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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 explanations of cross-national differences in wealth inequality by tracing them to the influence of different wealth components. Drawing on the literatures on financialization and housing, we argue that housing equity should be the central building block of the comparative analysis of wealth inequality.

Using harmonized data on fifteen countries included in the Luxembourg Wealth Study (LWS), we first demonstrate a lack of association between national levels of income and wealth inequality and concentration. Using 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.

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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). Influential analytic frameworks and typologies – such as the Worlds of Welfare Capitalism (Esping-Andersen 1990) or Varieties of Capitalism (Hall and Soskice 2001) – have been used to explain why income is distributed more unequally in some countries than in others. An entire industry of scientific work has expanded or critiqued 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 towards connecting the study of wealth inequality to emerging theoretical work that holds explanatory potential. We argue that efforts to construct cohesive institutional explanations of wealth inequality need to pay particular attention to the growing literature on housing and financialization. In line with this argument, our empirical analyses reveal the central role of housing wealth in accounting for national levels of wealth inequality. We show that the composition of asset portfolios and inequality within asset components varies widely across nations and that the distribution of housing equity is most closely related to

overall levels of wealth inequality.

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 consider how more recent literatures on housing and financialization point towards gaps in existing comparative approaches of labor market and welfare regimes that make them unlikely candidates to help explain cross-national variation in wealth inequality. After describing our data, measures, 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. Using a formal decomposition approach that considers all asset components jointly, we reveal the particularly central role of the distribution of housing equity in the explanation of cross-national differences in wealth inequality. We conclude with guidance for future research on the institutional determinants of wealth inequality.

Background and Motivation

Wealth Inequality

Over the last three decades, scholarly interest in the distribution of household wealth has grown substantially (Keister and Moller 2000; Spilerman 2000; Killewald et al. 2017). Research in this area has contributed to and been based on three main insights into the distinctiveness of wealth as a dimension of social stratification: First, wealth is a measure of economic well-being that is partly independent of other, more established indicators of economic status, reflected, for instance, in the far-from-perfect correlation between wealth and income at the household level. An exclusive focus on income will thus provide only a partial picture of economic advantage and disadvantage. Also, such focus understates the degree of inequality in living conditions as estimates of wealth inequality exceed those of

income inequality. Second, wealth is associated with important life-outcomes net of other socio-economic predictors, e.g., with individuals' labor market trajectories, demographic outcomes, and, perhaps most importantly, the socio-economic attainment of following generations (Killewald et al. 2017). Third, the study of wealth may reveal distinct mechanisms that govern the maintenance of inequality: Investigations of the determinants of household wealth should simultaneously consider contemporary as well historical explanations since wealth reflects the accumulation of advantage across both time and generations (e.g., Oliver and Shapiro 1995). Investigations of the consequences of wealth have pointed to its unique role in providing a safety net to buffer economic shocks and in the intergenerational maintenance of inequality (e.g., Haellsten and Pfeffer 2017).

If wealth is important to our understanding of the distribution of economic well-being across households, it should also be central to the cross-national comparative study of inequality. First, cross-national comparisons based on wealth reveal a higher degree of inequality in living conditions, including in those countries that are relatively more equal in terms of income. Second, a neglect of wealth in comparative work risks neglecting important inequalities in life-outcomes, such as intergenerational inequalities, not only within the very wealthy elite but also across broad swaths of the population. Third, a focus on wealth may not only reveal new stratification mechanisms at the individual-level but, as we will argue in more detail below, also lead us to identify new institutional determinants of inequality.

Wealth and Income 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 mea-

sures 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 and the Global Wealth Databook): wealth inequality varies greatly across countries, and there is no clear correlation 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 empirical concerns may be raised: First, given the highly skewed distribution of wealth with a sizeable 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.[1] We therefore also consider 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.

[1] 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.

Determinants of National Levels 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 and portfolio structure, revealing a similarly surprising lack of associations (Bover 2010; Christelis et al. 2012; Cowell et al. 2018; Sierminska and Doorley 2018). Macro-structural drivers of wealth inequality are also the focus of Piketty's explanation of trends in wealth inequality with the now-famous claim 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 (but see also Acemoglu and Robinson 2015).

Overall, then, the few existing empirical studies geared at identifying macro-structural determinants of wealth inequality have thus far 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. We believe that the lack of progress in *explaining* cross-national variation in wealth inequality stems from a lack of theoretical and empirical attention to separate components of household wealth. In the section below, we draw on two strands of research that help motivate a renewed focus on housing wealth as the central dimension of wealth inequality. The empirical centrality of housing in national wealth portfolios has been noted in prior research (e.g.

Davies and Shorrocks 2000; Christelis et al. 2012; Skopek et al. 2012; Doorley and Sierminska 2014; Cowell et al. 2017; Sierminska and Doorley 2018). In this contribution, we empirically relate cross-national differences in wealth inequality and wealth portfolios. We quantify the role of housing wealth in accounting for cross-national differences in wealth inequality and argue that it provides us with theoretical leads on the institutional bases of wealth stratification.

Wealth, Housing, and Financialization

The most common definition and measure of household net worth, which we also use here, sums households' financial assets, housing assets, other real assets, and subtracts their debts. Within such wealth portfolio, the most widely held components are housing assets and mortgages (Davies 2008; Wolff 2017). *Prima facie*, these assets and debt obligations should therefore also play a substantial role in determining a country's overall level of wealth inequality. Beyond this empiricist observation, in this section we derive theoretical expectations about the central role of home ownership and mortgage debt from emerging and complementary literatures in housing research and political economy. We begin by discussing work that assesses cross-national variation in housing regimes and its (non-)relationship to comparative stratification research. As housing markets are closely intertwined with national lending regimes through mortgage financing (Aalbers 2016; Quinn 2019), we proceed to argue for the relevance of a micro-level orientation of the broad and quickly expanding literature on financialization to also help make sense of international differences in wealth inequality. That is, we put our theoretical focus on strands of research that motivate an exposed role of housing assets and mortgages.

We do not mean to imply that other asset components are of inherently less theoretical interest in terms of their relationship to cross-national differences in wealth inequality. Certainly, in many countries, financial assets play a central role in the concentration of eco-

nomic advantage at the very top (Piketty 2014; Godechot 2016). The same can be said about business assets. Both of these wealth components should be centered in theories of economic elites (Savage 2015) and, correspondingly, have been central to the study of wealth concentration not just among the top one percent, but especially among the top 0.1 percent (Saez and Zucman 2016). In contrast, our analytic interest is in wealth inequality as a population-wide phenomenon; in a sense, inequality among the remaining 99 percent. As we mostly draw on nationally representative survey data, financial elites and large business owners are largely missing from our data (more details below), similar to the absence of proper capitalists from applied social class analyses (Erikson and Goldthorpe 1992: p. 40). Finally, other wealth components that are typically missing from measures of net worth, such as pensions assets, may call for additional theoretical and empirical extension to our work, a point that we will revisit below.

Housing and Comparative Stratification Research

Not only is there mounting evidence on the central 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 attention in comparative research to housing as a central part of the political economy (Schwartz and Seabrooke 2009; Aalbers and Christophers 2014; Ansell 2019). This focus has generally been slow to develop as research on housing has long been "isolated from theory and from wider issues of welfare" (Kemeny 2001: p. 68; see also Kohl 2018). Described as the "wobbly pillar under the welfare state" (Torgersen 1987), the status of housing in modern welfare states is indeed ambiguous as, in capitalist societies, the universal right for shelter is typically not met by public provision but instead supported by subsidized private ownership. As a consequence, the long-time dominant paradigm of welfare state research, Esping-Andersen's "Worlds of Welfare" (1990), also paid no particular attention to housing. Early empirical research on the relationship between housing and welfare state regimes had considered widespread home ownership as a substitute for strong

welfare states (Kemeny 1981; Castles 1998). In contrast, more recent analyses have shown that, today, strong welfare states also show higher levels of home ownership (Ansell 2014; van Gunten and Kohl 2020).

In spite of this correlation between ownership rates and welfare state generosity, the cross-national variation in housing markets defies classification along the lines of traditional welfare state typologies (Blackwell and Kohl 2019). The identification of independent housing regime types is thus a growing area of research. Recently proposed typologies of housing regimes focus on the structure of mortgage markets (Blackwell and Kohl 2018; 2019) and a broader set of regulations that define who can gain access to homeownership (Wind et al. 2017). These efforts are likely to expand as housing markets vary along multiple dimensions, including the historical legacy of public investment into the housing stock, the structure of subsidized rental housing, tenure rules, the regulation of the construction market, the tax treatment of housing assets, and, most importantly, the regulation of access to mortgages (Schwartz and Seabrooke 2009; Aalbers 2016; Blackwell and Kohl 2018).

However, even this more recent comparative literature on housing has not put the resulting housing typologies in service of explaining broader patterns of economic inequality. In some ways, then, the initial disconnect between housing research and comparative stratification research persists. This is to the detriment of both fields: Housing research could profit from a more direct analysis of distributional outcomes beyond homeownership rates. Comparative stratification research would be well advised to expand beyond its conceptual and empirical focus on distributional outcomes determined on the labor market (see also Adkins et al. 2020; Kurz and Blossfeld 2004). We believe that a focus on housing is particularly helpful to reorient our understanding of wealth inequality. In a similar vein, in response to Piketty's *Capital*, a number of economists have argued that attention to housing assets and returns stands to alter our conclusions about the determinants of wealth inequality (Bonnet et al. 2014; Rognlie 2015; Knoll et al. 2017; Jorda et al. 2019; Fuller et al. 2019). This focus on housing, however, cannot rest solely on the analysis of ownership rates or even housing

prices. It also demands the consideration of credit and debt in the form of mortgages (Dwyer 2018; Quinn 2019; Ansell 2019). The fact that housing markets and mortgage markets are intimately intertwined has, of course, been painfully illustrated by debt-driven bubbles in housing prices (see Krippner 2011; Schelkle 2012; Schwartz 2012).

Mortgages and Financialization

The expansion and deregulation of debt and mortgage markets has figured centrally in the quickly expanding literature on financialization. As a wide field of investigation, financialization studies have pursued explanations of broad-scale economic transformations at multiple levels of analysis, from the financialization of entire economies (macro level) to the increasing reliance of companies on financial markets (meso level) to the economic behaviors of households (micro level) (van der Zwan 2014). With regard to wealth inequality, two perspectives are most relevant to our analysis: First, the role of financialized mortgage markets and, second, the spread of finance culture among households.

The macro-level perspective on financialization focuses on credit and mortgage markets as the supply side of the political economy (Aalbers and Christophers 2014; Quinn 2019). For the United States, scholars have argued that 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). The deregulation of financial markets has also bolstered the increase of housing-based lending in other countries (Fuller 2015; Jorda et al. 2016; Baccaro and Pontusson 2016). While some countries, including the U.S., have relied on the expansion of credit to buffer lacking or decreasing welfare spending (Prasad 2012), the increase in housing credit also occurred in more generous welfare states. For instance, Sweden and the Netherlands have seen the most pronounced rise in mortgage credit, even more so than the U.S. or the UK, indicating that more protective labor markets can also facilitate borrowing on financialized housing markets (Johnston et al. 2020).

The micro-level perspective on financialization provides the complementary demand-side

argument: As the deregulation of financial markets progresses, households develop "financial cultures" that shift their asset portfolio towards leveraging debts for investment. The spread of finance culture among U.S. households, the poster child of financial culture (Fligstein and Goldstein 2015; Harrington 2008), has been related to increased status competition behavior. Frank (2013) hypothesizes "expenditure cascades" in which households invest ever more in their homes, reflected in the rapid increase in average home size over the last decades. The deregulation of the mortgage market not only sustained a mortgage-fueled arms race of the middle class (Fligstein et al. 2017; Goldstein and Hastings 2019), but it also enabled the expansion of mortgage credit to other populations, in particular minority households and on predatory terms (Rugh and Massey 2010; Taylor 2019). Increases in credit market participation also occurred in other countries (Rona-Tas and Guseva 2018). Here, too, increased credit participation has been driven by rising mortgage debt (Johnston et al. 2020). For many households, leveraging housing may in fact be economically rational as returns to housing investments have outperformed those to financial assets in the long run (Jorda et al. 2019). In non-U.S. contexts, mortgage debt has risen chiefly through intensifying, rather than extending, mortgage participation, i.e. due to households borrowing more rather than more households borrowing (van Gunten and Navot 2018).

Notably, and somewhat surprisingly, research on financialized mortgage markets and on the financial cultures they produce has only just begun to explicitly consider their relationship to distributional outcomes. Empirical investigations of the link between financialization and stratification outcomes have focused on income concentration rather than on wealth inequality (Tomaskovic-Devey and Lin 2011; Lin and Tomaskovic-Devey 2013; Godechot 2016; Flaherty 2018), which we find surprising given the obvious empirical link between mortgage lending and net worth.

The housing and financialization literatures discussed above argue for the centrality of housing assets and mortgages, respectively, for our understanding of the political economy

and households' economic conditions. The interactive forces of housing and credit regimes are encoded in the national distribution of housing equity. In this contribution, we provide a detailed comparative assessment of wealth portfolios and the role of specific wealth components in determining national levels of overall wealth inequality and concentration. Based on our review above, we expect a particularly pronounced role of housing equity in explaining cross-national differences in wealth inequality. By analyzing the relationship of housing equity (and other asset components) with overall levels of wealth inequality, we also bring the housing and financialization literatures into direct conversation with comparative stratification research, whose primary attention lies on eventual distributional outcomes. In particular, our analyses expand upon the exclusive focus on national income distributions that characterize both the established welfare state literature and the early-stage literature on financialization's effects on inequality.

Analytic Approach

Data and Sample

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 2020; Sierminska et al. 2006) ameliorates this situation by providing harmonized, population-representative wealth data, expanding upon the long-standing collection of harmonized income data from the Luxembourg Income Study (LIS). Unlike the Household Finance and Consumption Survey (HFCS) it also includes non-European countries (see Table A.1; LWS also includes some HFCS surveys). Using LWS (wave 9), we can compare wealth and income inequality across 15 countries: Austria, Australia, Canada, Finland, Germany, Greece, Italy, Luxembourg, Norway, Slovakia, Slovenia, Spain, Sweden, the United Kingdom, and the United States.[2] Appendix Table A.1 provides

[2]We have to exclude Japan from our analyses because it lacks a comparable measure of net worth.

an overview of the countries, underlying data sources, and measurement years.

For most countries, LWS wealth measures are derived from existing, high-quality nationally representative survey data. Survey measures of household wealth rely on a battery of questions that ask respondents to estimate the value of their wealth holdings, separately for different asset components, namely a variety of *financial assets* (such as savings accounts, stocks, other financial instruments), *non-housing real assets* (business, vehicle, other durables, etc.), *housing assets* (primary home and other real estate), and *debt* (mortgages, business loans, consumer loans, educational loans, etc.). Typically, respondents are asked to separately report on the value of an asset and any debts held against it. For instance, home-owning respondents are asked to estimate the current market value of their home and the remaining mortgage principal held against it. We can compare structures of wealth portfolios for all countries included here, with the exception of Norway and Sweden, where the data do not allow for the separation of mortgage debts from other debts. For Norway and Sweden, wealth data have also been ascertained from wealth tax registers (more on that below).

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. We know that U.S. wealth inequality has expanded significantly during the Great Recession (Pfeffer et al. 2013; Wolff 2017). For six countries, including the U.S., we can also draw on pre-recession measures of wealth. These robustness analyses are reported in Online Supplement S.1. They leave our overall conclusions about the international ranking of wealth inequality, in particular for the United States and Sweden, as well as our conclusions about the centrality of housing substantively unaltered.

We restrict our sample to households (with heads) of working age (25-64). Doing so is important for two reasons: First, it captures the current circumstances of households actively engaged in both income production and asset accumulation and, thereby, the poten-

tially more proximate institutional determinants of current wealth holdings. Second, prior comparative work has focused on wealth inequality and asset portfolios among the aging population, largely because this work has exclusively focused on wealth and not income (e.g. Christelis et al. 2012; Skopek et al. 2014). However, we know from other work that there are important differences in the wealth portfolios of 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; Pfeffer et al. 2019). Readers may also be interested in different age restrictions, e.g. lifting them altogether to provide estimates of overall wealth inequality or, in contrast, restricting them in other ways, e.g. comparing households earlier and later in their wealth accumulation trajectory. In Online Supplement S.2, we provide estimates based on these alternative sample restrictions. Estimates are very similar to those reported here and leave our substantial conclusions unaltered. That is, any age differences in wealth inequality and concentration within countries are eclipsed by cross-national differences in wealth inequality and concentration (see also Pfeffer and Waitkus 2020).

Data Quality and Limitations

The national data underlying the LWS have been collected using different sampling strategies, survey instruments, and data editing and imputation procedures (see Sierminska et al. 2006). LWS seeks to make the resulting wealth data cross-nationally comparable following a similarly meticulous ex-post harmonization process as that developed over decades within the Luxembourg Income Study. Although ex-post harmonization, naturally, cannot account for and correct all country-specific data idiosyncrasies, the continued improvement of harmonization efforts for wealth data is certainly one important frontier of future wealth research. For instance, instead of relying on imputation algorithms developed and applied by national data providers (namely, in Austria, Germany, Greece, Luxembourg, Slovakia, Slovenia, Spain, and the U.S.), LWS could seek to provide harmonized imputation approaches for

its wealth data. While we have no a priori reason to suspect that this kind of data improvement would fundamentally alter the findings presented here, there are two more specific potential data issues, one technical and one substantive, that are worthwhile considering for the potential bias that they may induce.

First, most of the data used here come from household surveys that rely on self-reported asset information and, hence, confront the general problem of non-response and underreporting. There is evidence that financial assets in particular, which are more heavily concentrated at the top of the wealth distribution, tend to be underestimated in surveys. The resulting underestimation of net worth at the top chiefly arises from item and unit non-response, with the wealthiest households less likely to respond to a particular survey item or the survey itself (Johansson and Klevmarken 2007; Vermeulen 2016; HFCN 2016). As stated before, population-representative surveys are without a doubt likely to miss the super wealthy. Our reported measures of wealth concentration (and, less so, wealth inequality) may therefore be conservative. The more important question, however, is whether the degree to which we underestimate wealth at the very top varies across countries in a way that may bias our comparative conclusions. In particular, one may be worried that countries reporting higher estimates of wealth inequality and concentration are simply more successful in measuring wealth at the top. For countries that rely on surveys that success could be based on effective oversampling strategies (which, in principle, we account for via survey weights). The seven countries in our sample that include oversamples of rich or high wealth households (namely, Greece, Finland, Luxembourg, Slovakia, Slovenia, Spain, and the U.S.) are, however, spread across the international ranking of wealth inequality and concentration (most of them in the middle, one at the bottom, one at the top). That is, it is *not* the case that countries with oversamples of wealthy households also tend to show higher wealth inequality or concentration. The worry about higher data quality leading to higher estimates of wealth concentration may still apply to those countries where wealth estimates can be derived from administrative records. Sweden and Norway, where wealth tax records and other adminis-

trative data are available to estimate net worth, indeed show comparatively high (but by no means exceptional) levels of wealth concentration. However, as will be shown in our results section, the questionable distinction of international leadership in wealth concentration is held by another country for which we draw on survey data. Online Supplement S.3 goes beyond this consideration of bias from distinct data collection strategies and reports additional analytic approaches that add credibility to our comparative conclusions: (i) Based on limited opportunities for external validity checks, we do not observe a systematic bias of wealth inequality and concentration estimates based on LWS data; (ii) reasonable assumptions about measurement error suggest that our cross-national comparison of wealth and income inequality is likely to be stable; and (iii) undercoverage of top wealth would have to be unreasonably large to explain the degree of wealth concentration in the outlier nation of our data.

Second, as another measurement as well as conceptual challenge, we note the absence of pension assets from the LWS wealth data and most national surveys it relies on. The design of national pension systems differs greatly across industrialized countries, including in terms of the mix of private, employment-based, and public pension entitlements (Ebbinghaus 2011). But even before taking into account this cross-national variation, it is empirically and conceptually challenging to approximate the current value of pension entitlements. Few empirical studies exist that seek to construct measures of *augmented* net worth by imputing the current value of both public and private pension entitlements (based on assumptions about long-term investment returns, mortality patterns, and other error-prone components). This work shows that the addition of pension wealth can indeed alter estimates of wealth levels and inequality (for evidence from a U.S.-German comparison see Boenke et al. 2020). It is entirely possible that the international ranking of inequality in augmented net worth will deviate from that in net worth. For instance, we would expect inequality in augmented wealth to be particularly less severe in countries with comparatively generous public pension systems and thus a more equal distribution of pension wealth, such as Sweden (Sierminska et al.

2006). Based on the available data, we cannot take into account public pension entitlements but, to a limited degree, private and occupational pensions. In Online Supplement S.4 we show that wealth inequality measures remain very stable when integrating occupational or private pensions or both and the cross-national ranking remains unaltered. In our analysis, we assess privately held wealth of the working age population. For a range of outcomes – such as the ability to smooth current consumption – we consider currently held private wealth, or *marketable wealth* (Davies and Shorrocks 2000), a more meaningful indicator than augmented wealth, particularly public pension wealth which is typically inaccessible before retirement and not transferable to future generations.

Main Measures

Our main measure of wealth is households' net worth, composed of the sum of housing equity (home value minus mortgages), financial assets (such as savings, stocks, investment funds, etc.), other non-housing real assets (business equity, vehicles, other durables, etc.), minus any other financial liabilities and debts (consumer loans, student debts, etc.); see also Appendix A.4. Our assessment of wealth portfolios distinguishes these same components: housing equity, financial assets, other non-housing real assets, and other debts. Our theoretical motivation argued for a central role of housing wealth, which we capture in our measure of housing equity. Housing equity is a combined measure of the value of homes owned by the household (owner-occupied, secondary homes, and any real estate) minus the value of remaining mortgage principal(s). This combined measure reflects our theoretical interest in the interwoven influence of housing markets and financialization as they mutually determine the distribution of housing wealth. In other words, we do not believe that further decomposing our housing equity measure into its linear components, home values and mortgages, would be meaningful given the interactive dynamics of housing and mortgage markets (but see Online Supplement S.8).

We measure household income as households' total sum of income from labor, public

transfers, private transfers, asset income, as well as the total value of non-monetary goods and services received from labor and transfers. In additional analyses (see Online Supplement S.7), 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).

Our wealth and income measures are neither top- nor bottom-coded; that is, they include zero and negative values. Both wealth and income are adjusted for household size ($\frac{1}{\sqrt{hsize}}$).[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. All analyses are weighted using the LWS-provided survey weights.

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 separately for gross wealth and debts (and, in additional analyses reported in Online Supplement S.7, for selected income and wealth components).

Second, we turn to a formal factor 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.

[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 Supplement S.5).

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 total wealth, R_{ik}.[4] Lerman and Yitzhaki show that R_{ik} has similar properties to a Pearson's rank 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 wealth gini coefficients (e.g., Azpitarte 2008; Skopek et al. 2012; Davies et al. 2017), we additionally draw on a new and parallel 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 compo-

[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."

nent 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 can be directly compared across countries in Appendix Table A.4. But to pursue a more formal cross-national comparison, we draw on these estimates as inputs into a simulation (or "counterfactual") analysis. We fix (or "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 – holding constant 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 fixed parameter estimates, we then generate a simulated total wealth gini coefficient (top share) for each country. In the case just described, such simulated 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 simulation analysis by fixing 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

[5]We chose to fix 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 and concentration. 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 – Slovakia as the country with the lowest level of wealth inequality and concentration, less developed financialization, and high home owernship rates. The substantive conclusions are unaltered and reported in Online Supplement S.6.

in wealth portfolios and gini correlations (alignment coefficients) remained as observed. The more similar the simulated wealth inequality (concentration) across countries, the greater the contribution of these different aspects of the wealth distribution to the observed cross-national variation in wealth inequality (concentration).

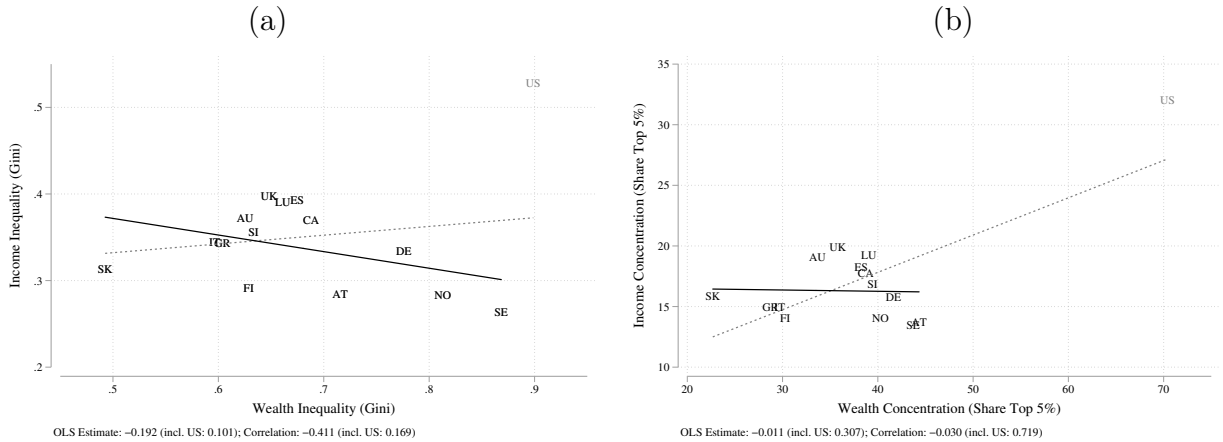
Results

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 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 0.130 gini points higher than that of the second-most income-unequal country included here, the UK (0.398), 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 -0.411). 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 0.776) 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.

Figure 1: Wealth and Income Inequality and Concentration



Notes: Data from the Luxembourg Wealth Study (LWS). 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.

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 the concentration of economic advantage.[6] Top-heavy measures of inequality may reveal a closer 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

[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).

(correlation of -0.030). 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.[7] In the four 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 list of countries with the highest concentration of wealth is drawn from all three "worlds of welfare capitalism:" the liberal (U.S.), the social-democratic (Sweden and Norway), and the conservative case (Austria and 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. For instance, among liberal regimes only the United States reports both very high levels of wealth and income inequality, whereas we observe only average levels of wealth inequality and concentration in the UK, Canada, and Australia.

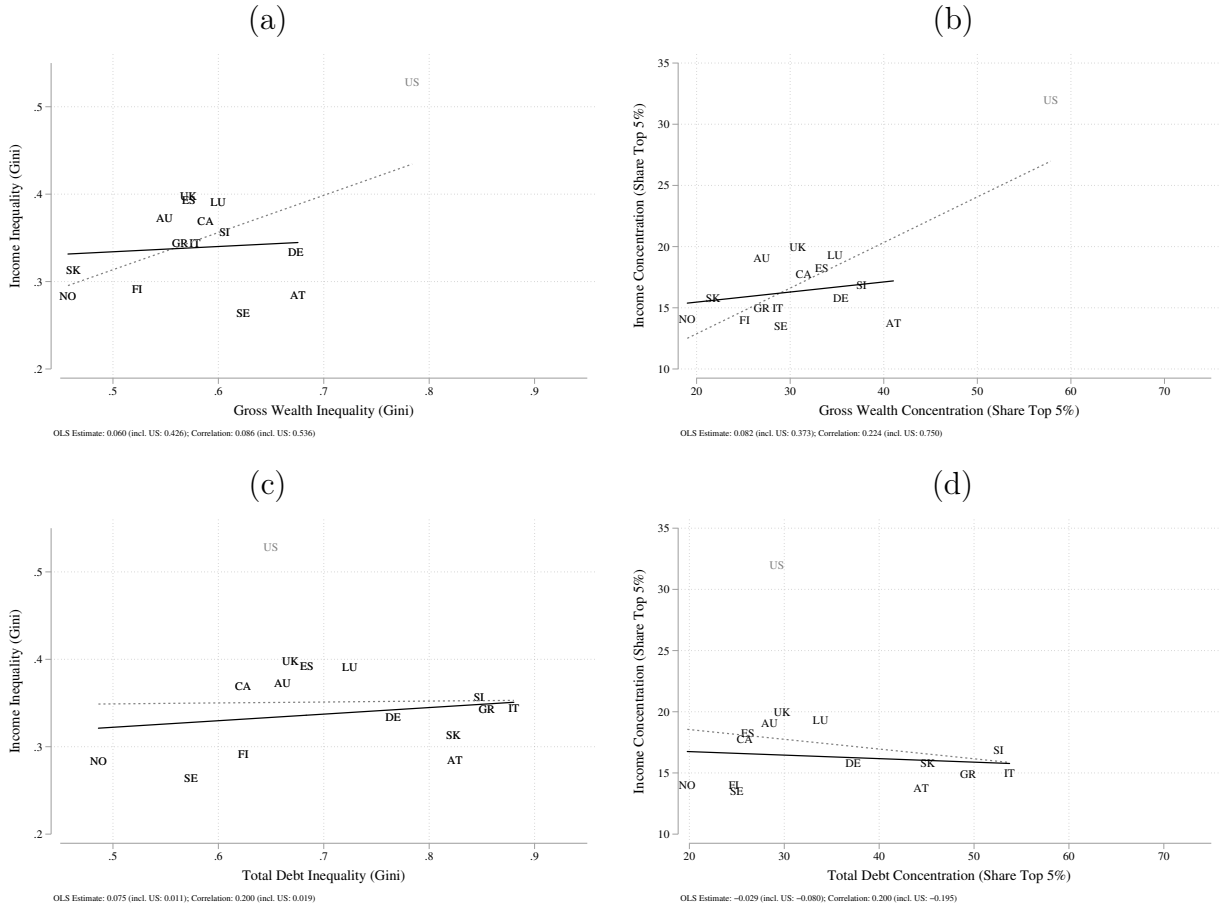
We further explore whether our approach obscures a potential correlation between wealth and income by relying on net worth as our indicator of wealth inequality. In theory, the lack of correlation could be consistent with countervailing correlations between income inequality and inequality in assets (gross wealth) versus liabilities (debts).[8] For instance, income inequality could be positively correlated with gross wealth inequality and negatively with debt inequality. However, as Figure 2 shows, this is not the case. When correlating income inequality (concentration) with gross wealth inequality (concentration), on the one hand,

[7]We note that the U.S. is marked by extreme levels of racial inequality in wealth (Oliver and Shapiro 1995). However, we should point out that the high level of wealth inequality and concentration in the U.S. is not solely a reflection of racial wealth gaps: High between-race wealth inequality co-exists with high within-race wealth inequality. For instance, wealth inequality is nearly equally high when re-estimated among white households only (gini coefficient of 0.881 compared to 0.899 for the full population and top five percent share of 69.0 vs. 70.4 for the full population). Of course, this does not imply that high wealth stratification and concentration emerged outside of structures of racism and white supremacy; indeed, the latter enabled the former (see Darity and Mullen 2020).

[8]We thank a reviewer for this insight.

and with debt inequality (concentration) on the other, we still find no association between these income- and wealth-based measures of economic inequality.

Figure 2: Gross Wealth and Total Debt vs. Income Inequality (Concentration)



In a final 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 (see Online Supplement S.7). 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 and concentration of asset income and financial wealth (in fact, the relationship is somewhat more consistent, though still low, for labor income

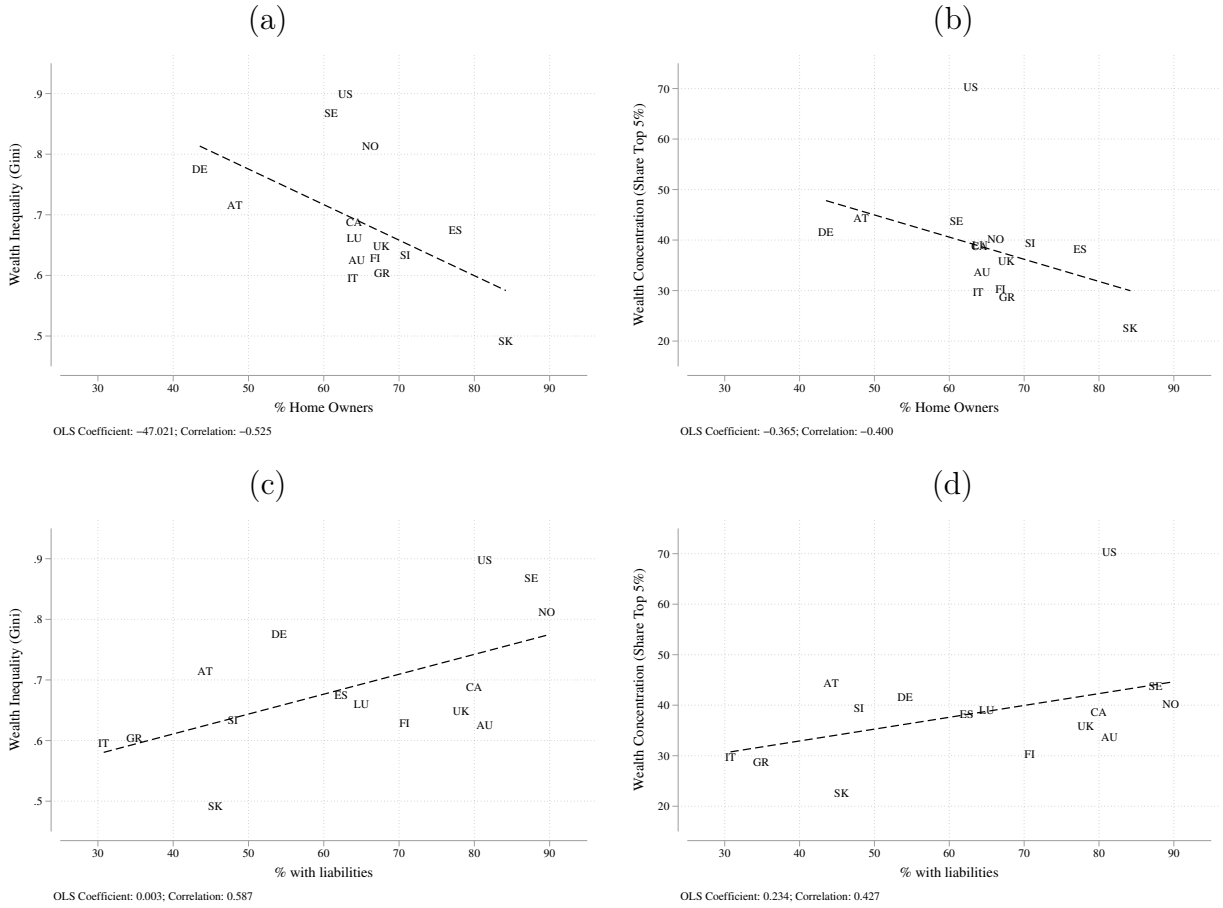
rather than asset income; see Online Supplement Figure S.6).

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. Similar to the way in which 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).

Figures 3a and 3b 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 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

Figure 3: 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).

Germany and Austria, or substantially broader homeownership, namely Slovakia. The very high homeownership rates in Slovakia likely result from the quick sell-off of state-owned rental blocks after the end of socialism (Ronald 2008: p.20). Slovakia, in turn, is also the most wealth egalitarian country in our sample. Overall, however, we note that cross-national variation on home ownership rates is considerably less pronounced than variation in overall wealth inequality.

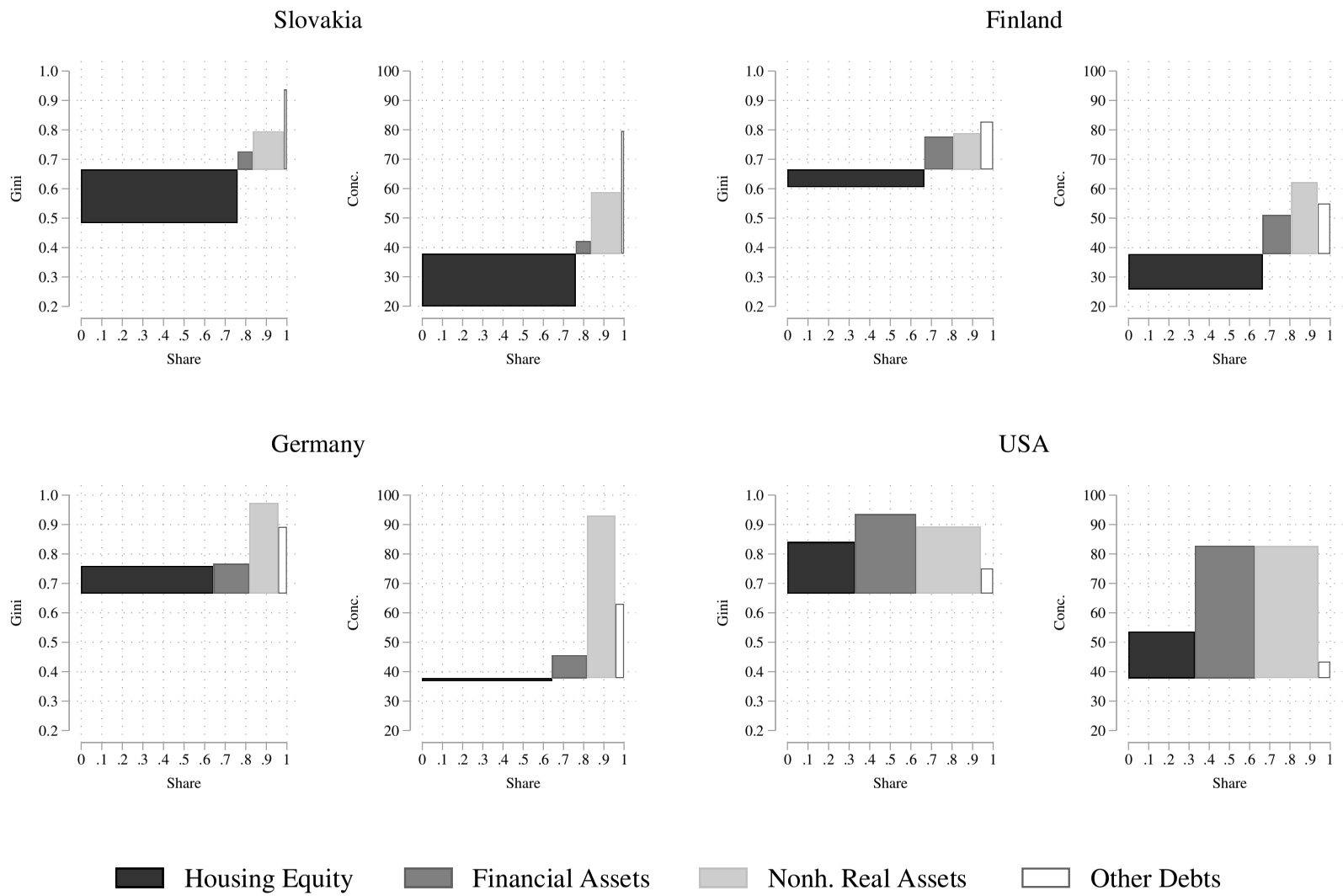
Of course, for most households, homeownership entails borrowing via mortgages. One may therefore expect that the share of households with financial liabilities, of which mortgages are one important form, would show a similar relationship to national levels of wealth

inequality and concentration to that of national homeownership rates. That is not the case, as displayed in Figures 3c and 3d: On average, countries with more widely spread debt obligations are also countries with higher levels of wealth inequality and concentration, though the relationship is somewhat less pronounced than the just presented associations with homeownership rates. 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 of housing and debt, in the form of housing equity, that we engage in next. We note, once more, that Sweden and Norway cannot be part of such analysis as the administrative wealth data from which LWS draws 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 in their relationship with overall wealth inequality and concentration: First, the relative share of each asset component, i.e., the average composition of wealth portfolios – or, in the language of factor decomposition analysis, the *"composition effect."* Second, the distribution of wealth within each asset component, i.e., the component-specific level of wealth inequality and concentration – in decomposition analysis often called the "structural effect."

Figure 4: National Wealth Portfolios and Within-Component Inequality



Description of decomposition components

As a backdrop to our decomposition analysis, Appendix Table A.4 reports descriptive estimates for both of these aspects, the composition of national wealth portfolios and within-component levels of wealth inequality and concentration. In Figure 4, we visualize these estimates for four select countries, representing comparably wealth-egalitarian contexts (Slovakia and Finland) and contexts with very high wealth inequality (Germany and the U.S.). The bar width in these figures indicates the portfolio share of a given asset component in a country, while the bar length indicates the level of inequality/concentration within a given asset category in relation to the international (unweighted) mean of total wealth inequality/concentration (that is, if the bar goes down, a given asset component is distributed more equally than average total wealth inequality). The resulting area of a given bar therefore provides a first indication of the degree to which a given asset component may contribute to a country's overall level of wealth inequality/concentration. For instance, one immediate visual impression in Figure 4 is the centrality of housing equity as a central component of Slovakian households' asset portfolios and the fact that it is much more equally distributed than average total wealth inequality. In contrast, other debts in Slovakia are marked by comparatively very high levels of inequality and concentration; however, their quantitative contribution to the average wealth portfolio in Slovakia are still minuscule (the patterns for Finland go in the same direction but are less pronounced). The visual impression for the U.S. case is strikingly different: Several asset components, namely housing equity, financial assets, and non-housing real assets, contribute to households' wealth portfolio to a similar degree (at least in terms of the gini coefficient) and in the same direction: All three components are substantially more unequally distributed than total wealth for the average country. Another illustrative case is Germany, where we can observe the dominance of concentrated non-housing real assets (likely, business wealth) for total wealth concentration.

Extending our perspective beyond these four cases to all countries (based on Appendix Table A.4), we point out a few first descriptive insights: While housing equity dominates

the wealth portfolio in most countries, we also observe large cross-national variation in the average importance of housing. It is lowest in the United States, where the wealth portfolio is most diversified (as visualized in Figure 4). On the other side of the continuum are Slovakia and Greece, where 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, Luxembourg, 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 in Germany (see also Figure 4), 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), though direct cross-country evidence is rare. 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. Luxembourg stands out with a very high financial asset concentration. 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 percent, in Canada, Germany, Finland, and the United States.

Decomposition of Main Components

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

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	Simulated	(change)	Simulated	(change)	Simulated	(change)	Observed	Simulated	(change)	Simulated	(change)	Simulated	(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	0.711	0.713	(0.3%)	0.770	(8.3%)	0.744	(4.5%)	39.2	46.1	(17.5%)	52.0	(32.6%)	41.8	(6.6%)
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%)
Luxembourg	0.649	0.652	(0.5%)	0.799	(23.1%)	0.660	(1.7%)	38.5	44.9	(16.5%)	54.7	(42.0%)	38.3	(-0.6%)
Slovakia	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%)
Spain	0.654	0.668	(2.2%)	0.781	(19.4%)	0.686	(4.8%)	37.2	43.5	(16.8%)	54.7	(46.9%)	39.4	(5.9%)
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%)

distribution of wealth within each asset component, on the other hand, Table 1 reports the results of our first decomposition analysis. Starting with wealth inequality, the first column reports the observed gini coefficient of total wealth (cf. footnote 4) and the following columns report simulated gini coefficients. The latter are derived from fixing a given component of the decomposition. For instance, in (1) we impose the same asset shares on all countries or, more precisely, we calculate the simulated gini coefficient that would arise if all countries had the same asset portfolio composition as the United States but no other aspect of the national distribution of wealth changed.[9] Similarly, we compute simulated gini coefficients that arise when (2) we hold within-component inequality constant at the levels of within-component inequality observed in the United States while allowing the shares (wealth portfolios) and gini correlations to vary across nations. And, finally, (3) we fix only the gini correlations to match those observed in the United States. By comparing simulated and observed gini coefficients, we can assess the importance of each component of our decomposition: Where simulated and observed gini coefficients are similar, the assignment of a particular feature of the wealth distribution (e.g., imposing the U.S. wealth portfolio structure, as in model 1) does not help explain cross-national variation in wealth inequality. If, in contrast, simulated and observed gini coefficients and simulated gini coefficients are more similar across nations than observed gini coefficients, the assignment of a particular feature of the wealth distribution (e.g., imposing the U.S. level of within-asset component inequality, as in model 2) accounts for some of the cross-national variation in total wealth inequality.

The immediate conclusion from the comparison of observed and different simulated gini coefficients is that levels of wealth inequality are accounted for most strongly 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

[9] In Online Supplement S.6, we provide a stability analysis based on the most wealth egalitarian country, Slovakia, as the reference case, which yields the same substantive conclusions.

decrease overall wealth inequality). It is worth pointing out that the limited impact of assigning U.S. wealth portfolios to all other countries is not due to relative cross-national similarity in observed portfolios. As discussed earlier and illustrated in Figure 4, the U.S. wealth portfolio in fact stands out as quite distinctive from all others. And, yet, this feature 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 not only accounts most strongly for national levels of wealth inequality, but, importantly, imposing the U.S. level drastically reduces the simulated cross-national variation in wealth inequality. In other words, based on 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, Slovakia, 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 seven percent below that of the United States (0.762 vs. 0.822).[10] In other words, our decomposition analysis clearly documents that differences in *wealth structure* (within-asset inequality) not *wealth composition* (portfolio shares) underlie 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 simulated levels produced in models (4)-(6) of Table 1 generally confirm the dominating role of *wealth structure* (compared to *composition*). 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

[10]The country where imposing U.S. levels of within-component inequality exerts the lowest influence is Germany where the simulated gini coefficient lies just eight percent above its observed gini coefficient. This is not surprising as we learned from Figure 4 that within-component levels of inequality in Germany are generally high and similar to those of the Unites States. Yet, in relative terms, imposing the same within-component inequality still accounts for the largest portion of Germany's wealth inequality.

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 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 Slovakia, 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 (*wealth composition*) does underlie some of the cross-national variation in overall wealth concentration, but that the within-asset component wealth distribution (*wealth structure*) is still central to accounting for cross-national differences in even wealth concentration and, certainly, wealth inequality.

Decomposition by Asset Type

As cross-national differences in within-asset component inequality most strongly account for cross-national differences in wealth inequality and concentration, the natural next question is whether we can trace these cross-national differences to the distribution of a specific *asset type* (housing equity, financial assets, non-housing real assets, or other debt). To address this question, we engage in another counterfactual decomposition analysis, reported in Table 2. Again, we show simulated gini coefficients and simulated top concentration measures, this time generated by fixing just a single coefficient of the decomposition model, 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 distribution of housing equity most strongly accounts for cross-national differences in wealth inequality and concentration. Holding all other aspects of nations' wealth distributions constant – that is, the overall asset portfolio composition,

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-Housing Assets		Other debts		Housing Equity		Financial Assets		Non-Housing Assets		Other debts	
	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)	Simulated	(change)	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)	Simulated	(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	0.0
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	0.0
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	0.0
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	0.0
Germany	0.711	0.761	(7.0%)	0.733	(3.1%)	0.701	(-1.5%)	0.709	(-0.3%)	39.2	49.2	(25.5%)	43.5	(10.9%)	38.0	(-3.1%)	38.9	0.0
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	0.0
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
Luxembourg	0.649	0.780	(20.2%)	0.661	(1.9%)	0.657	(1.2%)	0.648	(-0.2%)	38.5	51.0	(32.2%)	41.2	(7.0%)	39.9	(3.4%)	38.3	0.0
Slovakia	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	0.0
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	0.0
Spain	0.654	0.765	(16.9%)	0.666	(1.9%)	0.660	(0.9%)	0.652	(-0.2%)	37.2	50.6	(35.9%)	39.8	(6.9%)	38.9	(4.5%)	37.1	0.0
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 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 underlying factor accounting for overall levels of wealth inequality and concentration. If the distribution of housing equity in all countries was equal to that in the United States, all countries included here (except the UK) would display a level of total 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 of 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 positively contributes to overall wealth concentration, though still much less (again with the exception of the UK) than the concentration of housing equity. In contrast, imposing U.S. levels of concentration in non-housing real assets produces a slightly more equal overall level of wealth concentration in Germany, where business equity is even more highly concentrated than in the United States. Finally, only in Australia, Finland, Germany and the UK do we observe any appreciable contribution (10 percent or higher change) of the concentration of financial assets to overall wealth concentration.

Summary

Overall, the decomposition results reported here establish a dominant contribution of the distribution of housing equity to cross-national differences in wealth inequality and concentration. Rather than the differential allocation of wealth across types of assets, i.e., cross-national differences in wealth portfolios, differences in the inequality and concentration *within* housing wealth account for much of the cross-national variation in overall wealth inequality and concentration. This finding is in line with our theoretical expectations developed earlier, where we argued 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 emerge from different processes besides just differences in home ownership rates (which we have shown to be negatively related to wealth inequality and concentration): Housing equity is jointly and interactively determined by the structures and dynamics of housing markets and mortgage markets (Aalbers 2016; Blackwell and Kohl 2018). 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 housing values and mortgages are interactively determined: mortgage markets impact home prices and real estate investments interact with the price of and access to owner-occupied housing. Some readers may be interested in an assessment of the relative contribution of each constitutive element of housing equity, namely owner-occupied home values, real estate values, and mortgages. We believe that the task of delineating the separate contribution of each of these is difficult as they are interactively determined. As a corollary, results from additive decompositions of their relative contribution should also be interpreted with great caution. For the adventurous, we nevertheless provide the results from such analysis in Online Supplement S.8.

Conclusion

While advanced capitalist societies are marked by high levels of inequality in household wealth as well as concentration of wealth in the hands of a few, considerable variation exists in the extent of national levels of wealth inequality and concentration. Yet, current knowledge about national patterns and determinants 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. International differences in income inequality tell us close to nothing about

international differences in wealth inequality, as we have shown here. In fact, many countries that we customarily describe as comparatively egalitarian using 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.

This contribution takes but one first step in this direction by carefully investigating the role of different asset components in accounting for 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 how the distribution of different types of assets relates to 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 accounting for overall wealth inequality. A country's distribution of housing equity explains its overall level of wealth inequality and concentration to a substantial degree,

including both the outlying position of the United States as well as the overall variation across many different countries. This is not to say that the strong concentration of financial assets and business equity at the top of the wealth distribution in most countries would be unimportant. In fact, a focus on financial assets and business equity is likely central to the understanding of elite closure and the continued and accelerating wealth accumulation of the top one percent (Piketty 2014; Carney and Nason 2018). But, based on the evidence presented here, our understanding of wealth inequality among the remaining 99 percent relies on increased attention to the structure and dynamics of housing and mortgage markets.

Our two main findings – the non-correlation of income inequality and wealth inequality, on the one side, and the centrality of housing equity, on the other side – are thus connected: The reason why cross-national differences in income inequality do not predict cross-national differences in wealth inequality is that the latter are most centrally driven by housing equity. In turn, the distribution of home equity, we argue, is crucially determined by financialization and housing market dynamics, i.e., in institutional spheres outside of the labor market and the classical realms of the welfare state. Work on comparative stratification and welfare state regimes, therefore, will have to expand its view to these additional institutional factors to make sense of a dimension of particularly profound and lasting inequality. Ideally, such future work will draw on both qualitative and quantitative indicators of financialized housing markets, such as housing and mortgage market regulations.

It seems unfortunate that one of the most ambitious theoretical and empirical studies on the determinants of wealth inequality, Piketty's *Capital* (2014), also mostly disregards the role of housing as a driver of wealth inequality (see also Bonnet et al. 2014; Fuller et al. 2019; Rognlie 2015), 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 also promise to ameliorate the surprising disconnect between the scholarships on wealth and debt (see Dwyer 2018). The comparative study of lending regimes is at an early stage but has produced some interesting initial insights: For instance, in a comparison of the mortgage debt structure in six European countries, van Gunten and Navot (2018) show that differences in the distribution of mortgage debt is best captured by the degree of credit intensity, i.e., the expansion of credit among those already holding it, rather than differences in mortgage market participation (which also makes the distribution of mortgage credit largely independent from national home ownership rates). In the U.S., in contrast, mortgage debt has also expanded into new population groups as the "predatory inclusion" of minority households grew through new and exploitative mortgage products (Rugh and Massey 2010; Taylor 2019). Future research should thus expand its comparative range to understand different modes of housing market financialization (see also Blackwell and Kohl 2018). Some of this research may also pursue a meso-level approach, popular in some financialization studies, to compare the role of banks and asset management firms, the real estate industry, or other intermediaries involved in expanding and intensifying mortgage credit (Baradaran 2017; Jorda et al. 2016; Taylor 2019; Braun 2020).

To pursue an explanatory agenda, comparative wealth research will also be able to fruitfully draw on research on recent housing markets dynamics. For instance, Adkins et al. (2020) proposes property price inflation as the foundation of a new logic of inequality: Having access to home ownership in areas experiencing such inflation determines individuals' economic well-being over and above their employment. The extent to which homes out-earn the individuals who own them, of course, also varies vastly within countries. The geographic polarization of home ownership and housing prices has been documented in several countries (e.g., Levin and Pryce 2011; Baldenius et al. 2020), in some taking the shape of run-away

home values in "superstar" cities, where transnational wealth elites store and invest vast fortunes and drive up home prices in the process (Fernandez et al. 2016). Outside of these zones of wealth accumulation, particularly in U.S. minority neighborhoods, asset prices are depressed and yield lower wealth returns (Killewald and Bryan 2016; LaBriola 2020). Future research may seek to relate the documented wealth inequality and concentration at the national level to regional and other spatial inequalities within countries (for an income-based analysis in this direction see Manduca 2019). Finally, complementary to a focus on recent housing market dynamics, a comparative-historical approach to uncover the institutional foundations of countries' housing and mortgage markets can draw on recent work that not only documents high long-term wealth returns on housing (Jorda et al. 2019; Blackwell and Kohl 2019) but also great cross-national variation in housing price trajectories (Knoll et al. 2017). We remind the reader that our data are chiefly drawn from the period following the Great Recession. And although our stability analyses based on immediate pre-recession measures for a few countries suggest that our main conclusions are stable, we believe that the cross-national variation in the impact of the housing crisis provides new analytic opportunities.

We believe that future wealth research stands to learn a lot from a focus on countries at either end of the international ranking of wealth inequality. As some of the most wealth-egalitarian countries in our analysis, post-socialist nations and their radical shift in home ownership regulations during market transition provide promising analytic opportunities (Marcuse 1996; Zavisca 2008; Tsenkova 2017; Song and Xie 2014; Xie and Jin 2015). At the same time, we expect our results to trigger additional interest in analyzing countries with the highest level of wealth inequality and concentration. Likely, the unfortunate leadership position of the U.S. in the international ranking of wealth inequality will not come as a surprise to most comparative stratification scholars; the degree to which the U.S. outranks its peer countries in terms of wealth concentration may. We have gone to great lengths to rule out that the high wealth concentration estimate for the U.S. is simply a product

of (putatively) superior data quality. It is also not exclusively a reflection of deep racial inequalities in wealth; even among white U.S. households the level of wealth concentration is exceptional in comparative perspective. The next two most wealth-unequal countries in our analysis, Sweden and Norway, in contrast may cause more surprise and critique – even though we are not the first to document high wealth levels for these countries (e.g., Roine and Waldenstroem 2009; Jaentti et al. 2013). After all, comparative stratification research has long and rightfully held up Scandinavia as the egalitarian poster-child based on its national income distributions. The analysis of wealth considerably complicates this image and invites scholars to revisit the assessment of Scandinavian egalitarianism. High wealth stratification in Scandinavian countries may well be a long-term reflection of its much less egalitarian history (see e.g., Piketty 2020) as well as the more recent neo-liberal turn in their politics (Fagerberg et al. 1990; Ryner 1999). Critics may still wonder whether high wealth inequality takes on fundamentally different social significance in a context with comparatively generous systems of public insurance that may make wealth less central to maintaining more stable lives. In contrast, we submit that wealth inequality in such contexts is still highly consequential for a range of outcomes, in particular, for the intergenerational reproduction of inequality: Recent contributions have highlighted the independent role of wealth in the distribution of educational opportunity and the intergenerational transmission of advantage in Sweden and Norway (Haellsten and Pfeffer 2017; Adermon et al. 2018; Hansen 2014; Galster and Wessel 2019).

At the same time, concerns about the public insurance context of different wealth inequality regimes do point to an important area for future research: As acknowledged before, the inclusion of (estimated present values of) public pension entitlements is certain to provide lower estimates of inequality in Scandinavia and other contexts. We have pointed out that our analysis, in line with most other wealth research, applies a definition of net worth that does not include public pensions nor most other forms of employer-provided pensions. We have focused on assets available to working-age households. Unlike the marketable assets

included in our analyses, pension wealth is inaccessible (to varying degrees depending on the type of pension) to households until older ages. Measures of wealth that include the present values of pensions, i.e. "augmented net worth," thus shift the analytic question.[11] Although harmonized measures of augmented net worth will be enormously difficult to construct for a broad range of countries given cross-national differences in pension systems, future comparative studies of augmented net worth inequality may provide a different country ranking. Institutional explanations of such ranking will likely also profit from direct connections to the literatures reviewed here as the financialization of pension systems complements that of housing markets (Dixon 2008; Schwartz 2012; van Gunten and Kohl 2020).

Finally, we are convinced that the analysis of wealth inequality stands to gain from future expansion of its comparative scope to other national contexts (see also Davies 2008). 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 LWS and other wealth data continues to expand (e.g., Killewald et al. 2017). The findings reported here may also 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. The inability to draw firm causal conclusions based on either type of comparative approach should not keep us from taking the next significant step in filling the lacuna of evidence on the potential sources of national levels of wealth inequality.

[11] We do, however, acknowledge that pension systems may also shift the savings behaviors of households, creating a connection between the distribution of net worth and pension wealth (see Domeij and Klein 2002).

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Appendix

Table A.1: List of Countries

Abbrev.	Country	Survey	Year	N
AT	Austria	Household Finance and Consumption Survey (HFCS)	2014	10,243
AU	Australia	Survey of Income and Housing (SIH)	2014	1,928
CA	Canada	Survey of Financial Securities (SCF)	2012	8,350
FI	Finland	Household Wealth Survey (HWS) / Household Finance and Consumption Survey (HF(	2013	7,982
DE	Germany	German Socio-Economic Panel (SOEP)	2012	11,162
GR	Greece	Household Finance and Consumption Survey (HFCS)	2014	4,544
IT	Italy	Survey of Household Income and Wealth (SHIW)	2014	4,544
LU	Luxembourg	Household Finance and Consumption Survey (HFCS)	2014	1,306
NO	Norway	Household Wealth Statistics (Statistics Norway)	2013	163,726
SK	Slovakia	Household Finance and Consumption Survey (HFCS)	2014	1,461
SI	Slovenia	Household Finance and Consumption Survey (HFCS)	2014	1,805
ES	Spain	Survey of Household Finances (EFF)	2014	3,530
SW	Sweden	Household Income Survey (HINK/HEK)	2005	11,076
UK	United Kingdom	Wealth and Asset Survey (WAS)	2011	13,709
US	United States	Survey of Consumer Finances (SCF)	2013	4,452

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	47,410	38,649	0.373	19.1
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	105,490	35,407	0.776	41.6	41,734	35,619	0.334	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
LU	Luxembourg	410,230	218,935	0.661	39.1	44,089	57,282	0.391	19.3
NO	Norway	114,661	58,763	0.813	40.3	54,378	49,041	0.284	14.1
SK	Slovakia	64,690	51,441	0.493	22.7	17,458	15,544	0.313	15.8
SI	Slovenia	129,531	71,603	0.634	39.4	20,352	17,206	0.356	16.9
ES	Spain	148,021	75,008	0.675	38.3	23,457	18,742	0.393	18.3
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	38,231	30,482	0.398	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			
Financial Assets	Housing Equity	Non-Housing Real Assets	Other Debt
Deposit Accounts and Cash	Real Estate Values - Liabilities	Business Equity	Investment Loans
Financial Investments		Consumer Goods	Consumer Good Loans
Bonds, Other Securities		Vehicles	Educational Loans
Stocks, other equity		Other Durables, Valuables	Other Non-Housing Liabilities
Investment funds etc.		Other Non-financial Assets	
Other Non-Pension Financial Assets			

Table A.4: Decomposition Coefficients

	Gini Decomposition Components			Concentration Decomposition Components		
	Components			Components		
	s=Share	g=Gini	r=Corr.	s=Share	c=Concentr.	a=Alignment
	(1)	(2)	(3)	(7)	(8)	(9)
Australia						
Housing Equity	0.572	0.658	0.955	0.572	31.2	0.914
Financial Assets	0.217	0.864	0.881	0.217	65.0	0.834
Non-Housing	0.181	0.507	0.762	0.181	30.3	0.738
Other Debts	0.030	0.777	0.443	0.030	49.0	0.423
Austria						
Housing Equity	0.564	0.713	0.951	0.564	37.4	0.866
Financial Assets	0.123	0.652	0.732	0.123	37.6	0.559
Non-Housing	0.303	0.913	0.940	0.303	82.8	0.910
Other Debts	0.011	0.953	0.360	0.011	84.0	0.438
Canada						
Housing Equity	0.534	0.653	0.941	0.534	31.4	0.847
Financial Assets	0.145	0.840	0.861	0.145	61.1	0.728
Non-Housing	0.259	0.776	0.893	0.259	62.1	0.870
Other Debts	0.062	0.698	0.471	0.062	36.9	0.418
Finland						
Housing Equity	0.665	0.605	0.961	0.665	26.0	0.899
Financial Assets	0.143	0.776	0.782	0.143	51.2	0.732
Non-Housing	0.130	0.788	0.838	0.130	62.3	0.828
Other Debts	0.063	0.828	0.528	0.063	55.1	0.536
Germany						
Housing Equity	0.674	0.759	0.966	0.644	37.0	0.927
Financial Assets	0.134	0.839	0.760	0.172	45.7	0.667
Non-Housing	0.147	0.973	0.915	0.141	93.0	0.839
Other Debts	0.045	0.892	0.417	0.043	63.2	0.327
Greece						
Housing Equity	0.775	0.619	0.969	0.775	29.2	0.948
Financial Assets	0.062	0.861	0.722	0.062	62.7	0.578
Non-Housing	0.145	0.755	0.731	0.145	46.0	0.611
Other Debts	0.019	0.929	0.397	0.019	74.9	0.175
Italy						
Housing Equity	0.668	0.603	0.960	0.668	26.4	0.904
Financial Assets	0.099	0.801	0.792	0.099	53.4	0.672
Non-Housing	0.227	0.722	0.852	0.227	53.8	0.808
Other Debts	0.006	0.911	0.153	0.006	63.7	0.089
Luxemburg						
Housing Equity	0.747	0.660	0.979	0.747	36.5	0.962
Financial Assets	0.135	0.821	0.807	0.135	57.0	0.771
Non-Housing	0.099	0.800	0.861	0.099	67.6	0.866
Other Debts	0.019	0.889	0.498	0.019	68.0	0.482
Slovakia						
Housing Equity	0.761	0.483	0.955	0.761	20.0	0.909
Financial Assets	0.075	0.727	0.617	0.075	42.2	0.572
Non-Housing	0.150	0.795	0.789	0.150	58.9	0.747
Other Debts	0.015	0.938	0.396	0.015	79.7	0.249
Slovenia						
Housing Equity	0.614	0.546	0.950	0.614	23.7	0.868
Financial Assets	0.059	0.858	0.650	0.059	61.6	0.516
Non-Housing	0.315	0.911	0.933	0.315	82.7	0.926
Other Debts	0.011	0.875	0.215	0.011	59.7	0.182
Spain						
Housing Equity	0.641	0.659	0.957	0.641	31.5	0.935
Financial Assets	0.161	0.844	0.834	0.161	62.7	0.795
Non-Housing	0.174	0.854	0.856	0.174	70.8	0.801
Other Debts	0.024	0.901	0.416	0.024	67.6	0.294
United Kingdom						
Housing Equity	0.478	0.690	0.943	0.478	30.4	0.890
Financial Assets	0.188	0.819	0.883	0.188	55.2	0.837
Non-Housing	0.311	0.624	0.866	0.311	46.2	0.875
Other Debts	0.024	0.761	0.098	0.024	39.1	0.141
United States						
Housing Equity	0.329	0.840	0.949	0.329	53.7	0.902
Financial Assets	0.297	0.934	0.960	0.297	82.9	0.923
Non-Housing	0.314	0.892	0.953	0.314	82.7	0.922
Other Debts	0.060	0.751	0.586	0.060	43.5	0.356

Supplemental Appendix

"The Wealth Inequality of Nations"

Contents

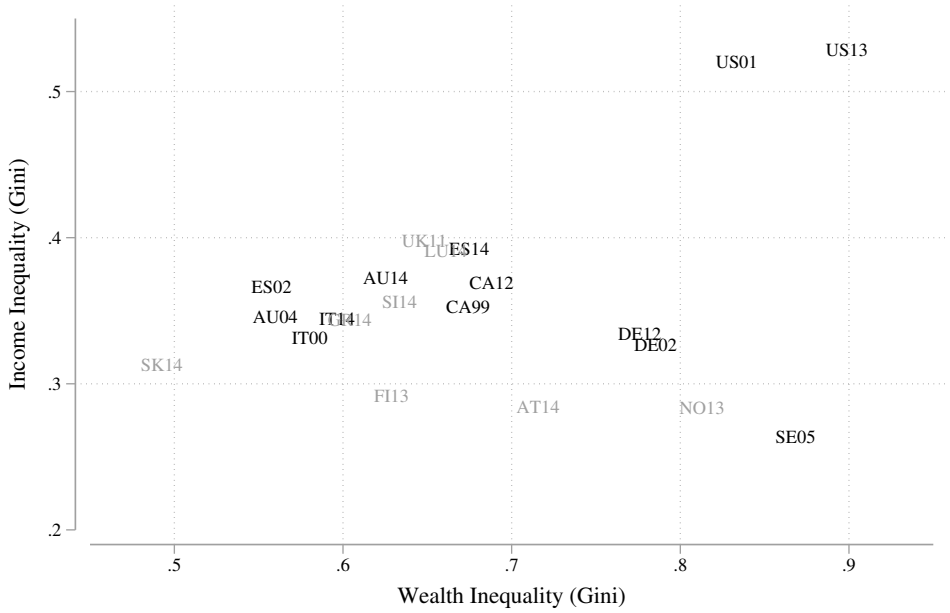
Appendix S.1 Pre-Recession Wealth

For a handful of countries, LWS includes wealth measures taken before the Great Recession of 2008/2009. Figure S.1 includes and highlights these countries and allows an assessment of the extent of change in wealth and income inequality (Figure S.1a) as well as wealth and income concentration (Figure S.1b) between a pre-recession and post-recession measurement point. In most countries, inequality and concentration in income and wealth remain relatively stable or increase somewhat over this period. Larger increases in wealth inequality and concentration can be observed for Australia, Spain, and the United States. However, Figure S.1 also reveals that our overall assessment of international differences in wealth inequality and concentration – and, in particular, its non-correlation with international differences in income inequality and concentration – is substantively the same whether we draw on pre- or post-recession measures of wealth.

Similarly, Table S.1 reports the results of an alternative decomposition analysis that takes the pre-recession (2001) U.S. wealth structure and distribution as the reference to simulate wealth inequality and concentration in other countries. The resulting findings of the decomposition analysis hardly change. That is, imposing the pre-recession U.S. wealth portfolio and within-component inequality on other countries has approximately the same effect as imposing the post-recession U.S. wealth structure (as reported in our main analyses). This point is further emphasized by the fact that imposing pre-recession U.S. estimates on the post-recession U.S. also produces quite limited changes in overall wealth inequality and concentration. In sum, the stability analyses reported here suggest that our main findings are not simply a reflection of a unique post-recessionary period.

Figure S.1: Wealth Inequality and Concentration: Pre- and Post-Recession

(a)



(b)

Notes: Based on LWS data. Countries for which LWS provides pre-recession measure wealth measures are highlighted in black (those with only post-recession measures are in gray) and the measurement years are included in the marker label

Table S.1: Decomposition using U.S. Pre-Recession Wealth

(a) Decomposition

	Gini Coefficient							Top Share (5%)						
		(1) Shares = US01		(2) Comp. ginis = US01		(3) Gini corr. = US01			(4) Shares = US01		(5) Comp. concent. = US01		(6) Alignm. factor = US01	
	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)
United States 2001	0.784							58.1						
Australia	0.605	0.585	(-3.3%)	0.719	(18.9%)	0.636	(5.1%)	32.7	34.5	(5.5%)	49.5	(51.1%)	34.5	(5.6%)
Austria	0.704	0.649	(-7.8%)	0.740	(5.1%)	0.724	(2.7%)	44.0	41.6	(-5.6%)	49.8	(13.1%)	46.0	(4.5%)
Canada	0.633	0.658	(3.9%)	0.719	(13.6%)	0.662	(4.6%)	35.6	39.8	(11.8%)	48.0	(34.8%)	38.7	(8.6%)
Finland	0.586	0.605	(3.3%)	0.706	(20.5%)	0.614	(4.7%)	29.4	36.5	(24.1%)	46.0	(56.5%)	31.0	(5.6%)
Germany	0.711	0.710	(-0.2%)	0.715	(0.5%)	0.740	(4.1%)	39.2	45.2	(15.4%)	46.7	(19.2%)	41.6	(6.2%)
Greece	0.590	0.581	(-1.5%)	0.708	(20.1%)	0.618	(4.8%)	28.0	29.8	(6.4%)	44.4	(58.3%)	30.6	(9.1%)
Italy	0.590	0.585	(-0.9%)	0.728	(23.4%)	0.615	(4.2%)	29.4	32.6	(10.8%)	47.8	(62.5%)	31.8	(8.3%)
Luxemburg	0.649	0.654	(0.7%)	0.736	(13.4%)	0.657	(1.3%)	38.5	44.7	(15.9%)	48.9	(26.9%)	38.2	(-1.0%)
Slovakia	0.483	0.501	(3.7%)	0.701	(45.0%)	0.520	(7.5%)	22.5	27.8	(23.3%)	44.7	(98.5%)	25.0	(11.2%)
Slovenia	0.622	0.612	(-1.6%)	0.737	(18.5%)	0.643	(3.4%)	38.8	40.1	(3.5%)	50.2	(29.3%)	40.1	(3.3%)
Spain	0.654	0.671	(2.5%)	0.726	(11.0%)	0.683	(4.4%)	37.2	43.5	(16.8%)	49.2	(32.2%)	39.1	(5.2%)
United Kingdom	0.616	0.612	(-0.7%)	0.729	(18.4%)	0.652	(5.9%)	34.3	36.0	(5.1%)	53.3	(55.4%)	35.8	(4.4%)
United States 2013	0.822	0.826	(0.6%)	0.784	(-4.6%)	0.818	(-0.5%)	63.5	63.9	(0.7%)	58.4	(-8.1%)	62.8	(-1.1%)

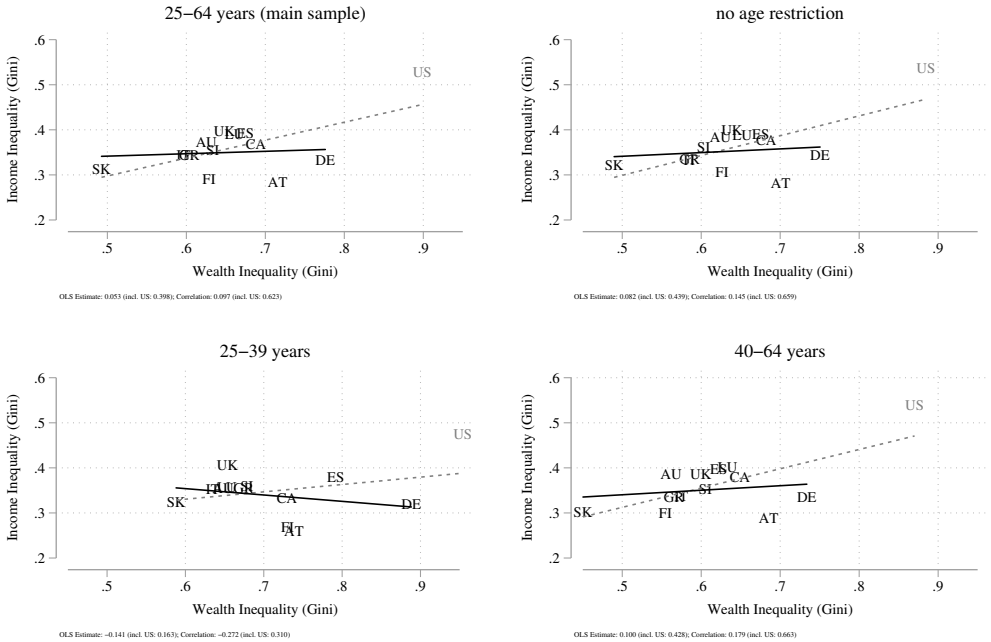
(b) Decomposition: Within-Component Inequality/Concentration

	Gini Coefficient								Top Share (5%)							
		(1) Housing Equity		(2) Financial Assets		(3) Non-Housing		(4) Other debts		(5) Housing Equity		(6) Financial Assets		(7) Non-Housing		(8) Other debts	
	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)	Simulated	(change)	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)	Simulated	(change)
United States 2001	0.784									58.1								
Australia	0.605	0.660	(9.1%)	0.614	(1.5%)	0.655	(8.3%)	0.604	(-0.1%)	32.7	41.1	(25.6%)	34.9	(6.6%)	39.0	(19.1%)	32.7	(-0.2%)
Austria	0.704	0.729	(3.6%)	0.728	(3.3%)	0.693	(-1.7%)	0.704	(-0.1%)	44.0	48.8	(10.8%)	46.7	(6.1%)	42.5	(-3.4%)	43.9	(-0.4%)
Canada	0.633	0.686	(8.4%)	0.642	(1.4%)	0.655	(3.5%)	0.634	(0.2%)	35.6	42.7	(19.9%)	37.3	(4.7%)	39.0	(9.6%)	35.8	(0.6%)
Finland	0.586	0.685	(16.8%)	0.601	(2.6%)	0.595	(1.5%)	0.583	(-0.5%)	29.4	42.1	(43.1%)	32.1	(9.1%)	31.0	(5.5%)	29.0	(-1.2%)
Germany	0.711	0.712	(0.0%)	0.730	(2.7%)	0.698	(-1.8%)	0.709	(-0.4%)	39.2	45.3	(15.5%)	42.8	(9.1%)	37.3	(-4.7%)	38.9	(-0.7%)
Greece	0.590	0.695	(17.9%)	0.592	(0.4%)	0.602	(2.1%)	0.588	(-0.2%)	28.0	41.2	(47.0%)	28.5	(1.8%)	30.8	(9.9%)	27.9	(-0.4%)
Italy	0.590	0.690	(17.0%)	0.599	(1.5%)	0.619	(4.9%)	0.590	(-0.0%)	29.4	41.9	(42.6%)	31.0	(5.3%)	33.7	(14.6%)	29.4	(-0.0%)
Luxemburg	0.649	0.721	(11.2%)	0.659	(1.5%)	0.655	(0.9%)	0.648	(-0.2%)	38.5	46.2	(19.9%)	40.6	(5.4%)	39.4	(2.2%)	38.3	(-0.6%)
Slovakia	0.483	0.684	(41.6%)	0.492	(1.8%)	0.492	(1.9%)	0.482	(-0.2%)	22.5	41.3	(83.3%)	24.0	(6.6%)	24.6	(9.1%)	22.4	(-0.6%)
Slovenia	0.622	0.746	(20.1%)	0.624	(0.3%)	0.610	(-1.9%)	0.621	(-0.1%)	38.8	51.3	(32.2%)	39.3	(1.2%)	37.2	(-4.1%)	38.8	(-0.1%)
Spain	0.654	0.715	(9.4%)	0.663	(1.4%)	0.657	(0.4%)	0.652	(-0.2%)	37.2	46.6	(25.3%)	39.0	(4.9%)	38.1	(2.4%)	37.1	(-0.4%)
United Kingdom	0.616	0.648	(5.1%)	0.631	(2.5%)	0.683	(10.8%)	0.616	(-0.0%)	34.3	41.4	(20.8%)	37.7	(9.9%)	42.7	(24.6%)	34.3	(0.1%)
United States 2013	0.822	0.797	(-3.0%)	0.815	(-0.8%)	0.815	(-0.7%)	0.821	(-0.0%)	63.5	61.6	(-3.1%)	61.9	(-2.6%)	61.9	(-2.5%)	63.5	(0.0%)

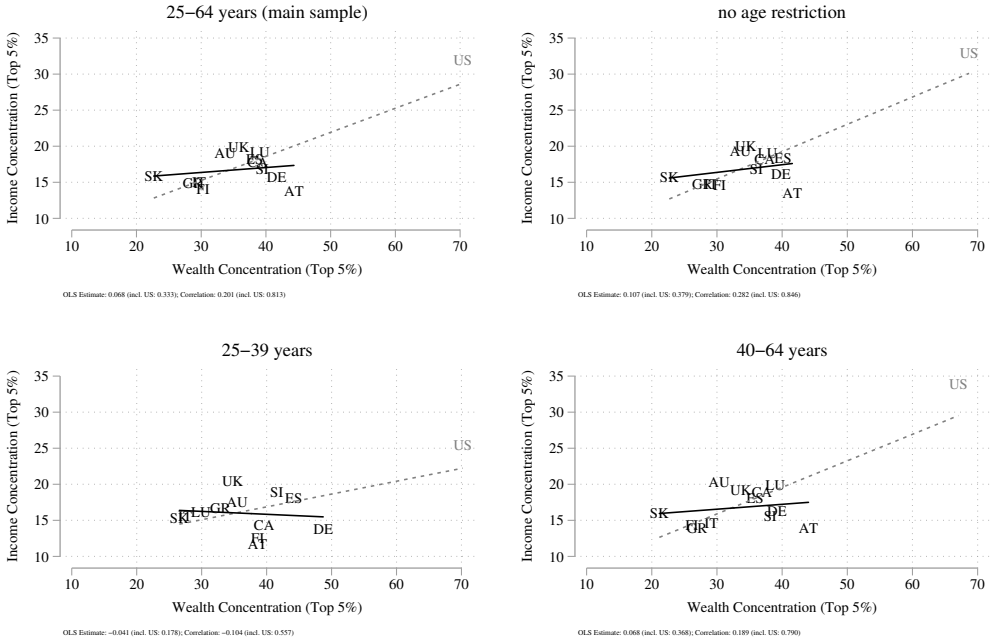
Appendix S.2 Age Groups

Figure S.2: Wealth Inequality and Concentration: Different Age Groups

(a) Inequality



(b) Concentration



Notes: Based on LWS data. Analytic samples are drawn with different restrictions on the age of the household head (25-64, 25-39, 40-64, none).

Table S.2: Decomposition: No age restrictions

(a) Decomposition

	Gini Coefficient						Top Share (5%)					
		(1) Shares		(2) Comp. ginis		(3) Gini corr.		(4) Shares		(5) Comp. concent.		(6) Alignm. Factor
	Observed	Simulated	(change)	Simulated	(change)	Simulated (change)	Observed	Simulated	(change)	Simulated	(change)	Simulated (change)
United States	0.822						63.3					
Australia	0.605	0.590	(-2.5%)	0.766	(26.5%)	0.638 (5.4%)	32.8	35.0	(6.8%)	54.4	(66.0%)	34.7 (5.7%)
Austria	0.690	0.640	(-7.3%)	0.778	(12.8%)	0.716 (3.7%)	41.2	39.6	(-3.9%)	53.5	(29.8%)	44.1 (6.8%)
Canada	0.633	0.654	(3.4%)	0.759	(20.0%)	0.667 (5.4%)	34.6	38.3	(10.5%)	51.9	(49.9%)	38.5 (11.3%)
Finland	0.591	0.614	(4.0%)	0.760	(28.7%)	0.619 (4.8%)	29.7	37.4	(25.9%)	51.8	(74.8%)	31.1 (4.8%)
Germany	0.706	0.705	(-0.1%)	0.769	(9.0%)	0.734 (4.0%)	38.2	44.4	(16.3%)	52.3	(37.0%)	40.4 (5.7%)
Greece	0.573	0.570	(-0.5%)	0.761	(32.8%)	0.605 (5.5%)	27.2	29.3	(7.7%)	49.6	(82.3%)	29.7 (9.3%)
Italy	0.581	0.574	(-1.3%)	0.776	(33.4%)	0.609 (4.7%)	28.9	31.7	(9.8%)	52.6	(82.0%)	31.4 (8.8%)
Luxemburg	0.641	0.639	(-0.3%)	0.787	(22.8%)	0.653 (1.9%)	37.4	41.4	(10.9%)	53.6	(43.5%)	37.3 (-0.1%)
Slovakia	0.482	0.497	(3.0%)	0.754	(56.4%)	0.519 (7.6%)	22.5	27.2	(20.9%)	50.0	(122.5%)	24.8 (10.4%)
Slovenia	0.593	0.593	(-0.1%)	0.778	(31.1%)	0.620 (4.5%)	35.5	37.9	(6.5%)	54.3	(52.7%)	37.6 (5.7%)
Spain	0.659	0.681	(3.3%)	0.781	(18.4%)	0.684 (3.9%)	39.2	45.6	(16.2%)	54.7	(39.4%)	40.8 (3.9%)
United Kingdom	0.611	0.605	(-1.0%)	0.773	(26.5%)	0.648 (5.9%)	33.3	35.2	(5.8%)	58.1	(74.6%)	35.0 (5.1%)

(b) Decomposition: Within-Component Inequality/Concentration

	Gini Coefficient								Top Share (5%)							
		(1) Housing Equity		(2) Financial Assets		(3) Non-Housing		(4) Other debts		(5) Housing Equity		(6) Financial Assets		(7) Non-Housing		(8) Other debts
	Observed	Simulated	(change)	Simulated	(change)	Simulated (change)	Simulated (change)		Observed	Simulated	(change)	Simulated	(change)	Simulated (change)	Simulated (change)	
United States	0.822								63.3							
Australia	0.605	0.704	(16.2%)	0.620	(2.3%)	0.654 (8.0%)	0.605 (-0.1%)		32.8	44.8	(36.7%)	36.1	(10.0%)	39.2 (19.6%)	32.7 (-0.2%)	
Austria	0.690	0.756	(9.5%)	0.716	(3.7%)	0.688 (-0.3%)	0.689 (-0.1%)		41.2	50.1	(21.5%)	44.5	(7.8%)	41.6 (0.9%)	41.1 (-0.4%)	
Canada	0.633	0.719	(13.7%)	0.646	(2.1%)	0.658 (4.0%)	0.634 (0.2%)		34.6	44.8	(29.3%)	37.3	(7.7%)	38.9 (12.4%)	34.7 (0.4%)	
Finland	0.591	0.735	(24.4%)	0.610	(3.2%)	0.599 (1.4%)	0.589 (-0.3%)		29.7	46.7	(57.5%)	33.3	(12.2%)	31.5 (6.1%)	29.3 (-1.1%)	
Germany	0.706	0.756	(7.1%)	0.729	(3.3%)	0.698 (-1.1%)	0.704 (-0.2%)		38.2	48.8	(27.8%)	42.8	(12.1%)	37.3 (-2.4%)	38.0 (-0.5%)	
Greece	0.573	0.748	(30.5%)	0.577	(0.7%)	0.584 (1.8%)	0.572 (-0.2%)		27.2	46.3	(70.4%)	28.0	(3.0%)	29.7 (9.3%)	27.1 (-0.3%)	
Italy	0.581	0.735	(26.5%)	0.593	(2.0%)	0.610 (5.0%)	0.581 (-0.0%)		28.9	46.1	(59.6%)	31.0	(7.1%)	33.3 (15.3%)	28.9 (-0.0%)	
Luxemburg	0.641	0.767	(19.6%)	0.655	(2.2%)	0.649 (1.1%)	0.640 (-0.1%)		37.4	49.7	(32.9%)	40.3	(7.9%)	38.5 (3.2%)	37.2 (-0.5%)	
Slovakia	0.482	0.736	(52.8%)	0.491	(1.9%)	0.491 (1.9%)	0.481 (-0.2%)		22.5	46.1	(105.4%)	24.1	(7.4%)	24.8 (10.3%)	22.4 (-0.5%)	
Slovenia	0.593	0.778	(31.1%)	0.596	(0.5%)	0.590 (-0.5%)	0.593 (-0.0%)		35.5	53.2	(49.7%)	36.2	(1.9%)	36.0 (1.2%)	35.5 (-0.1%)	
Spain	0.659	0.767	(16.4%)	0.670	(1.7%)	0.663 (0.5%)	0.658 (-0.2%)		39.2	51.3	(30.7%)	41.7	(6.2%)	40.4 (2.8%)	39.1 (-0.3%)	
United Kingdom	0.611	0.685	(12.1%)	0.632	(3.5%)	0.678 (11.0%)	0.611 (-0.0%)		33.3	44.1	(32.6%)	38.0	(14.1%)	42.5 (27.8%)	33.3 (0.0%)	

Table S.3: Decomposition: Age 25-39

(a) Decomposition

	Gini Coefficient						Top Share (5%)					
		(1) Shares		(2) Comp. ginis		(3) Gini corr.		(4) Shares		(5) Comp. concent.		(6) Alignm. Factor	
	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)
United States	0.772							55.3						
Australia	0.614	0.543	(-11.6%)	0.767	(24.9%)	0.643	(4.7%)	34.0	31.7	(-6.8%)	52.7	(55.0%)	34.2	(0.6%)
Austria	0.705	0.602	(-14.7%)	0.802	(13.7%)	0.717	(1.6%)	37.5	37.9	(1.2%)	52.4	(39.8%)	38.6	(2.9%)
Canada	0.631	0.619	(-1.9%)	0.755	(19.7%)	0.657	(4.1%)	34.4	36.5	(6.1%)	48.3	(40.5%)	37.2	(8.1%)
Finland	0.629	0.609	(-3.2%)	0.760	(20.7%)	0.661	(5.0%)	35.3	39.3	(11.5%)	50.5	(43.1%)	34.9	(-1.2%)
Germany	0.768	0.756	(-1.6%)	0.767	(-0.1%)	0.793	(3.2%)	43.6	49.4	(13.3%)	48.6	(11.4%)	46.5	(6.7%)
Greece	0.657	0.599	(-8.9%)	0.816	(24.1%)	0.665	(1.2%)	32.0	31.6	(-1.2%)	50.6	(58.4%)	33.0	(3.1%)
Italy	0.626	0.571	(-8.7%)	0.803	(28.3%)	0.640	(2.2%)	27.0	28.1	(4.2%)	50.0	(85.3%)	29.6	(9.6%)
Luxemburg	0.631	0.579	(-8.3%)	0.779	(23.6%)	0.663	(5.2%)	29.7	33.2	(11.5%)	49.3	(65.7%)	31.5	(5.8%)
Slovakia	0.576	0.542	(-5.8%)	0.807	(40.1%)	0.595	(3.4%)	25.8	28.5	(10.6%)	51.0	(97.7%)	27.2	(5.5%)
Slovenia	0.662	0.585	(-11.6%)	0.796	(20.2%)	0.683	(3.1%)	40.6	38.9	(-4.1%)	53.8	(32.6%)	42.1	(3.6%)
Spain	0.758	0.699	(-7.7%)	0.781	(3.1%)	0.782	(3.2%)	42.5	43.0	(1.1%)	52.4	(23.3%)	43.9	(3.1%)
United Kingdom	0.600	0.558	(-7.1%)	0.745	(24.0%)	0.646	(7.7%)	32.2	31.5	(-2.3%)	53.5	(66.1%)	34.5	(7.0%)

(b) Decomposition: Within-Component Inequality/Concentration

	Gini Coefficient						Top Share (5%)					
		(1) Shares		(2) Comp. ginis		(3) Gini corr.		(4) Shares		(5) Comp. concent.		(6) Alignm. Factor	
	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)
United States	0.772							55.3						
Australia	0.614	0.543	(-11.6%)	0.767	(24.9%)	0.643	(4.7%)	34.0	31.7	(-6.8%)	52.7	(55.0%)	34.2	(0.6%)
Austria	0.705	0.602	(-14.7%)	0.802	(13.7%)	0.717	(1.6%)	37.5	37.9	(1.2%)	52.4	(39.8%)	38.6	(2.9%)
Canada	0.631	0.619	(-1.9%)	0.755	(19.7%)	0.657	(4.1%)	34.4	36.5	(6.1%)	48.3	(40.5%)	37.2	(8.1%)
Finland	0.629	0.609	(-3.2%)	0.760	(20.7%)	0.661	(5.0%)	35.3	39.3	(11.5%)	50.5	(43.1%)	34.9	(-1.2%)
Germany	0.768	0.756	(-1.6%)	0.767	(-0.1%)	0.793	(3.2%)	43.6	49.4	(13.3%)	48.6	(11.4%)	46.5	(6.7%)
Greece	0.657	0.599	(-8.9%)	0.816	(24.1%)	0.665	(1.2%)	32.0	31.6	(-1.2%)	50.6	(58.4%)	33.0	(3.1%)
Italy	0.626	0.571	(-8.7%)	0.803	(28.3%)	0.640	(2.2%)	27.0	28.1	(4.2%)	50.0	(85.3%)	29.6	(9.6%)
Luxemburg	0.631	0.579	(-8.3%)	0.779	(23.6%)	0.663	(5.2%)	29.7	33.2	(11.5%)	49.3	(65.7%)	31.5	(5.8%)
Slovakia	0.576	0.542	(-5.8%)	0.807	(40.1%)	0.595	(3.4%)	25.8	28.5	(10.6%)	51.0	(97.7%)	27.2	(5.5%)
Slovenia	0.662	0.585	(-11.6%)	0.796	(20.2%)	0.683	(3.1%)	40.6	38.9	(-4.1%)	53.8	(32.6%)	42.1	(3.6%)
Spain	0.758	0.699	(-7.7%)	0.781	(3.1%)	0.782	(3.2%)	42.5	43.0	(1.1%)	52.4	(23.3%)	43.9	(3.1%)
United Kingdom	0.600	0.558	(-7.1%)	0.745	(24.0%)	0.646	(7.7%)	32.2	31.5	(-2.3%)	53.5	(66.1%)	34.5	(7.0%)

Table S.4: Decomposition: Age 40-64

(a) Decomposition

	Gini Coefficient						Top Share (5%)					
		(1) Shares		(2) Comp. ginis		(3) Gini corr.		(4) Shares		(5) Comp. concent.		(6) Alignm. Factor	
	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)
United States	0.813							62.0						
Australia	0.550	0.543	(-1.1%)	0.742	(34.9%)	0.585	(6.5%)	29.8	32.7	(9.9%)	51.5	(73.1%)	31.5	(5.9%)
Austria	0.678	0.636	(-6.3%)	0.762	(12.3%)	0.707	(4.2%)	43.9	41.9	(-4.5%)	53.3	(21.5%)	45.9	(4.5%)
Canada	0.608	0.640	(5.4%)	0.746	(22.7%)	0.641	(5.5%)	34.4	39.1	(13.7%)	51.0	(48.4%)	37.2	(8.4%)
Finland	0.533	0.577	(8.2%)	0.736	(38.1%)	0.561	(5.3%)	26.2	34.4	(31.2%)	47.8	(82.5%)	27.7	(5.8%)
Germany	0.678	0.691	(1.9%)	0.741	(9.4%)	0.711	(4.9%)	37.3	44.6	(19.8%)	49.5	(32.8%)	39.0	(4.8%)
Greece	0.552	0.559	(1.1%)	0.736	(33.2%)	0.585	(5.9%)	26.4	28.3	(7.3%)	46.4	(76.0%)	28.6	(8.5%)
Italy	0.569	0.570	(0.1%)	0.756	(32.8%)	0.598	(5.1%)	28.9	32.3	(11.8%)	50.6	(75.2%)	31.2	(8.0%)
Luxemburg	0.625	0.662	(5.8%)	0.776	(24.2%)	0.628	(0.5%)	38.7	45.6	(17.9%)	51.7	(33.7%)	37.7	(-2.5%)
Slovakia	0.442	0.473	(7.0%)	0.725	(64.0%)	0.484	(9.4%)	21.1	26.2	(23.7%)	46.1	(118.2%)	23.7	(12.2%)
Slovenia	0.595	0.616	(3.6%)	0.768	(29.1%)	0.616	(3.6%)	37.6	41.1	(9.3%)	52.5	(39.5%)	39.2	(4.2%)
Spain	0.604	0.650	(7.7%)	0.755	(25.1%)	0.634	(5.0%)	35.0	43.3	(23.4%)	52.0	(48.4%)	36.6	(4.3%)
United Kingdom	0.578	0.577	(-0.2%)	0.761	(31.5%)	0.614	(6.2%)	32.7	34.8	(6.3%)	56.7	(73.3%)	34.0	(3.8%)

(b) Decomposition: Within-Component Inequality/Concentration

	Gini Coefficient								Top Share (5%)							
		(1) Housing Equity		(2) Financial Assets		(3) Non-Housing		(4) Other debts		(5) Housing Equity		(6) Financial Assets		(7) Non-Housing		(8) Other debts	
	Observed	Counterfact.	(change)	Counterfact.	(change)	Simulated	(change)	Simulated	(change)	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)	Simulated	(change)
United States	0.813									62.0								
Australia	0.550	0.680	(23.7%)	0.565	(2.8%)	0.596	(8.5%)	0.549	(-0.0%)	29.8	42.0	(41.3%)	33.3	(11.9%)	35.7	(20.1%)	29.7	(-0.1%)
Austria	0.678	0.745	(9.8%)	0.702	(3.4%)	0.673	(-0.8%)	0.678	(-0.1%)	43.9	50.2	(14.4%)	46.8	(6.6%)	44.3	(1.0%)	43.7	(-0.4%)
Luxemburg	0.608	0.705	(16.1%)	0.620	(2.1%)	0.634	(4.3%)	0.609	(0.2%)	34.4	43.6	(26.9%)	37.0	(7.6%)	39.0	(13.3%)	34.5	(0.5%)
Finland	0.533	0.709	(32.9%)	0.551	(3.4%)	0.545	(2.3%)	0.531	(-0.5%)	26.2	42.7	(62.9%)	29.5	(12.6%)	28.4	(8.2%)	25.9	(-1.3%)
Germany	0.678	0.730	(7.7%)	0.699	(3.1%)	0.670	(-1.2%)	0.676	(-0.3%)	37.3	46.4	(24.7%)	41.4	(11.1%)	36.4	(-2.4%)	37.0	(-0.6%)
Greece	0.552	0.720	(30.4%)	0.556	(0.6%)	0.566	(2.4%)	0.551	(-0.2%)	26.4	43.0	(63.1%)	27.1	(3.0%)	29.0	(10.2%)	26.3	(-0.3%)
Italy	0.569	0.712	(25.1%)	0.580	(1.9%)	0.602	(5.8%)	0.569	(-0.0%)	28.9	43.5	(50.5%)	30.9	(6.9%)	34.1	(17.8%)	28.9	(-0.0%)
Luxemburg	0.625	0.758	(21.3%)	0.637	(1.9%)	0.633	(1.2%)	0.624	(-0.1%)	38.7	48.4	(25.1%)	41.2	(6.5%)	39.6	(2.5%)	38.5	(-0.4%)
Slovakia	0.442	0.705	(59.5%)	0.451	(2.0%)	0.454	(2.7%)	0.441	(-0.2%)	21.1	42.1	(99.0%)	22.6	(6.7%)	24.0	(13.3%)	21.0	(-0.7%)
Slovenia	0.595	0.769	(29.3%)	0.598	(0.5%)	0.591	(-0.6%)	0.595	(-0.0%)	37.6	51.8	(37.5%)	38.2	(1.6%)	37.8	(0.4%)	37.6	(-0.1%)
Spain	0.604	0.740	(22.6%)	0.615	(1.9%)	0.608	(0.8%)	0.603	(-0.1%)	35.0	48.2	(37.6%)	37.4	(6.8%)	36.5	(4.2%)	34.9	(-0.3%)
United Kingdom	0.578	0.673	(16.3%)	0.602	(4.1%)	0.643	(11.1%)	0.578	(-0.0%)	32.7	43.1	(31.6%)	37.8	(15.3%)	41.3	(26.3%)	32.8	(0.0%)

Appendix S.3 Data Quality

We are not aware of any studies that have formally validated wealth estimates from LWS against other data sources,[1] a reflection of the early stage at which comparative wealth research finds itself (Killewald et al. 2017). Here, we pursue different approaches to critically interrogate the validity of our main estimates and comparative conclusions. First, we provide a direct comparison of our estimates to those derived from other data sources. Second, we spell out our expectations on the potential role of measurement error at the top for our cross-national comparison. Third, we simulate how large measurement error in top wealth in the United States would have to be to influence our conclusion about its exceptional level of wealth inequality.

External Validation

The Household Finance and Consumption Survey (HFCS), collected by the European Central Bank, measures households' net worth in European countries. LWS draws on HFCS surveys for some countries where no other fitting wealth data are available, namely Austria, Greece, Luxembourg, Slovakia, and Slovenia. In these countries, a comparison between LWS and HFCS-based estimates amounts to an assessment of how much the harmonization work done by LWS impacts estimates of wealth inequality and concentration (see Figure S.3a and S.3b; unfilled red diamonds). In contrast, for others countries in our sample, HFCS data exist but LWS draws on different national data sources, allowing us to assess to what degree estimates of wealth inequality and concentration depend on the survey used (see Figure S.3a and S.3b; filled red diamonds).[2] In S.3a and S.3b we observe that estimates of wealth inequality vary across data sources but that deviations are quite minor for gini coefficients and negligible for top share measures (with the exception of wealth concentration in Germany, which is

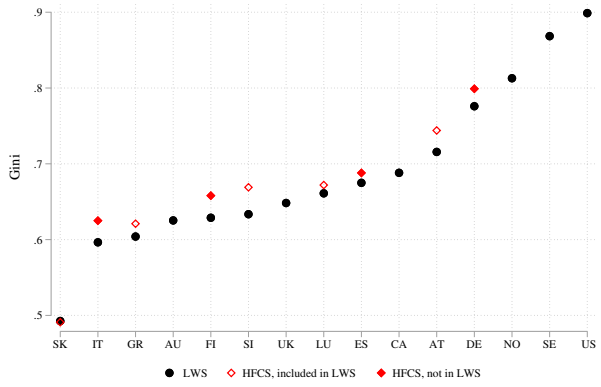
[1] We have confirmed this assessment in personal communication with LWS staff.

[2] For a few of these countries, there are minor differences in survey years between the LWS-included survey and the HFCS survey (2012 vs. 2014 in Germany and 2013 vs. 2014 for Finland).

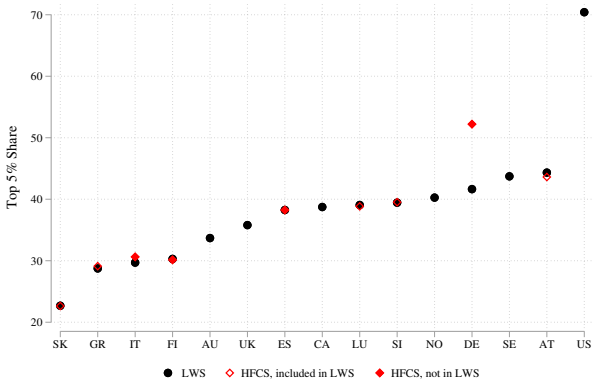
estimated to be substantially higher in the HFCS data). Also, the deviations resulting from the use of entirely different surveys does not appear, on average, to introduce larger deviations than those introduced by harmonization efforts. Overall, we interpret these patterns to lend considerable credibility to LWS-based estimates of international differences in wealth inequality.

Figure S.3: External Validation

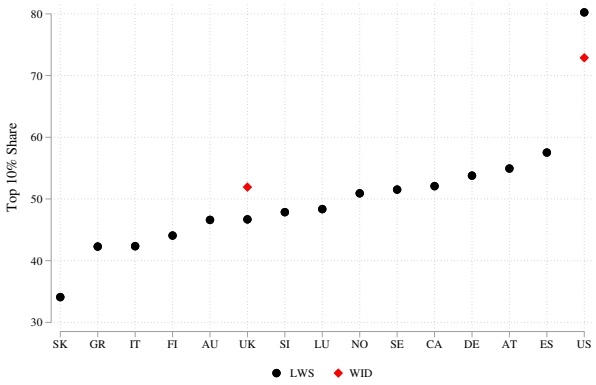
(a) Comparison to HFCS: Gini Coefficient



(b) Comparison to HFCS: Top 5% Share



(c) Comparison to DINA: Top 10% Share



Notes: Based on our main LWS sample, the Household Finance and Consumer Survey (wave II), and the World Inequality Database (WID.world; accessed November 2020). For HFCS, we also restrict the sample to the working-age population and equivalize wealth measures. For WID, we cannot impose the same sample constraints or measurement transformations and we also have to rely on a measure of the wealth share held by the top 10% (to see how estimating this measure for LWS provides a similar but not identical ranking of countries compared to the top 5% share, compare the x-asis of Figure b to Figure c)

What if we were to compare our estimates to those derived not merely from different data sources but from entirely different measurement approaches? A recent innovation in

wealth measurement comes from Distributional National Accounts, DINA (Saez and Zucman 2016; Piketty et al. 2018). This approach approximates wealth distributions from the wealth measured in national aggregate statistics through a variety of complex data imputations, chiefly the conversion of streams of asset income into underlying asset values ("income capitalization"). DINA wealth data differ in a variety of ways from survey-based measures (Fesseau et al. 2013; Saez and Zucman 2020), such as the unit of analysis (taxpayers), the included asset components (restricted to return-yielding assets), and, perhaps most importantly, in their focus on the very top of the wealth distribution (where asset income exists). In Figure 3c, we draw on DINA estimates of top wealth concentration as supplied by the World Inequality Database (WID, Alvaredo et al. 2017). Among the countries included in our sample, such estimates are only available for the U.S. and UK, illustrating that this approach to wealth measurement is still in its infancy. Nevertheless, the estimates of wealth concentration (share held by the top 10 percent, as available in WID) are broadly comparable between the DINA and LWS. The relative ranking of the U.S. remains unaltered based on DINA data while the UK moves, by a few countries, into the upper half of the ranking. Notably, compared to survey estimates, DINA estimates are lower in the U.S.[3] and higher in the UK, again providing no indication that survey-based measures may consistently over- or under-estimate wealth concentration.

Undercoverage of Top Wealth: Expectations and Simulations

Skeptics may still worry that none of the measurement approaches discussed above adequately capture the concentration of wealth at the very top: The very wealthy may simply be better at evading any type of data collection effort compared to those with less wealth. That may be true, but the question for our comparative study is whether the potential undercoverage of wealth at the top of the distribution may also bias our comparative conclusions. For the international wealth inequality ranking to be substantially altered, the evasion

[3]See Saez and Zucman (2020) for a comparative assessment of DINA estimates to those produced by the Survey of Consumer Finances (SCF).

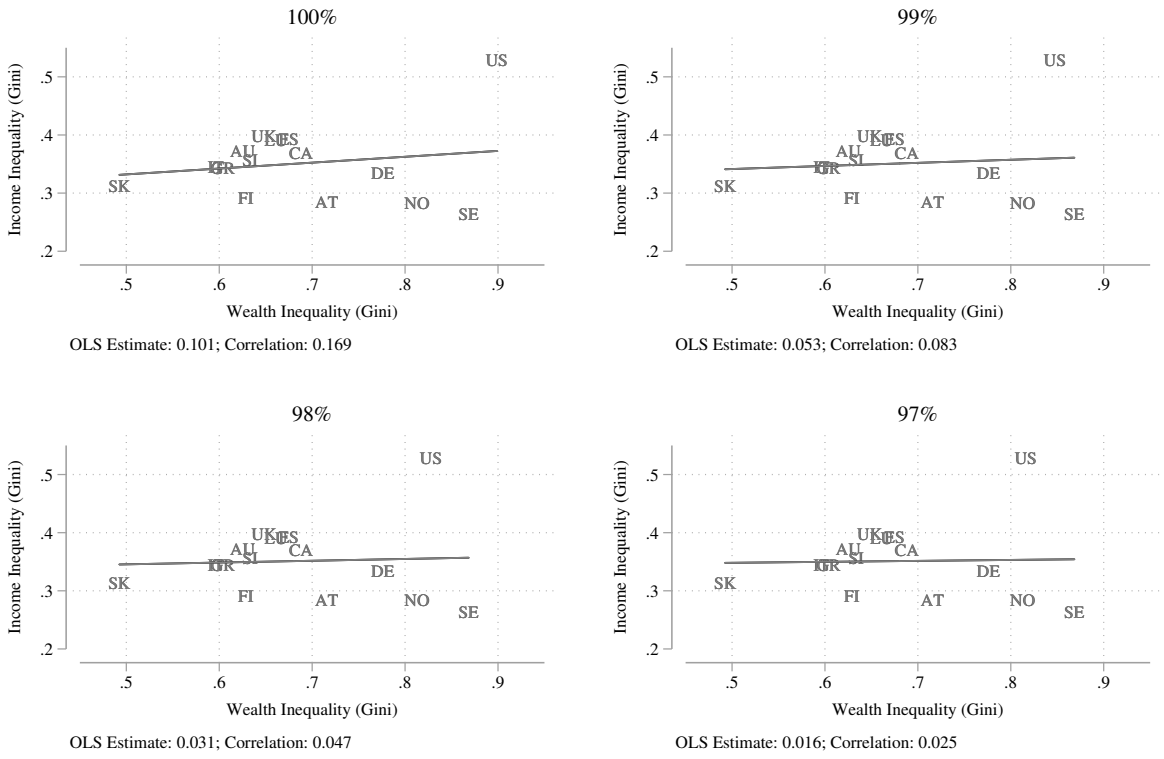
efforts of the wealthy would need to differ strongly across countries, which we consider possible though not very likely. More importantly, we expect the non-correlation between wealth inequality/concentration and income inequality/concentration that we document to be stable against potential concerns about undercoverage of the top. To the extent that selective coverage of top wealth is positively correlated to that of top income — which strikes us as a quite reasonable assumption (see also Keister 2014) — the conclusion about the independence of income and wealth inequality drawn here should be conservative. That is, countries that are more likely to miss the income rich (or income poor, for that matter) should also be more likely to miss the very wealthy (or asset poor), thereby pushing any particular nation in the same direction in regards to its level of income and wealth inequality. As a consequence, if anything, we would expect undercoverage of the top to induce (rather than suppress) a positive correlation between measures of income and wealth inequality.

Another related question may be raised about our finding of exceptionally high wealth inequality in the United States. What if U.S. exceptionalism was less about wealth inequality than about its ability to sample the very wealthy?[4] The providers of the U.S. wealth data included here, the Survey of Consumer Finances (SCF), indeed exert a great deal of effort to effectively oversample the wealthy (see Kennickell 2017; Pfeffer et al. 2016). Although we want to be clear that we see no reason to assume that the U.S. outperforms other countries in this way, Figure S.4 provides the results of an overly conservative simulation analysis. This analysis tests the drastic assumption that only the U.S. – and no other country – adequately captures the top of the wealth distribution. In this hypothetical world, a "fair" comparison between the U.S. and other countries should dispose of the very top of the U.S. wealth distribution. In Figure S.4, we therefore successively dispose of the top one percent, top two percent, and top three percent of the wealth distribution (i.e. we censor at the 99th, 98th,

[4]A similar critique could be levied against the Swedish and Norwegian estimates: Is wealth concentration so high in these countries because they alone are able to capture the wealthy correctly thanks to access to register data? Given our expectations about measurement error correlation between income and wealth offered above, the comparatively low estimate of income inequality and concentration for these countries again complicates this argument.

and 97th percentile, respectively) and re-estimate the level of overall wealth inequality (we do not re-estimate wealth concentration under these drastic scenarios). In these scenarios, U.S. wealth inequality successively drops by a total of almost .10 gini points. But even the censoring of the top three percent in the U.S. and no other country would still leave the U.S. as the country with the second highest level of wealth inequality in our sample of countries, only outperformed by Sweden.

Figure S.4: Simulation: Top-Censoring U.S. Wealth Data



Notes: Based on LWS; simulated based on the U.S. wealth distribution censored at the 99th, 98th, and 97th percentile, respectively.

Appendix S.4 Retirement Wealth

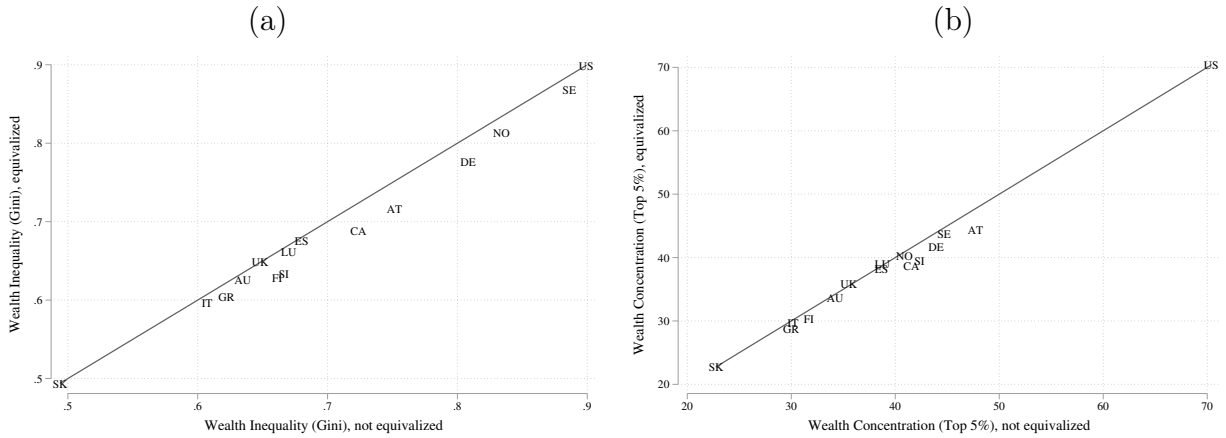
Retirement savings and pensions are excluded from our analyses, as they are from most research on wealth. Complete "augmented net worth" measures, which include both private retirement savings and current-value estimates of employer-based and public pensions, are not available for a cross-national comparison. However, data on private retirement savings and some occupational pensions are available for a handful of countries included in our analyses. Table S.5 provides estimates of wealth inequality and concentration when "voluntary retirement savings" and "occupational pensions" are added to our measures of wealth inequality. The gini coefficient is virtually unaffected by the inclusion of voluntary retirement savings, while occupational pensions only reduce the wealth gini coefficient for Finland to an appreciable degree (similarly, wealth concentration measures are only appreciably reduced in Canada and Finland once we include occupational pension wealth). While it would be helpful to be able to draw on these indicators for more countries, we also acknowledge that even these indicators do not include what in many countries is by far the largest component of pension wealth, namely (estimates of current values of) public pensions.

Table S.5: Wealth Inequality and Retirement Wealth

	Net Worth	Augmented Net Worth		
		w/ volunt. savings	w/ occup. pensions	w/ both
Gini Coefficient				
	(1)	(2)	(3)	(4)
CAN	0.688	0.675	0.652	0.645
FIN	0.629	0.627	0.542	0.542
GRE	0.604	0.604	--	--
ITA	0.596	0.602	0.604	0.61
LUX	0.661	0.659	--	--
SK	0.493	0.492	--	--
SI	0.633	0.633	--	--
ES	0.675	0.675	0.675	0.674
UK	0.648	0.647	0.644	0.643
US	0.899	0.875	--	--
Concentration				
	(5)	(6)	(7)	(8)
CAN	38.7	36.6	32.1	31.3
FIN	30.3	30.1	23.3	23.3
GRE	28.7	28.7	--	--
ITA	29.7	29.8	30.1	30.4
LUX	39.1	38.7	--	--
SK	22.7	22.7	--	--
SI	39.4	39.4	--	--
ES	38.3	38.2	38.2	38.1
UK	35.8	35.7	35.5	35.4
US	70.4	65.6	--	--

Appendix S.5 Household-Size Adjustments

Figure S.5: Wealth Inequality and Concentration: Equivalized vs. Non-Equivalized Wealth



Notes: Based on LWS Data. Equivalized wealth $= \frac{household\,net\,worth}{\sqrt{hsize}}$. The solid line represents $x = y$.

Table S.6: Decomposition: Slovakia as reference country

(a) Decomposition

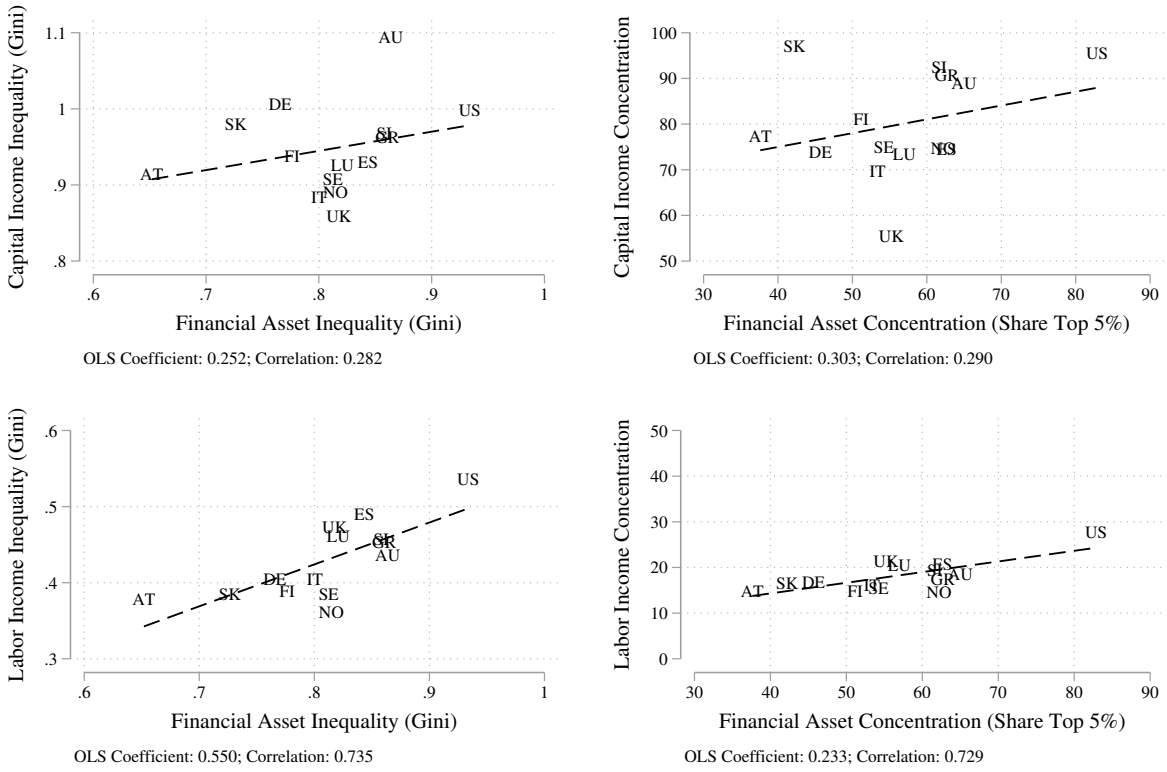
	Gini Coefficient						Top Share (5%)					
		(1) Shares = SK		(2) Comp. ginis =SK		(3) Gini corr. = SK		(4) Shares = SK		(5) Comp. concent. = SK		(6) Alignm. factor = SK	
	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)
Slovakia	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	0.711	0.738	(3.7%)	0.513	(-27.9%)	0.671	(-5.6%)	39.2	40.3	(2.9%)	24.9	(-36.5%)	36.6	(-6.6%)
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%)
Luxembourg	0.649	0.651	(0.3%)	0.509	(-21.6%)	0.608	(-6.3%)	38.5	39.2	(1.7%)	24.6	(-36.3%)	34.5	(-10.6%)
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%)
Spain	0.654	0.648	(-0.9%)	0.521	(-20.3%)	0.613	(-6.3%)	37.2	34.9	(-6.2%)	26.2	(-29.7%)	33.7	(-9.5%)
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) Decomposition: Within-Component Inequality/Concentration

	Gini Coefficient								Top Share (5%)							
		(1) Housing Equity		(2) Financial Assets		(3) Non-Housing Assets		(4) Other debts		(5) Housing Equity		(6) Financial Assets		(7) Non-Housing Assets		(8) Other debts	
	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)	Simulated	(change)	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)	Simulated	(change)
Slovakia	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	0.711	0.540	(-24.1%)	0.706	(-0.7%)	0.689	(-3.2%)	0.712	(0.1%)	39.2	29.1	(-25.8%)	38.8	(-1.0%)	35.2	(-10.3%)	39.4	(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%)
Luxembourg	0.649	0.519	(-20.0%)	0.639	(-1.6%)	0.649	(-0.1%)	0.649	(0.1%)	38.5	26.7	(-30.7%)	37.0	(-4.0%)	37.8	(-1.9%)	38.7	(0.3%)
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%)
Spain	0.654	0.545	(-16.6%)	0.638	(-2.4%)	0.645	(-1.3%)	0.654	(0.1%)	37.2	30.3	(-18.5%)	34.6	(-7.0%)	35.6	(-4.4%)	37.3	(0.2%)
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%)

Appendix S.7 Income Components

Figure S.6: Financial Wealth and Income Component Inequality/Concentration



Notes: Based on data from LWS. Inequality in income and 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.

Appendix S.8 Housing Equity Components

As described in the main text, we believe that delineating the separate contribution of the distribution of home values and the distribution of mortgage debt is daunting as the two are interactively determined. Additive decompositions of their relative contribution should therefore be interpreted with great caution. Table S.7 nevertheless provides such analysis. The findings, if one were to believe the linear decomposition results in this context, 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. Again, this finding does not rule out a crucial role of financialization, as its effects on the wealth distribution may be channeled through the housing market rather than merely emerge through its direct link to households' increased participation in financial markets.

Table S.7: Decomposition: Within-Component Inequality/Concentration for Housing Equity Components

	Gini Coefficient								Top Share (5%)							
		(1) Home Value		(2) Home Mortgages		(3) Real Est.Value		(4) Real Est. Mortgages		(5) Home Value		(6) Home Mortgages		(7) Real Est.Value		(8) Real Est. Mortgages	
	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)	Simulated	(change)	Observed	Simulated	(change)	Simulated	(change)	Simulated	(change)	Simulated	(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%)
Luxembourg	0.575	0.652	(13.5%)	0.571	(-0.7%)	0.583	(1.5%)	0.575	(0.1%)	30.3	36.7	(21.4%)	30.1	(-0.6%)	33.7	(11.5%)	30.4	(0.6%)
Slovakia	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%)
Spain	0.511	0.597	(16.8%)	0.507	(-0.8%)	0.536	(4.7%)	0.513	(0.2%)	23.6	28.9	(22.6%)	23.6	(0.1%)	31.3	(32.9%)	24.1	(2.4%)
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%)

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