Germany, Greece, Italy, Norway, the Slovak Republic, Slovenia, Sweden, the United Kingdom, and the United States.[2] We draw on wealth and income measures between 2011 and 2014 for all countries except Sweden where the latest wealth data is available only for 2005. That is, for all countries except Sweden, wealth is measured after the financial crisis. Appendix Table A.1 provides an overview of the countries, measurement years, and underlying data sources.

We acknowledge that, as typical of most "medium-N" and "large-N" cross-national comparisons, our sample of countries is a reflection of data availability, which in turn is based on various historical and political contingencies that prohibit inference to other countries (see Ebbinghaus 2005). In this sense, we provide an initial descriptive approach that awaits expansion to other countries as the availability of wealth data continues to expand (e.g., Killewald et al. 2017) and integration with alternative comparative approaches (see Kenworthy and Hicks 2008). We furthermore believe that the inability to draw firm causal conclusions based on these types of comparisons should not keep us from taking a significant first step in filling the lacuna of evidence on the potential sources of national levels of wealth inequality.

Measures

Our main measure of wealth is households' total net worth, composed of the sum of financial assets (such as savings, stocks, investment funds, etc.), housing equity (housing values minus mortgages), other non-housing real assets (business equity, vehicles, other durables, etc.) minus any other financial liabilities/debts (consumer loans, educational loans, etc.); see also Appendix A.3. Our assessment of wealth portfolios distinguishes these same components,

[2]For Norway and Sweden, the LWS data do not allow for the separation of mortgage debts from other financial obligations; as a result, these two countries are excluded from analyses that decompose national levels of wealth inequality into the contribution of different asset components.

that is, financial assets, housing equity, other non-housing real assets, and other debts. We measure household income as households' total sum of income from labor, public transfers, private transfers, as well as the total value of non-monetary goods and services received from labor and transfers. Additionally, we also distinguish between asset income (i.e., returns on financial and non-financial capital, excluding one-time lump sump payments) and labor income (from employment or independent work).

The wealth and income variables are adjusted for household size ($\frac{1}{\sqrt{hsize}}$) and the data are weighted.[3] We compute gini coefficients as established summary measures of distribution-wide inequality and the share of wealth and income held by the top five percent of the wealth and income distribution, respectively, as measures of concentration at the top.

One wealth component missing in the LWS and most national surveys it relies on is pension wealth. The design of national pension systems differs greatly across industrialized countries, including in the mix of private, employment-based, and public pension entitlements (Ebbinghaus 2011). But even without this variation, assessing the current value of pension entitlements is challenging. Few comparative studies exist that seek to construct measures of *augmented* net worth by including the current value of pension entitlements. This work shows that the addition of pension wealth does indeed substantively alter the overall level and inequality of wealth (see Bönke et al. 2018 for evidence from a U.S.-German comparison). It is likely that the international ranking of wealth inequality will also shift substantially based on augmented wealth measures, e.g., reducing the high wealth inequality in Sweden as its comparatively generous public pension system should contribute to a more equal distribution of pension wealth (Sierminska et al. 2006). Based on the available cross-national data, we cannot address this concern empirically. Instead, we are relegated to measures of currently held, private wealth of the working age population. For a range of outcomes – such as the

[3]Unlike for income, there is no established consensus on the need for or value of household size adjustments for wealth (see Killewald et al. 2017). Our sensitivity checks based on non-equivalized measures of inequality and concentration yield the same substantive conclusions (for an illustration of the close correspondence between inequality and concentration measures based on equivalized vs. non-equivalized wealth, see Online Appendix Table B.2).

ability to smooth current consumption – currently held private wealth, or *marketable wealth* (Davies and Shorrocks 2000), is arguably also a more meaningful indicator than pension wealth, in particular public pension wealth, as it is inaccessible before retirement.

Methods

We proceed in two stages. First, we compare national levels of inequality in wealth to those in income. This assessment of the correlation between wealth and income inequality relies on the gini coefficient, in the remainder simply referred to as *inequality*, and the top five percent share, in the remainder referred to as *concentration*. We also assess these correlations focusing on selected income components (asset income and labor income) and wealth components (housing, financial assets, debts).

Second, we turn to a formal decomposition approach that estimates the independent contribution of each wealth component to wealth inequality and concentration. This analysis relies on a decomposition approach initially proposed by Shorrocks (1982) and Lerman and Yitzhaki (1985) (for the decomposition of income) and determines the role of each wealth component in contributing to overall inequality in the sum of all wealth components. For the analysis of national levels of wealth inequality, the underlying model

$$G_i = \sum_{k=1}^{K} S_{ik} G_{ik} R_{ik} \tag{1}$$

partitions the gini coefficient of total wealth, G, of country i into the additive contribution of each wealth component, $k = 1, \ldots, K$ (housing equity, financial assets, non-housing real assets, and other debts) according to a given component's relative share in the asset portfolio, S_{ik}, the component's inequality measured as the gini coefficient within the given asset category, G_{ik}, and the so-called *gini correlation* between the component and net worth wealth, R_{ik}.[4] Lerman and Yitzhaki show that R_{ik} has similar properties to a Pearson's rank

[4]Note that this decomposition necessarily relies on "total wealth" (rather than "net worth") as an additive measure of each asset component, including "other debts".

correlation, ranging from -1 to $+1$, with positive values indicating that a wealth component increases total wealth inequality (1985: p. 152). While prior work has drawn on this approach to decompose net worth gini coefficients (e.g., Azpitarte 2008; Skopek et al. 2012; Davies et al. 2017), we additionally draw on a new approach to also decompose measures of wealth concentration, namely the share held by the wealthiest five percent. Drawing on a proposal by Atkinson et al. (2011) and mimicking the set-up of the model in equation 1, we decompose wealth concentration as

$$C_i = \sum_{k=1}^{K} S_{ik} C_{ik} A_{ik}, \tag{2}$$

partitioning the share of total wealth held by the top five percent, C, in country i into the additive contribution of each wealth component, $k = 1, \ldots, K$ (housing equity, financial assets, non-housing real assets, and other debts) according to a given component's relative share in the asset portfolio (average percent of total wealth), S_{ik}, the component's concentration measured as the share of the component wealth held by the top five percent of its distribution, C_{ik}, and the *alignment coefficient,* R_{ik}, which measures the overlap between the concentration of component wealth and total wealth (more specifically, the share of component wealth held by the top five percent of the total wealth distribution divided by the share of component wealth held by the top five percent of the component wealth distribution; for an exposition based on income components see Atkinson et al. 2011: p.61).

We present the country-specific parameter estimates – S_{ik}, G_{ik}, R_{ik} for the analysis of wealth inequality and S_{ik}, C_{ik}, A_{ik} for the analysis of wealth concentration – which allow direct cross-national comparison in Appendix Table A.4. But to engage in a more formal cross-national analysis, we draw on these estimates as inputs into a counterfactual analysis: That is, we constrain a set of parameter estimates, e.g., the shares of all wealth components, S_k, in each country to the parameter estimate from another country, namely the United States. In essence, this amounts to assigning the wealth portfolio observed in the U.S. to all other countries – without constraining the nation-specific within-component inequality, G_{ik},

and gini correlation, R_{ik} (or, for the analysis of wealth concentration, the within-component concentration, C_{ik}, and alignment coefficient, A_{ik}).[5] Based on these constrained parameter estimates, we then generate a counterfactual total wealth gini coefficient (top share) for each country. In the case just described, such counterfactual gini coefficient (top share) addresses the question of how high total wealth inequality (concentration) in a given country would be if the wealth portfolio of its households matched that of U.S. households, but no other aspects of the wealth distribution were changed (namely, the inequality of wealth within components and the inequality-reducing or inequality-increasing influence of a given component remained at the country's observed level). We engage in another counterfactual analysis by constraining the within-component coefficients, G_{ik} (C_{ik}), which answers the question of what level a nation's wealth inequality (concentration) would be, if the inequality (concentration) of different asset components were the same across countries, but cross-national differences in wealth portfolios and gini correlations (alignment coefficients) remained as observed. The more similar the counterfactual distribution of national levels of wealth inequality (concentration), the greater the contribution of these different aspects of the wealth distribution to the observed cross-national variation in wealth inequality (concentration).

Results

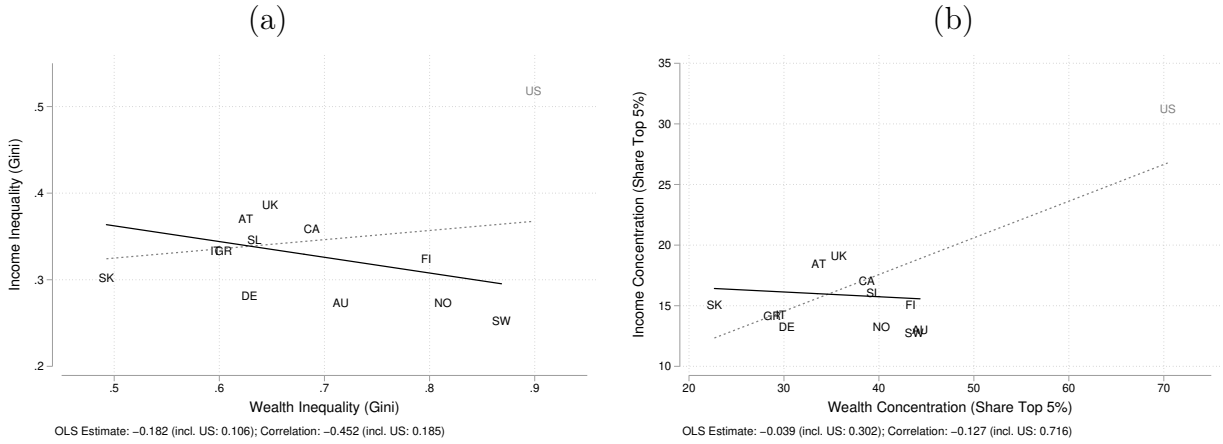
Wealth and income inequality/concentration in comparison

Comparing national levels of income inequality and wealth inequality based on gini coefficients in Figure 1a reveals the striking outlying position of the United States (for country

[5]We choose to constrain coefficients to those observed for the United States because the U.S. occupies an exposed role, both empirically and theoretically, in the work on financialization and housing markets and, as we will show, also in regards to the level of wealth inequality. To address concerns about the well-known dependency of decomposition analyses on the reference category (Fortin et al. 2011) or, here, reference country, we replicate our decomposition analyses based on an alternative country – the Slovak Republic as the country with the lowest level of wealth inequality and concentration, less developed financialization, and high home ownership rates. The substantive conclusions are unaltered and reported in Online Appendix Table B.1.

labels and estimates see also Table A.2). In line with prior evidence, the U.S. emerges as by far the most unequal country in terms of income among those included here (gini coefficient of 0.528). Its income gini coefficient is a full 0.131 gini points higher than that of the second-most income-unequal country included here, the UK (0.397), and double that of the most income-egalitarian country included, Sweden (0.264). In addition, the U.S. surpasses all other included countries in terms of its level of wealth inequality with a net worth gini coefficient of 0.899. The United States is exceptional in another regard, namely the correspondence between its level of inequality in income and wealth. Excluding the U.S., countries with comparatively lower levels of income inequality are *not* also marked by comparatively lower levels of wealth inequality. In fact, if anything, the relationship between national levels of income inequality and wealth inequality is negative (correlation of -0.45). For instance, the two most income-egalitarian countries included here, Sweden and Norway, are also the next most unequal countries in terms of wealth behind the United States (net worth gini of 0.868 and 0.813, respectively). Conversely, many countries that are far apart in terms of their level of wealth inequality, e.g., Germany (net worth gini of 0.797) and Italy (0.596), share similar levels of income inequality (income gini coefficient of approximately 0.34). Figure 1a also reveals that wealth is more unequally distributed than income in all countries. Finally, cross-national variation in wealth inequality is larger – especially when excluding the United States – than cross-national variation in income inequality. That is, there is a great deal of cross-national difference in search of explanation. Before embarking on that task, we probe the finding of the lack of positive correlation between national levels of wealth and income inequality further, as it may be surprising at the backdrop of positive income-wealth correlations at the household level. Perhaps wealth should instead be thought of as a measure of concentration of economic advantage at the very top rather than an indicator of population-wide inequality (but see Killewald et al. 2017)? That is, an assessment based on gini coefficients, as provided so far, may hide cross-national differences in

Figure 1: Wealth and Income Inequality and Concentration



Notes: Inequality in household income (wealth) is measured using the gini coefficient. Concentration is measured as the income (wealth) share held by the top five percent of the income (wealth) distribution. The dotted line is the fitted OLS line including the United States, the solid line is the fitted OLS line excluding the United States. Data come from the Luxembourg Income Study (LIS) and the Luxembourg Wealth Study (LWS).

the concentration of economic advantage,[6] and top-heavy measures of inequality may reveal a better alignment between income and wealth indicators. They do not, as Figure 1b clearly documents. A cross-national comparison of the wealth share of the top five percent of the wealth distribution and the income share of the top five percent of the income distribution again reveals no association once we exclude the United States (correlation of -0.127). The U.S. again combines exceptionally high income concentration and exceptionally high wealth concentration. The U.S. level of wealth concentration is even more exceptional than its level of distribution-wide wealth inequality: The wealthiest five percent in the U.S. own about 70 percent of all national wealth, while the top five percent in most other countries own less than half of that. In the three countries that come closest to the United States in terms of wealth concentration – Austria, Sweden, Germany, and Norway – the wealthiest five percent own between 40-44 percent of national wealth. It may also be worth pointing out that the trifecta of countries with the highest concentration of wealth is drawn from all three "worlds

[6]However, it is worth noting that the long-standing view that the gini coefficient is more sensitive to inequality in the middle of the distribution rather than the extremes (Atkinson 1970) has recently been questioned empirically (Gastwirth 2017).

of welfare capitalism": the liberal (U.S.), the social-democratic (Sweden), and the conservative case (Germany). Again, we take this to suggest that existing comparative schemas hold limited promise to elucidate the wide cross-national variation in wealth concentration or inequality.

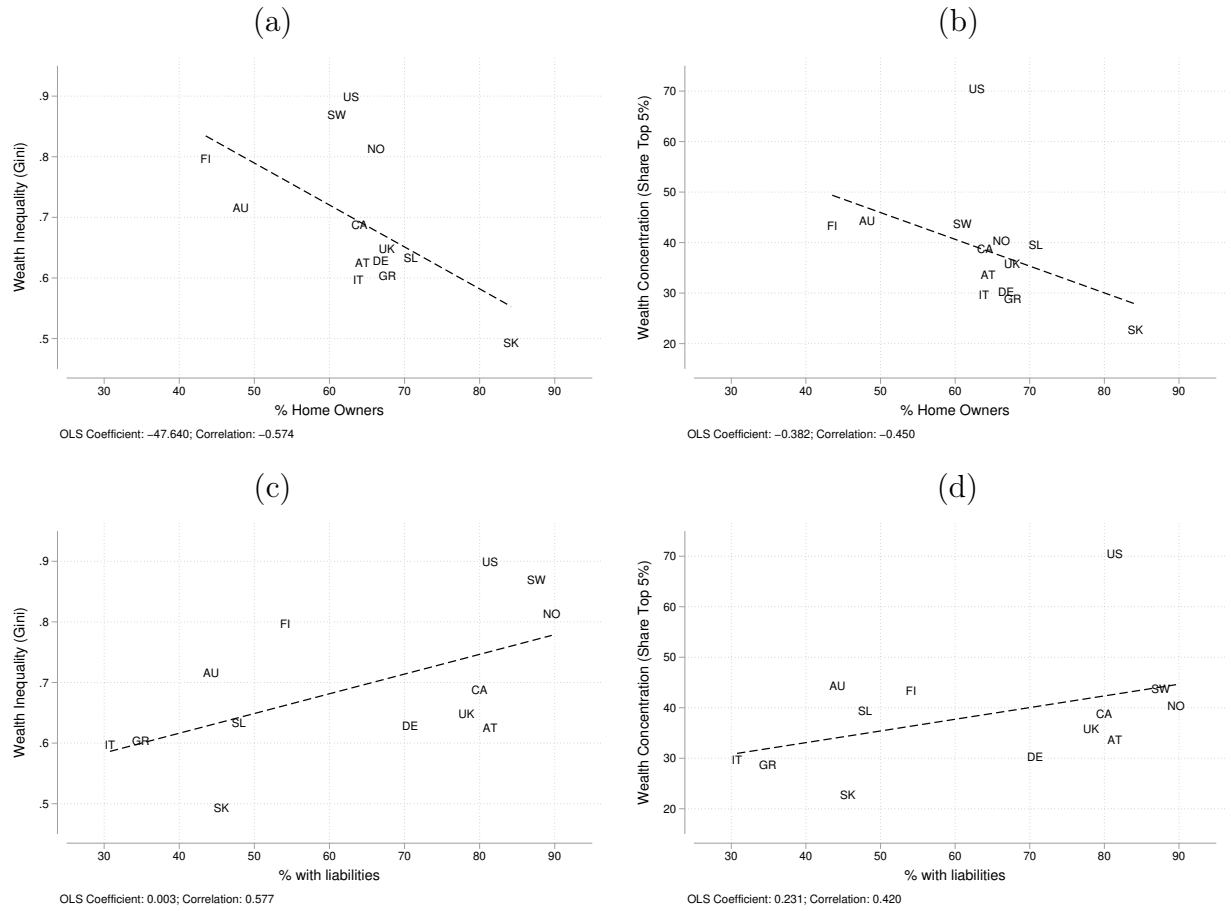
In another attempt to rescue the idea that comparative evidence based on income measures could approximate cross-national differences in wealth, one may suspect that inequality in certain *components* of income may successfully capture inequality in certain *components* of wealth. Intuitively, it makes sense to assume that cross-national inequalities in asset income would be related to cross-national inequalities in financial wealth (after all, asset income – e.g., in the form of interest and realized capital gains – directly derives from financial wealth). Yet, empirically, we also fail to find a strong relationship even between national levels of inequality in and concentration of asset income and financial wealth (in fact, the relationship is somewhat more consistent, though still low, for labor income rather than asset income; see Online Appendix Figure B.1).

Components of wealth inequality and concentration

The presented evidence suggests that wealth inequality and concentration vary widely across countries and in ways that are distinct from the patterns observed for income. We believe that a first step towards an explanation of this cross-national variation in wealth inequality and concentration should begin with an assessment of the role of individual asset components. Much like how our understanding of cross-national differences in income inequality would be quite different if they arose chiefly from cross-national differences in labor income or, instead, from cross-national differences in transfer income (Gornick and Smeeding 2018), our understanding of international variation in wealth inequality depends on how different asset components contribute to it. Here, we provide an initial, descriptive approach that we will expand upon using formal and more detailed decomposition analyses in the next section. To assess two asset dimensions that we hypothesized to hold particular importance

– housing and debt – we draw on simple indicators of national home ownership rates and the prevalence of households with any financial liabilities (i.e., debt held against an asset or in the form of unsecured debt).

Figure 2: Wealth Inequality/Concentration, Home Ownership, and Debt



Notes: Inequality in household wealth is measured using the gini coefficient. Concentration is measured as the wealth share held by the top five percent of the wealth distribution. Based on data from the Luxembourg Wealth Study (LWS).

Figures 2a and 2b display the relationship between national home ownership rates (drawn from the same data and sample) and wealth inequality and wealth concentration, respectively. We observe a clear negative correlation: Countries with higher home ownership rates are, on average, marked by lower levels of wealth inequality and concentration. Home ownership rates, of course, do not *fully* account for the observed cross-national variation in wealth inequality and concentration. In particular, the high level of wealth inequality in Sweden and

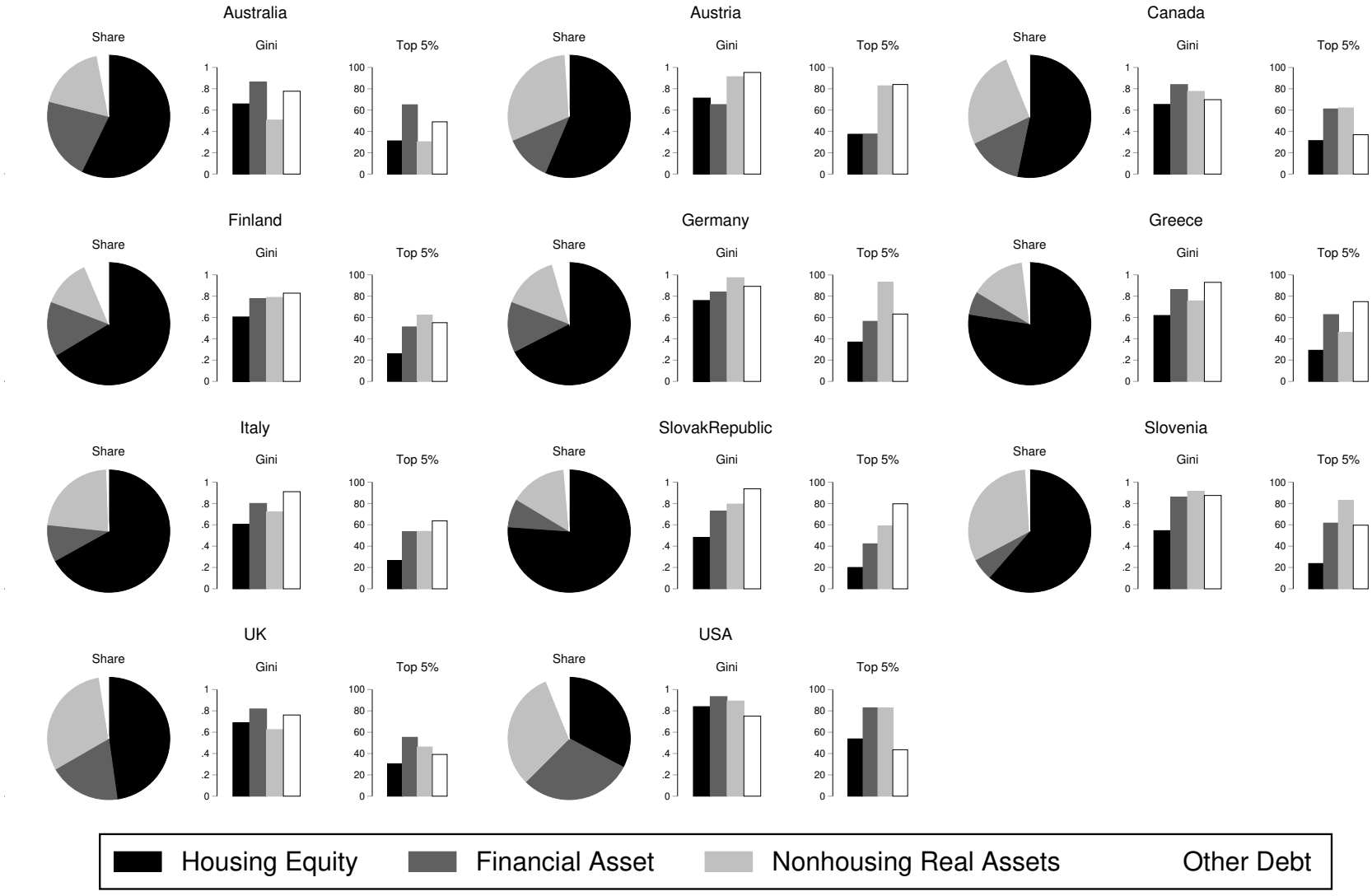
Norway and the exceptional level of wealth inequality and concentration in the U.S. coincide with just average home ownership rates in these countries. Most other countries with average home ownership rates also display average levels of wealth inequality and concentration. In fact, few countries are marked by substantially more restricted homeownership, namely Finland and Australia, or substantially broader homeownership, namely the Slovak Republic. The very high homeownership rates in the Slovak Republic likely result from the quick sell-off of state-owned rental blocks after the end of socialism (Ronald 2008: p.20). The Slovak Republic, in turn, is also the most wealth egalitarian country in our sample.

Of course, for most households, homeownership entails borrowing via mortgages. One may therefore expect that the share of households with financial liabilities, of which mortgages are one important form, would show a similar relationship to national levels of wealth inequality and concentration to that of national homeownership rates. That is not the case, as displayed in Figures 2c and 2d: On average, countries with more widely spread debt obligations are also countries with higher levels of wealth inequality and concentration, though the relationship is less pronounced, especially for wealth concentration, than the just presented associations with homeownership. The resulting potential for a wealth-stratifying impact of credit markets vis-à-vis the potentially equalizing impact of accessible housing markets calls for the type of detailed joint analysis that we engage in next. We note, once more, that Sweden and Norway cannot be part of such analysis as the population registers from which the LWS draws wealth information do not allow allocating different debt obligations to the assets against which they are held. This is regrettable since, on the one hand, prior research has found interesting patterns of financial obligations in these two countries – namely a high concentration of consumption debt in Norway (Poppe et al. 2016) and very high mortgage debt in Sweden (Persson 2009) – and, on the other hand, these two countries are also marked by particularly high levels of wealth inequality. The loss of these two cases thus calls for future research on the role of wealth portfolios in the Scandinavian context; for now Finland remains as the only representative of Nordic countries.

Decomposition of wealth inequality and concentration

We now delineate the relative role of different asset components in contributing to national levels of wealth inequality and concentration, continuing our effort to move towards a fruitful foundation for an explanatory approach to wealth inequality. Here, we focus on two aspects of the role of distinct asset components: First, the relative share of each asset component, i.e., the average composition of wealth portfolios or – in the language of decomposition analyses – the *composition effect* on overall wealth inequality and concentration. Second, the distribution of wealth within each asset component, i.e., the component-specific level of wealth inequality and concentration or the *structural effect* on overall wealth inequality and concentration. As backdrop to our decomposition analysis, Figure 3 contains descriptions of both of these aspects, displaying national wealth portfolios and within-component levels of wealth inequality and concentration (see also Appendix Table A.4). Although we return to some of these estimates as we interpret the results of our decomposition analyses, we point out a few general descriptive insights first: While housing wealth dominates the overall wealth portfolio in most countries, we also observe large cross-national variation in the average importance of housing equity. It is lowest in the United States (due to high average mortgage burden), where the average wealth portfolio is also most diversified, with similar shares of financial assets and non-housing real assets. On the other side of the continuum are the Slovak Republic and Greece, where the greatest share (more than three quarters) of national wealth is made up of housing equity and the next most important asset component are non-housing real assets. In these same countries, the distribution of housing equity (as measured by its gini coefficient and top five percent share) is also considerably more equally distributed than in other countries. In most countries (except Australia and Finland), the next largest component of the national wealth portfolio is non-housing real wealth. Overall levels of inequality and concentration in non-housing real wealth are higher than those in housing wealth (with the exception of the UK and Australia), and, compared to other parts of the national wealth portfolio, particularly more unequal and concentrated

Figure 3: National Wealth Portfolios and Within-Component Inequality



in Germany, Austria, and Slovenia, where they surpass even the high levels of real asset inequality and concentration observed in the United States. Prior research has documented high concentration of business assets in some of these countries (Carney and Nason 2018; Keister 2014; Grabka and Westermeier 2014). Financial assets make up a substantial portion of national wealth portfolios (about a fifth) in the UK and Australia and close to a third in the United States, where they are very unequally distributed and highly concentrated at the top. Finally, other debts (that is, financial obligations outside of mortgages) occupy a minor role in most countries' wealth portfolios; they make up the greatest share, between 4-6%, in Canada, Germany, Finland, and the United States.

To assess the extent to which national levels of wealth inequality and concentration can be attributed to these differences in national asset portfolios, on the one hand, and the distribution of wealth within each asset component, on the other hand, Table 1 reports the results of our counterfactual decomposition analysis. Starting with overall inequality, the first column reports the observed gini coefficient of total wealth (cf. footnote 4) while the following columns report counterfactual gini coefficients. These are derived by constraining a given component of the decomposition. For instance, we impose (1) the same asset shares on all countries or, more specifically, we calculate the counterfactual gini coefficient that would arise if all countries had the same asset portfolio as the United States but no other aspects of the national distribution of wealth changed (see Online Appendix Table B.1 for a sensitivity analysis based on the most wealth egalitarian country, the Slovak Republic as the reference case). Similarly, we compute counterfactual gini coefficients that arise when (2) we hold within-component inequality constant at the level observed in the United States while allowing the shares (wealth portfolios) and gini correlations to vary across nations. And, finally, we constrain only the (3) gini correlations to match those observed in the United States. The comparison between each counterfactual and observed gini coefficient for each country captures the extent to which wealth inequality would change in these three counterfactual scenarios.

Table 1: Decomposition

	Gini Coefficient						Top Share (5%)					
		(1)		(2)		(3)		(4)		(5)		(6)
		Shares = US		Comp. ginis = US		Gini corr. = US		Shares = US		Comp. concent. = US		Alignm. factor = US
	Observed	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)	Observed	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)
USA	0.822							63.5						
Australia	0.605	0.574	(-5.0%)	0.770	(27.3%)	0.638	(5.6%)	32.7	33.7	(3.1%)	54.7	(67.2%)	34.7	(6.0%)
Austria	0.704	0.655	(-7.1%)	0.791	(12.3%)	0.728	(3.3%)	44.0	42.7	(-2.9%)	54.9	(24.7%)	46.7	(6.1%)
Canada	0.633	0.654	(3.4%)	0.767	(21.1%)	0.665	(5.1%)	35.6	39.8	(11.9%)	52.8	(48.3%)	39.0	(9.4%)
Finland	0.586	0.605	(3.2%)	0.762	(30.1%)	0.616	(5.1%)	29.4	36.8	(25.1%)	51.1	(74.0%)	31.0	(5.4%)
Germany	0.727	0.732	(0.7%)	0.776	(6.7%)	0.753	(3.6%)	40.6	48.3	(18.9%)	52.0	(27.9%)	43.1	(6.0%)
Greece	0.590	0.577	(-2.1%)	0.772	(30.9%)	0.620	(5.2%)	28.0	29.5	(5.3%)	49.9	(78.0%)	30.7	(9.4%)
Italy	0.590	0.580	(-1.7%)	0.785	(33.1%)	0.618	(4.7%)	29.4	32.5	(10.5%)	53.2	(80.8%)	32.2	(9.5%)
Slovak Republic	0.483	0.504	(4.2%)	0.762	(57.7%)	0.522	(8.0%)	22.5	28.1	(25.0%)	50.1	(122.5%)	25.2	(11.9%)
Slovenia	0.622	0.614	(-1.2%)	0.790	(27.1%)	0.647	(4.0%)	38.8	40.9	(5.4%)	55.5	(42.9%)	40.8	(5.1%)
United Kingdom	0.616	0.603	(-2.2%)	0.775	(25.8%)	0.656	(6.4%)	34.3	35.6	(3.9%)	58.5	(70.6%)	36.2	(5.6%)

The immediate conclusion from this comparison is that levels of wealth inequality are most impacted by cross-national differences in within-asset component inequality rather than cross-national differences in wealth portfolios (or gini correlations). In all countries, imposing the U.S. level of inequality within each asset component increases the overall gini coefficient substantially, while imposing the U.S. wealth portfolio does not (in fact, in many countries, it would decrease overall wealth inequality). It is worth pointing out that, as discussed earlier and seen in Figure 3, the limited impact of assigning U.S. wealth portfolios to all other countries is not due to a relative cross-national similarity in observed portfolios; in fact the U.S. wealth portfolio stands out as quite distinctive from all others. And, yet, it is not what accounts for the high level of wealth inequality in the U.S. or the lower level of wealth inequality in other countries. In contrast, within-asset component inequality exerts not only the major influence on national levels of wealth inequality, but, importantly, imposing the U.S. level drastically reduces the (counterfactual) cross-national variation in wealth inequality: With U.S. levels of within-component wealth inequality, all countries display a quite similar overall level of wealth inequality to that observed in the United States. Even the most wealth egalitarian country, the Slovak Republic, whose total wealth gini coefficient is more than 40 percent lower than that of the United States (0.483 versus 0.822), would effectively catch up and reach a level of wealth inequality just 7 percent below that of the United States (0.762 vs. 0.822).[7] In other words, our decomposition analysis clearly documents that the *wealth structure* effect, not the *composition effect*, underlies most of the cross-national variation in overall wealth inequality.

Before we scrutinize this finding further, we ask whether this general conclusion also holds for measures of wealth concentration. A comparison of the observed concentration of total wealth to counterfactual levels produced in models (4)-(6) of Table 1 do generally confirm

[7]The country where imposing U.S. levels of within-component inequality exerts the lowest effect is Germany where the counterfactual gini coefficient lies less than 7% above its observed gini coefficient. This is not suprising as, from Figure 3, we learned that within-component levels of inequality in Germany are generally high and similar to those of the Unites States. Yet, among the three counterfactual scenarios, imposing the same within-component inequality still exerts the largest effect in relative terms in Germany.

the dominating role of the wealth structure effect. Imposing (5) the same level of within-component concentration is substantially more influential than imposing (4) the same wealth portfolio or (6) alignment factor. In all countries, a U.S. level of within-asset concentration would produce much higher levels of overall wealth concentration, although none of the countries would come quite as close to the U.S. level of overall wealth concentration as they did to the U.S. level of wealth inequality. In most countries, the overall share of the top five percent would rise significantly to about half of overall wealth (with the exception of the UK, where it would be 59 percent), still considerably below the level of concentration observed in the U.S. where the top five percent hold closer to two thirds (64 percent) of total wealth. Imposing (2) the more diversified asset portfolio of the U.S. on other countries does increase concentration in several of them, in particular Canada, Finland, Germany, Italy, and the Slovak Republic, though – as before – to a substantially more limited extent than imposing the same level of within-asset component concentration. Overall, then, there is some evidence that the diversification of wealth portfolios (composition effect) does underlie some of the cross-national variation in overall wealth concentration but that the within-asset component wealth distribution (wealth structure effect) is still the major driver even of wealth concentration and, certainly, wealth inequality.

As within-asset component inequality is the driving force behind cross-national differences in wealth inequality and concentration, the natural next question to ask is whether we can trace these cross-national differences to the distribution of a *specific* type of asset (housing, financial, real, or other debt). To address this question, we engage in another counterfactual decomposition analysis, reported in Table 2. Again, we show counterfactual gini coefficients and top concentration measures, this time generated by constraining just a single coefficient of the decomposition models, namely the gini coefficient/concentration of housing equity (models 1 and 5, respectively), financial assets (2 and 6), non-housing real assets (3 and 7), or other debt (4 and 8). A similarly clear-cut pattern emerges: The largest independent contribution to overall levels of wealth inequality and concentration results from

Table 2: Decomposition: Within-Component Inequality/Concentration

	Gini Coefficient								Top Share (5%)							
		(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)
		Housing Equity		Financial Assets		Non-Hou. Real Assets		Other debts		Housing Equity		Financial Assets		Non-Hou. Real Assets		Other debts
	Observed	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)	Observed	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)
USA	0.822									63.5								
Australia	0.605	0.704	(16.4%)	0.618	(2.2%)	0.658	(8.8%)	0.605	(-0.1%)	32.7	44.5	(36.1%)	36.0	(9.9%)	39.7	(21.4%)	32.7	(-0.2%)
Austria	0.704	0.772	(9.7%)	0.730	(3.6%)	0.698	(-0.8%)	0.704	(-0.1%)	44.0	52.0	(18.1%)	47.1	(7.1%)	44.0	(-0.0%)	43.9	(-0.4%)
Canada	0.633	0.726	(14.8%)	0.645	(1.9%)	0.660	(4.3%)	0.634	(0.2%)	35.6	45.7	(28.3%)	37.9	(6.5%)	40.3	(13.1%)	35.8	(0.5%)
Finland	0.586	0.736	(25.6%)	0.604	(3.0%)	0.597	(1.9%)	0.584	(-0.4%)	29.4	46.0	(56.6%)	32.7	(11.3%)	31.6	(7.5%)	29.0	(-1.3%)
Germany	0.727	0.780	(7.2%)	0.737	(1.3%)	0.717	(-1.5%)	0.725	(-0.4%)	40.6	51.1	(25.8%)	43.0	(5.9%)	39.4	(-3.1%)	40.3	(-0.7%)
Greece	0.590	0.755	(28.1%)	0.593	(0.6%)	0.604	(2.5%)	0.588	(-0.2%)	28.0	46.0	(64.2%)	28.8	(2.6%)	31.3	(11.6%)	27.9	(-0.4%)
Italy	0.590	0.742	(25.7%)	0.600	(1.8%)	0.623	(5.6%)	0.590	(-0.0%)	29.4	45.9	(56.1%)	31.4	(6.7%)	34.7	(18.0%)	29.4	(-0.0%)
Slovak Republic	0.483	0.743	(53.6%)	0.493	(2.0%)	0.495	(2.4%)	0.482	(-0.2%)	22.5	45.8	(103.5%)	24.3	(7.8%)	25.2	(11.8%)	22.4	(-0.6%)
Slovenia	0.622	0.793	(27.6%)	0.625	(0.5%)	0.616	(-0.9%)	0.621	(-0.0%)	38.8	54.8	(41.3%)	39.4	(1.7%)	38.8	(0.0%)	38.8	(-0.1%)
United Kingdom	0.616	0.684	(11.0%)	0.635	(3.1%)	0.688	(11.7%)	0.616	(-0.0%)	34.3	44.2	(28.9%)	38.6	(12.7%)	44.2	(28.9%)	34.3	(0.0%)

the distribution of housing wealth. Holding all other aspects of nations' wealth distributions constant – that is, the overall asset portfolio composition, the correlation/alignment between different components, and even the wealth distribution within all non-housing assets and debts – the level of inequality and concentration of housing wealth is the principal determinant of overall levels of wealth inequality and concentration. If the distribution of housing wealth in all other countries was that of the United States, all countries included here (except the UK) would display a level of wealth inequality above a gini coefficient of 0.7 and some closer to 0.8, similar to the observed gini coefficient of 0.82 in the United States. In terms of overall inequality, only in the UK and Australia do we observe any appreciable contribution of non-housing components, namely the level of inequality within non-housing real assets. The contribution of non-housing real assets is larger for measures of wealth concentration, where the concentration of these assets does positively contribute to overall wealth concentration, though still much less (again with the exception of the UK) than the concentration of housing equity. Only in Australia, Finland, and the UK do we observe any appreciable contribution of the concentration of financial assets to overall wealth concentration.

Overall, the decomposition results reported here establish the dominant role of the distribution of housing wealth in explaining national levels of wealth inequality and concentration. Rather than the differential allocation of wealth across different types of assets, differences in the inequality and concentration *within* housing wealth determine much of the cross-national variation in overall wealth inequality and concentration. This suggests that explanations of wealth inequality should prioritize an understanding of the distribution of housing equity. This is no small task as cross-national differences in the distribution of housing equity, themselves, may emerge from different processes (besides differences in rates of home ownership, which we have shown before to be negatively related to wealth inequality and concentration): Housing equity is determined by the structure and dynamics of housing markets and mortgage markets (Aalbers 2016). The two are of course intertwined as described in prior

research and painfully illustrated by the debt-driven bubble in housing prices leading up to the financial crisis (Krippner 2011). On the other hand, many other factors besides the structure of mortgage markets influence the price of housing, including the regulation of the construction market, the tax treatment of housing assets, and the historical legacy of public investment into the housing stock. In our decomposition analyses, we assessed the role of the distribution of housing equity as the net result of these processes, i.e., as determined by home values and mortgage debt of both owner-occupied housing and real estate housing. That is, we decided to analyze housing equity without disaggregating it into these constitutive components, as they are not independent of each other. For instance, mortgage markets impact home prices and real estate investments interact with the price of and access to owner-occupied housing. Still, some readers may be interested in a tentative assessment of the role of these different aspects of housing equity. Keeping in mind that an additive decomposition of what we believe are interactive processes is to be interpreted with caution, Appendix Table A.5 presents a decomposition analysis of inequality in and concentration of housing equity. The patterns suggest that the distribution of owner-occupied home values is the major driver of housing wealth inequality and, together with the value of real estate, of housing wealth concentration. Based on these suggestive findings, we see great promise in research that focuses on the determinants of national distributions of home values as those may constitute the central dimension of overall wealth inequality. While this does not rule out a crucial role of financialization, its effects on the wealth distribution may be channeled through the housing market rather than merely emerging through its direct link to households' increased participation in financial markets.

Conclusion

While advanced capitalist societies are marked by high levels of inequality in household wealth and concentration of wealth in the hands of few, considerable cross-national variation

exists in the extent of this wealth inequality and concentration. Yet, current knowledge about the determinants of national levels of wealth inequality is limited and, as we have argued here, will rely on fundamentally different explanatory approaches than those developed over decades in a laborious field of research on international differences in income inequality. The latter tell us close to nothing about the former, as we have shown here. In fact, many countries that we customarily describe as comparatively egalitarian following income-based comparisons – such as Scandinavian countries – can be classified as anything but in terms of their levels of wealth inequality. Many countries that were henceforth thought of as similarly unequal – for instance, Germany and Italy – are far apart from each other in terms of their level of wealth inequality (with Germany displaying very high levels). As such, prior institutional explanations of inequality hold no promise in elucidating the international ranking of wealth inequality and the vast cross-national variation in wealth stratification remains in urgent need of explanation (see also Killewald et al. 2017).

This contribution takes but one first step in this direction by carefully investigating the role of different asset components in explaining the overall distribution of wealth. We surmise that any potential institutional explanations of wealth inequality need to rest on a careful consideration of the operative components of wealth. That is, we first need a clear understanding of which types of assets underlie nations' overall level of wealth inequality and concentration. Is wealth inequality, for instance, largely a reflection of the spread of debt, financial liabilities, and general exposure to financial markets, as emerging theories of financialization may suggest? Or, do we best understand the wealth concentration in a given country as the concentration of capital held in real assets, reflected, for instance, in the hoarding of wealth among a business elite? Our empirical findings, instead, consistently point in a different direction: Cross-national differences in wealth inequality and concentration chiefly reflect the level of inequality in and concentration of housing equity. While simple indicators of home ownership rates, typically used to capture the overall importance of housing assets in a given country, suggest that broader access to home ownership may dampen

wealth inequality and concentration, the overall distribution of housing equity, of which the prevalence of home ownership is just one aspect, is the central element determining overall wealth inequality. A country's distribution of housing equity largely explains its overall level of wealth inequality and concentration, including both the outlying position of the United States as well as the overall variation across many different countries.

These findings call for increased attention to the structure and dynamics of housing markets as the main determinants of the overall distribution of household wealth. It seems particularly unfortunate that one of the most ambitious theoretical and empirical studies on the determinants of wealth inequality, Piketty's *Capital* (2014), mostly disregards the role of housing as a driver of wealth inequality (see also Bonnet et al. 2014; Fuller et al. 2019), and the proposed "rule" of growing wealth inequality (r>g) at best discounts the importance of a careful analysis of the institutional determinants of wealth inequality (see also Acemoglu and Robinson 2015). An alternative, theoretically ambitious effort that focuses on the role of housing may, instead, naturally align with the rapidly expanding literature on financialization that has forcefully argued for the central role of mortgage lending. At the backdrop of the findings presented here, one way to bring the literature on financialization and the literature on wealth into closer conversation would be to establish a clear empirical link between different lending regimes and the structure of national housing markets. Doing so would promise to ameliorate the surprising disconnect between the scholarships on wealth and financialization (see Dwyer 2018).

Not only is there mounting work on the important role of housing assets for wealth accumulation at the household level (e.g. Killewald and Bryan 2016; Lersch and Dewilde 2018), but there is also growing interest in comparative research to understand housing as a central part of the political economy (Schwartz and Seabrooke 2009; Fuller et al. 2019). While the still limited number of cases with comparable data may make "large N" comparative approaches elusive for the immediate future, the identification of housing regime types is a promising, emerging area of research. For instance, in a comparative study of European

housing markets, Wind et al. (2017) recently proposed a distinction between rental and ownership regimes (as well as further subtypes within each), Wind and Dewilde (2017) argue for the importance of different taxation regimes in determining the link between housing and wealth, and van der Heijden et al. (2011) propose to carefully distinguish between static and dynamic housing markets. A rich typology and careful institutional analysis of housing markets stands to directly inform research on the determinants of wealth inequality. The findings reported here should also help facilitate the meaningful selection of a smaller number of comparative cases (Ebbinghaus 2005) that, in a "small-N" comparison, would help elucidate the institutional foundations of distinct housing markets and their relationship to overall wealth. Either of these approaches will profit from the continuing expansion of available data, such as through the continued groth of the Luxembourg Wealth Study (forthcoming additions include Spain, Chile, and Japan). Another extension to investigate the common institutional foundations of country's housing markets and wealth inequality will be historical-comparative: New work in economics has recently determined the outsized, long-term returns of housing in terms of wealth accumulation (Jordà et al. forthcoming), and the great variation in housing price trajectories across countries (Knoll et al. 2017) opens promising new analytic opportunities.

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Appendix A

Table A.1: List of Countries

Abbrev.	Country	Survey	Year	N
AT	Austria	Household Finance and Consumption Survey (HFCS)	2014	9,640
AU	Australia	Survey of Income and Housing (SIH)	2014	10,243
CA	Canada	Survey if Financial Securities (SCF)	2012	8,350
FI	Finland	Household Wealth Survey (HWS) / Household Finance and Consumption Survey (	2013	7,982
DE	Germany	German Socio-Economic Panel (SOEP)	2012	55,810
GR	Greece	Household Finance and Consumption Survey (HFCS)	2014	10,565
IT	Italy	Survey of Household Income and Wealth (SHIW)	2014	4,544
NO	Norway	Household Wealth Statistics (Statistics Norway)	2013	163,726
SK	Slovak Republic	Household Finance and Consumption Survey (HFCS)	2014	7,305
SN	Slovenia	Household Finance and Consumption Survey (HFCS)	2014	9,026
SW	Sweden	Household Income Survey (HINK/HEK)	2005	11,076
UK	United Kingdom	Wealth and Asset Survey (WAS)	2011	13,843
US	United States	Survey of Consumer Finances (SCF)	2013	22,260

Table A.2: Distributional Summaries

Abbrev.	Country	Net Wealth				Total Income			
		Mean	Median	Gini	Top 5%	Mean	Median	Gini	Top 5%
AT	Australia	221,873	118,546	0.625	33.7	46,948	38,385	0.381	19.3
AU	Austria	214,331	90,989	0.716	44.3	36,607	32,505	0.284	13.8
CA	Canada	179,111	77,623	0.688	38.7	42,924	35,408	0.369	17.8
FI	Finland	128,404	75,386	0.629	30.3	40,084	35,629	0.292	14.0
DE	Germany	100,420	29,506	0.797	43.3	41,701	35,585	0.335	15.8
GR	Greece	88,311	55,000	0.604	28.7	18,151	15,711	0.344	15.0
IT	Italy	159,185	101,679	0.596	29.7	18,949	16,939	0.345	15.0
NO	Norway	114,661	58,763	0.813	40.3	54,378	49,041	0.284	14.1
SK	Slovak Republic	64,690	51,441	0.493	22.7	17,458	15,544	0.313	15.8
SN	Slovenia	129,531	71,603	0.634	39.4	20,352	17,206	0.356	16.9
SW	Sweden	72,565	22,906	0.868	43.7	37,061	33,564	0.264	13.5
UK	United Kingdon	174,108	90,712	0.648	35.8	38,372	30,581	0.397	19.9
US	United States	219,673	22,412	0.899	70.4	53,395	32,891	0.528	32.0

Note: Mean and median expressed in 2011 US$ PPP (using Consumer Price Index and World Bank Development Indicators)

Table A.3: Wealth Components

Net Worth			
Housing Equity	Financial Assets	Nonhousing Real Assets	Other Debt
Real Estate Values Real Estate Liabilities	Deposit Accounts and Cash Financial Investments Bonds, Other Securities Stocks, Other Equity Investment Funds etc. Other Non-Pension Financial Assets	Business Equity Consumer Goods Vehicles Other Durables, Valuables Other Non-financial Assets	Investment Loans Consumer Good Loans Educational Loans Other Non-Housing Liabilities

Table A.4: Decomposition Coefficients

	Gini Decomposition Components			Concentration Decomposition Components		
	s=Share	g=Gini	r=Corr.	s=Share	c=Concentr.	a=Alignment
	(1)	(2)	(3)	(4)	(5)	(6)
Australia						
Housing Equity	0.572	0.658	0.955	0.572	31.151	0.914
Financial Assets	0.217	0.864	0.881	0.217	65.007	0.834
Non-Housing Real Assets	0.181	0.507	0.762	0.181	30.311	0.738
Other Debts	0.030	0.777	0.443	0.030	49.005	0.423
Austria						
Housing Equity	0.563	0.713	0.951	0.563	37.376	0.866
Financial Assets	0.123	0.652	0.732	0.123	37.620	0.559
Non-Housing Real Assets	0.303	0.913	0.939	0.303	82.769	0.910
Other Debts	0.010	0.953	0.360	0.010	84.007	0.438
Canada						
Housing Equity	0.534	0.653	0.941	0.534	31.449	0.847
Financial Assets	0.145	0.840	0.861	0.145	61.081	0.728
Non-Housing Real Assets	0.259	0.776	0.893	0.259	62.058	0.870
Other Debts	0.062	0.697	0.471	0.062	36.908	0.418
Finland						
Housing Equity	0.665	0.605	0.961	0.665	25.953	0.899
Financial Assets	0.143	0.776	0.782	0.143	51.173	0.732
Non-Housing Real Assets	0.130	0.788	0.838	0.130	62.280	0.828
Other Debts	0.063	0.828	0.528	0.063	55.090	0.536
Germany						
Housing Equity	0.674	0.759	0.966	0.674	36.977	0.928
Financial Assets	0.134	0.839	0.760	0.134	56.349	0.674
Non-Housing Real Assets	0.147	0.973	0.915	0.147	93.013	0.838
Other Debts	0.045	0.892	0.417	0.045	63.184	0.328
Greece						
Housing Equity	0.775	0.619	0.969	0.775	29.232	0.948
Financial Assets	0.062	0.861	0.722	0.062	62.706	0.578
Non-Housing Real Assets	0.145	0.755	0.731	0.145	46.044	0.611
Other Debts	0.019	0.929	0.396	0.019	74.853	0.175
Italy						
Housing Equity	0.668	0.603	0.960	0.668	26.414	0.904
Financial Assets	0.099	0.800	0.792	0.099	53.377	0.672
Non-Housing Real Assets	0.227	0.722	0.852	0.227	53.843	0.808
Other Debts	0.006	0.911	0.153	0.006	63.749	0.089
Slovak Republic						
Housing Equity	0.761	0.483	0.955	0.761	20.010	0.909
Financial Assets	0.075	0.727	0.617	0.075	42.229	0.572
Non-Housing Real Assets	0.150	0.795	0.789	0.150	58.890	0.747
Other Debts	0.015	0.938	0.396	0.015	79.745	0.249
Slovenia						
Housing Equity	0.614	0.546	0.950	0.614	23.705	0.868
Financial Assets	0.059	0.858	0.650	0.059	61.642	0.516
Non-Housing Real Assets	0.315	0.911	0.933	0.315	82.672	0.926
Other Debts	0.011	0.875	0.215	0.011	59.668	0.182
United Kingdom						
Housing Equity	0.478	0.690	0.943	0.478	30.402	0.890
Financial Assets	0.188	0.818	0.883	0.188	55.234	0.837
Non-Housing Real Assets	0.310	0.624	0.866	0.310	46.195	0.875
Other Debts	0.024	0.761	0.098	0.024	39.126	0.141
United States						
Housing Equity	0.329	0.840	0.949	0.329	53.749	0.902
Financial Assets	0.297	0.934	0.960	0.297	82.885	0.923
Non-Housing Real Assets	0.314	0.892	0.953	0.314	82.709	0.922
Other Debts	0.060	0.751	0.586	0.060	43.541	0.356

Table A.5: Components of Housing Wealth

(a) Decomposition

	Gini Coefficient						Top Share (5%)					
		(1) Shares = US		(2) Comp. ginis = US		(3) Gini corr. = US		4.0 Shares = US		(5) Comp. concent. = US		(6) Alignm. factor = US
	Observed	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)	Observed	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)
USA	0.687							37.0						
Australia	0.564	0.542	(-3.9%)	0.643	(14.0%)	0.619	(9.8%)	24.3	22.0	(-9.4%)	36.4	(49.7%)	27.2	(11.9%)
Austria	0.656	0.654	(-0.4%)	0.672	(2.4%)	0.679	(3.5%)	31.9	30.1	(-5.5%)	36.3	(13.8%)	34.6	(8.6%)
Canada	0.555	0.554	(-0.1%)	0.643	(15.9%)	0.595	(7.2%)	24.6	24.3	(-1.6%)	34.0	(37.8%)	27.0	(9.4%)
Finland	0.491	0.490	(-0.3%)	0.617	(25.7%)	0.555	(12.9%)	19.6	19.2	(-2.2%)	33.6	(71.7%)	22.6	(15.2%)
Germany	0.680	0.675	(-0.7%)	0.678	(-0.2%)	0.697	(2.5%)	30.8	29.3	(-5.0%)	36.1	(17.1%)	33.2	(7.6%)
Greece	0.570	0.544	(-4.5%)	0.664	(16.5%)	0.626	(9.9%)	26.0	19.8	(-23.8%)	41.4	(59.1%)	29.9	(14.7%)
Italy	0.578	0.601	(4.1%)	0.648	(12.3%)	0.606	(4.9%)	24.4	25.0	(2.7%)	33.0	(35.4%)	27.6	(13.2%)
Slovak Republic	0.457	0.512	(12.0%)	0.622	(36.0%)	0.498	(8.9%)	19.9	25.2	(26.5%)	31.2	(56.6%)	22.5	(13.2%)
Slovenia	0.518	0.541	(4.5%)	0.624	(20.4%)	0.578	(11.5%)	22.6	24.1	(6.7%)	32.9	(45.9%)	27.2	(20.6%)
United Kingdom	0.546	0.576	(5.6%)	0.632	(15.8%)	0.571	(4.6%)	23.6	27.3	(15.9%)	30.5	(29.6%)	25.1	(6.3%)

(b) Decomposition: Within-Component Inequality/Concentration

	Gini Coefficient								Top Share (5%)							
		(1) Home Value		(2) Home Mortgage		(3) Real Estate Value		(4) Real Estate Mortg.		(5) Home Value		(6) Home Mortgage		(7) Real Estate Value		(8) Real Estate Mortg.
	Observed	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)	Observed	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)
USA	0.687									37.0								
Australia	0.564	0.624	(10.6%)	0.564	(-0.0%)	0.578	(2.4%)	0.569	(0.9%)	24.3	28.7	(18.3%)	24.5	(0.9%)	29.3	(20.7%)	26.7	(9.8%)
Austria	0.656	0.683	(4.2%)	0.645	(-1.6%)	0.655	(-0.1%)	0.656	(-0.0%)	31.9	37.0	(16.1%)	31.1	(-2.4%)	31.9	(0.1%)	31.9	(-0.0%)
Canada	0.555	0.633	(14.1%)	0.558	(0.6%)	0.561	(1.1%)	0.556	(0.1%)	24.6	30.6	(24.0%)	25.1	(1.9%)	27.2	(10.4%)	25.0	(1.5%)
Finland	0.491	0.592	(20.6%)	0.496	(0.9%)	0.511	(4.2%)	0.491	(0.0%)	19.6	26.6	(35.9%)	20.2	(3.2%)	26.0	(32.5%)	19.6	(0.1%)
Germany	0.680	0.686	(0.9%)	0.669	(-1.6%)	0.682	(0.4%)	0.680	(0.1%)	30.8	34.9	(13.1%)	30.4	(-1.2%)	32.1	(4.2%)	31.2	(1.1%)
Greece	0.570	0.638	(12.0%)	0.561	(-1.4%)	0.604	(6.0%)	0.570	(-0.0%)	26.0	30.9	(18.7%)	25.6	(-1.5%)	36.9	(41.9%)	26.0	(-0.0%)
Italy	0.578	0.651	(12.6%)	0.570	(-1.4%)	0.583	(1.0%)	0.578	(-0.0%)	24.4	31.2	(28.1%)	23.9	(-2.1%)	26.7	(9.5%)	24.4	(-0.0%)
Slovak Republic	0.457	0.628	(37.2%)	0.449	(-1.8%)	0.460	(0.6%)	0.457	(-0.0%)	19.9	31.0	(55.8%)	19.1	(-4.3%)	20.9	(5.1%)	19.9	(-0.0%)
Slovenia	0.518	0.618	(19.2%)	0.510	(-1.5%)	0.532	(2.7%)	0.518	(-0.0%)	22.6	29.1	(28.8%)	21.9	(-3.1%)	27.1	(20.2%)	22.6	(-0.0%)
United Kingdom	0.546	0.626	(14.8%)	0.551	(1.0%)	0.545	(-0.0%)	0.546	(0.0%)	23.6	30.0	(27.3%)	24.2	(2.6%)	23.4	(-0.6%)	23.6	(0.3%)

Table B.1: Decomposition: Slovak Republic as reference country

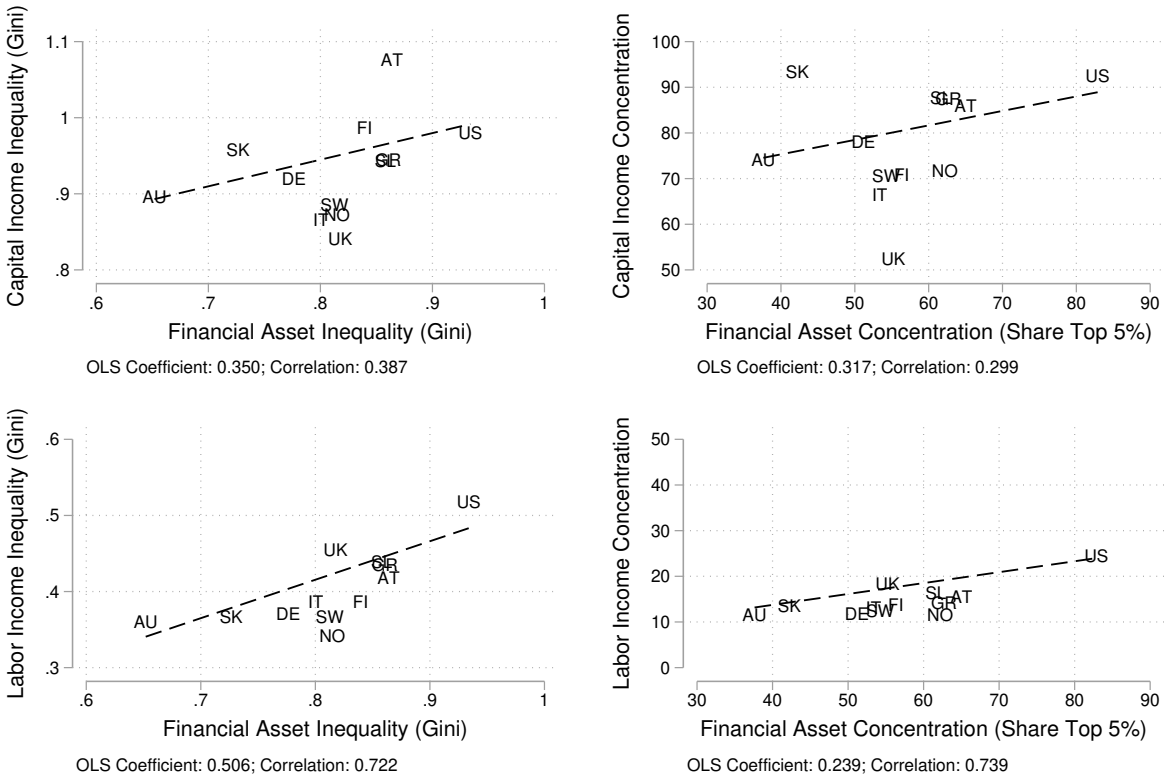
(a)

	Gini Coefficient						Top Share (5%)					
		(1) Shares = SK		(2) Comp. ginis =SK		(3) Gini corr. = SK		4.0 Shares = SK		(5) Comp. concent. = SK		(6) Alignm. factor = SK	
	Observed	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)	Observed	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)
Slovak Republic	0.483							22.5						
Australia	0.605	0.598	(-1.2%)	0.524	(-13.3%)	0.557	(-8.0%)	32.7	29.4	(-10.3%)	27.0	(-17.6%)	28.7	(-12.2%)
Austria	0.704	0.685	(-2.8%)	0.554	(-21.3%)	0.655	(-7.0%)	44.0	38.0	(-13.7%)	29.3	(-33.5%)	40.7	(-7.5%)
Canada	0.633	0.630	(-0.4%)	0.544	(-14.0%)	0.584	(-7.8%)	35.6	31.9	(-10.4%)	28.8	(-19.0%)	32.9	(-7.6%)
Finland	0.586	0.593	(1.1%)	0.507	(-13.5%)	0.554	(-5.6%)	29.4	28.7	(-2.3%)	25.4	(-13.7%)	26.7	(-9.0%)
Germany	0.727	0.744	(2.3%)	0.513	(-29.5%)	0.686	(-5.6%)	40.6	40.9	(0.8%)	24.8	(-39.0%)	37.9	(-6.7%)
Greece	0.590	0.591	(0.2%)	0.486	(-17.6%)	0.584	(-1.0%)	28.0	28.2	(0.6%)	21.7	(-22.7%)	28.1	(0.3%)
Italy	0.590	0.582	(-1.3%)	0.521	(-11.7%)	0.565	(-4.3%)	29.4	27.4	(-6.7%)	25.7	(-12.5%)	28.3	(-3.8%)
Slovenia	0.622	0.566	(-8.9%)	0.546	(-12.2%)	0.582	(-6.4%)	38.8	29.7	(-23.5%)	29.3	(-24.4%)	35.0	(-9.9%)
United Kingdom	0.616	0.631	(2.4%)	0.554	(-10.1%)	0.570	(-7.6%)	34.3	30.2	(-12.0%)	31.4	(-8.4%)	30.1	(-12.3%)
USA	0.822	0.807	(-1.8%)	0.629	(-23.5%)	0.673	(-18.0%)	63.5	54.3	(-14.6%)	36.3	(-42.9%)	50.2	(-21.0%)

(b)

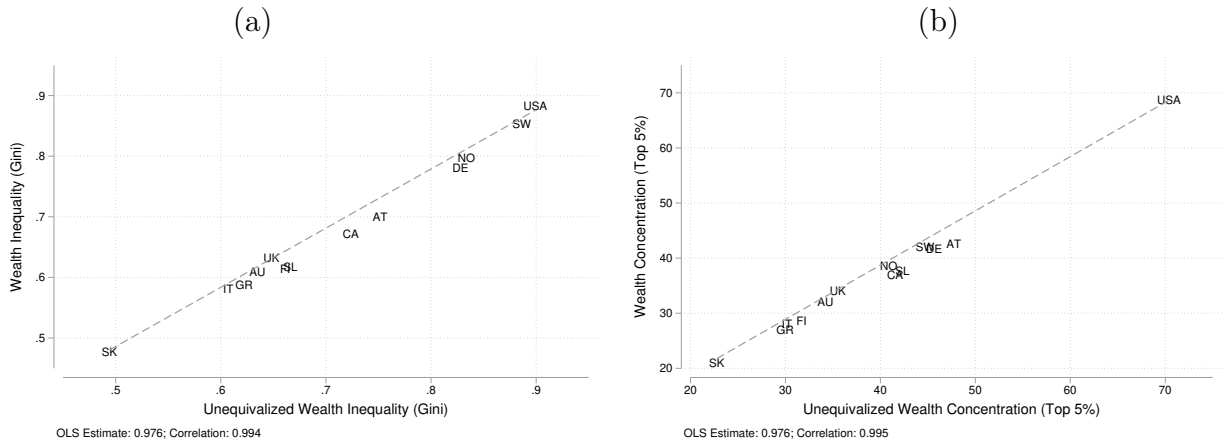
	Gini Coefficient								Top Share (5%)							
		(1) Housing Equity		(2) Financial Assets		(3) Real Assets		(4) Other debts		(5) Housing Equity		(6) Financial Assets		(7) Real Assets		(8) Other debts	
	Observed	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)	Observed	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)	Counterfact.	(change)
Slovak Republic	0.483									22.5								
Australia	0.605	0.509	(-15.9%)	0.579	(-4.3%)	0.645	(6.6%)	0.607	(0.3%)	32.7	26.9	(-17.8%)	28.6	(-12.6%)	36.5	(11.7%)	33.1	(1.2%)
Austria	0.704	0.581	(-17.5%)	0.711	(1.0%)	0.671	(-4.8%)	0.704	(-0.0%)	44.0	35.6	(-19.2%)	44.4	(0.7%)	37.5	(-15.0%)	44.0	(-0.0%)
Canada	0.633	0.547	(-13.5%)	0.619	(-2.2%)	0.637	(0.7%)	0.640	(1.1%)	35.6	30.4	(-14.5%)	33.6	(-5.6%)	34.9	(-2.0%)	36.7	(3.1%)
Finland	0.586	0.508	(-13.3%)	0.581	(-0.9%)	0.587	(0.1%)	0.590	(0.6%)	29.4	25.8	(-12.1%)	28.5	(-3.2%)	29.0	(-1.2%)	30.2	(2.8%)
Germany	0.727	0.547	(-24.7%)	0.716	(-1.6%)	0.703	(-3.3%)	0.728	(0.1%)	40.6	30.0	(-26.1%)	39.3	(-3.1%)	36.4	(-10.3%)	40.9	(0.6%)
Greece	0.590	0.488	(-17.3%)	0.584	(-1.0%)	0.594	(0.7%)	0.590	(0.0%)	28.0	21.3	(-24.2%)	27.3	(-2.6%)	29.2	(4.1%)	28.0	(0.1%)
Italy	0.590	0.513	(-13.1%)	0.584	(-1.0%)	0.604	(2.4%)	0.590	(0.0%)	29.4	25.5	(-13.1%)	28.7	(-2.5%)	30.3	(3.1%)	29.4	(0.0%)
Slovenia	0.622	0.585	(-5.9%)	0.617	(-0.8%)	0.587	(-5.5%)	0.622	(0.0%)	38.8	36.8	(-5.1%)	38.2	(-1.5%)	31.9	(-17.9%)	38.8	(0.1%)
United Kingdom	0.616	0.523	(-15.1%)	0.601	(-2.5%)	0.662	(7.4%)	0.617	(0.1%)	34.3	29.9	(-12.9%)	32.3	(-6.0%)	37.7	(10.1%)	34.4	(0.4%)
USA	0.822	0.710	(-13.6%)	0.762	(-7.2%)	0.792	(-3.5%)	0.828	(0.8%)	63.5	53.5	(-15.8%)	52.4	(-17.5%)	56.6	(-10.8%)	64.3	(1.2%)

Figure B.1: Financial Wealth and Income Component Inequality/Concentration



Notes: Inequality in income (financial wealth) is measured using the gini coefficient. Concentration is measured as the income (financial wealth) share held by the top five percent of the income (financial wealth) distribution. Based on data from the Luxembourg Income Study (LIS) and the Luxembourg Wealth Study (LWS).

Figure B.2: Wealth Inequality and Concentration: Equivalized vs. Non-Equivalized Wealth



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Notes: Inequality in household wealth is measured using the gini coefficient. Concentration is measured as the wealth share held by the top five percent of the wealth distribution.

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