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Financialization and Income Generation in the 21st Century: Rise of the Petit Rentier Class?

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Financialization and Income Generation in the 21st Century: Rise of the Petit Rentier Class?

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Abstract

This article considers the consequences of asset-based accumulation for household income factors and social class structure in twenty-nine countries from 1998-2016. Are financialization, asset-based welfare institutions, and rising real estate returns fueling a growing class of *petit rentiers* in capitalist economies? That is, households who accrue more than a trivial share of income from capital rather than labor or government transfers. The analysis draws on the Luxembourg Income Study data. Contrary to expectations, most countries saw *declines* in the share of households who accrue more than 10%, or 20% of income from assets. Estimates from correlated random effects models indicate that financialization is associated with between-country differences in the size of the *petit rentier*, but not within-country change over time. The decline of the *petit rentier* can be partly explained by declining interest rates, which reduces income from bank savings.

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"We have moved from a society with a small number of very wealthy rentiers to one with a much larger number of less wealthy rentiers: a society of petites rentiers if you will." (Piketty 2014, p. 420)

1. Introduction

Scholars across the social sciences suggest that financialization has made ownership of assets increasingly central to processes of accumulation, distribution, and stratification in capitalist societies. As wages in many advanced economies have stagnated, institutional transformations have opened new pathways by which members of the upper-middle classes (even those who own relatively little capital) can make entrepreneurial investments in assets (Erturk et al. 2007; Langley 2008; Davis 2009; van der Zwan 2014; Fligstein and Goldstein 2015). This manifests in increasing rates of borrowing, investing, and various so-called "side hustles" which are intended to supplement if not replace labor income. Such practices include everything from trading stocks to renting a spare bedroom through platforms such as Airbnb. For instance, Ronald and Kadi (2018) document a quadrupling in the number of small-scale private landlords in the U.K. from 1991-2012.

This paper considers the consequences of asset-based accumulation for household income factors and social class structure across twenty-nine countries from 1998-2016. Are financialization and rising capital returns producing, as Piketty (2014, p.420) suggests, a growing class configuration of *petit rentiers* in capitalist economies? That is, households who accrue more than a trivial share of their income from assets as opposed to labor or government transfers?

This question sits at the intersection of several empirical literatures. Prior sociological work gauges the extent of mass-participatory financialization using data on discourses and financial practices, (e.g. Fligstein and Goldstein 2015; Ailon 2019), but we know comparatively little about households' asset-based income generation. This contrasts with studies of the

corporate sector, where analysts have documented non-financial firms' increased dependence on financial income sources (Krippner 2005; Orhangazi 2008). Meanwhile, students of stratification and comparative political economy have documented the effects of macro-financialization and increasing household capital shares on overall distributional inequality (e.g. Nau 2013; Kus 2012; Flaherty 2015; Godechot 2016), but have paid less attention to capital's relative factor share within household income strata, except at the very top of the distribution (Piketty and Saez 2013; Atkinson and Lakner 2017; but see Thewissen et al. 2018). Finally, scholars have examined shifts in the social class distribution of national income accruing to capital versus labor (Kristal 2010), and financial capital versus productive capital (Epstein and Jayadev 2005; Tomaskovic-Devey and Lin 2011), but have not grappled with the degree to which a new class of "investor-citizens" are diversifying their own income sources beyond labor.

The question of whether a growing subset of households rely on assets is interesting in part because widening involvement in investment activities has often been portrayed by scholars as a compensatory response to diminishing opportunities in the labor market (e.g. Fridman 2016), and the reorientation of social policy to promote individualized, asset-based welfare (e.g. Conley and Gifford 2006; Crouch 2009; Lennartz and Ronald 2017): As jobs become less stable and remunerative, and public pensions less sufficient, actors have been encouraged to seek supplementary income and "financial freedom" by exploiting emergent asset-based opportunities (typically abetted by credit markets). However, we know very little about whether these trends translate into actual shifts in households' income sources.

Meanwhile, economists have developed a parallel argument, in which rising rates of return to capital — particularly residential real estate — makes asset-based channels increasingly central components of aggregate income all around the world (Bonnet et al. 2014; Rognlie 2016). Piketty (2014; Chaps. 8, 10-11) explicitly links this trend to emergent shifts in the class structure

by hypothesizing that capital returns are fueling the re-growth of a *petit rentier* class – those who depend on capital for at least a supplementary source of income. However, Piketty does not quantify recent shifts in the size of the petit rentier directly, but instead relies on observed growth of intergenerational inheritances as an indirect indicator.

Other perspectives on wealth stratification offer reasons to be doubtful that a petit rentier grew over the past two decades. The rise of top-end wealth concentration (Zucman 2019), and the hollowing of the middle classes before and after the 2008 financial crisis (e.g. Balestra and Tonkin 2018) imply that there are ever-fewer households in a position to acquire and exploit income-generating capital. Thus even as the upper-middle classes have faced growing inducements to fashion themselves as investors (Fligstein and Goldstein 2015), the possibilities for doing so may have diminished over time.

We assess these alternatives using cross-national data from the Luxembourg Income Study. We conceive of the petit rentier as those households who accrue some meaningful share of their income from capital, as opposed to labor and/or government transfers. We take a broad view of asset-based income, including traditional financial income, as well as income from trusts, royalties, real estate sales and rents, and other asset sales. For the main analysis we use 10% asset-based income as a cutoff to demarcate petit rentier status (hereafter “PR10”), although we also experimented with other cutoffs.

The results reveal a striking pattern: During the 21st century – a period characterized by rapid asset appreciation, the global expansion of consumer financial markets, and social policies to promote asset-oriented accumulation strategies – most advanced countries have seen a *decline* in the share of households who accrue more than 10% or 20% of income from private assets. With a few exceptions, similar patterns hold among both under- and over-65 households. Although there is some cross-country variation in the degree to which *petit rentier* households

are concentrated within the top of the country's income distribution, the general trend is downward across income quartiles.

There are some cases where the PR10 did expand. The most significant of these is China, where real estate investment expanded throughout the urban middle classes, such that the share of households with greater than 10% of their income from capital increased from 3% in 2002 to 17% by 2013. Other countries with PR10 growth include Australia, Spain, Mexico, and European post-socialists (Poland, Czech Republic, and Slovenia). Overall, however, we are not witnessing the expansion of an asset-dependent class configuration in 21st-century capitalism.

In the second stage of the analysis, we examine several explanations for these trends (and country-variation therein). We first assess the degree to which between-country differences are driven by differential levels of financialization and asset market development, which index the opportunities available for households to monetize assets. We then consider two factors to explain over-time declines in the petit rentier class: 1) Low interest rates, which propel financial innovation, but which also reduce returns on the passive savings vehicles that have traditionally been used by households. 2) The shift to third-pillar individual pensions, which encourages households to embrace investment, but which also reduces realized investment income by incentivizing them to redirect savings to deferred rather than current income accounts.

2. Theoretical Considerations

2.1 Conceptualizing the Petit Rentier as an Economic Class

The term *rentier* has been understood to denote those who profit from passive ownership of capital, namely landowners, creditors, bondholders, and heirs (Epstein and Jayadev 2005). Despite frequent (often derisive) invocations in the classical writings of Marx, Weber, and Keynes (McKibbin 2013), the rentier has largely disappeared from the analytic frameworks of

modern sociological class analysis (but see Portes 2010). This inattention is primarily attributable to the fact that modern class analysis is conceptualized around positions within systems of *production,* particularly with respect to the division of labor, workplace authority, or exploitation (e.g. Erikson and Goldthorpe 1992; Wright 2005). Here the rentier, as passive owners of unproductive capital, appears as a residual vestige. Of course, this theoretical inattention is itself reflective of the empirical conditions of post-war industrial capitalism, in which finance played a secondary role, and property ownership represented a comparatively marginal factor within the stratification structures of urbanized societies (Stinchcombe 1961).

The evolving conditions of 21st-century capitalism suggest the need to revisit the role of asset ownership in class structure. Despite long-running debates about the future of class analysis (see e.g. volumes by Grusky and Sorenson 1998; Wright 2005), sociologists have paid little attention to the role of property ownership outside the site of production. One exception is the class schematic proposed by Portes (2010). He argues that the contemporary rentier class can be seen to represent a group of lesser capitalists, who are distinguished by the fact that their capital "is too small to reproduce itself actively in independent enterprise and must do so as passive investment in the economic activities of others" (2010, p.83). Members of this investor class often work in the professional labor market (Godechot 2016), but their wealth places them in an objectively different position than occupationally equivalent co-workers. Notably, Portes suggests that to qualify for *rentier* status, actors must possess sufficient wealth so as to render their labor income unnecessary for the reproduction of their lifestyle.

We build on this but define the petit rentier more expansively and functionally. Portes (2010) locates the rentier within a hierarchical class schema as a function of the size of their capital holdings. From our perspective, the key question is not how much wealth one owns. Rather, we are concerned with identifying and quantifying those households who are dependent

on asset-based channels for a meaningful share of their total income, however large or modest. The conceptual rationale for this approach follows from Weberian conceptions of class as a shared market situation. That is, a social group demarcated by the fact that their livelihoods (measured by income accrual) reflect a particular relationship to the capitalist marketplace. In this case, we are interested in the degree to which livelihoods derive from ownership of property and hence depend on the dynamics of the equity, bond, and real estate markets, rather than solely on one's position in the labor market. We note, moreover, that such asset-dependent livelihoods represent a potentially salient basis of political mobilization insofar as the petit rentier will demand policies to promote asset appreciation.

The idea of the *petit rentier* as a distinct class position also follows from neo-Marxist concepts of contradictory class locations (Wright 1978). From this vantage, the diffusion of small-scale asset ownership scrambles traditional class interests by realigning workers' preferences with financial capital (Pagliari et al. 2018).[3] In this framework the petit rentier are defined by their split or "mediate" position between classes. Hence they do not possess the analytical status of a full-fledged class. Nonetheless, the point is that the petit rentier represent a theoretically identifiable (albeit empirically unstudied) formation from the perspective of multiple class-theoretic traditions.[4]

2.2 Operationalizing and Measuring Rentier Income

The task of demarcating a petit rentier class raises thorny definitional and measurement questions. At the macro-level, there is a large literature on labor and capital's relative shares of *total* national income ("factor shares") (e.g. Atkinson 2009; Kristal 2010). This research uses a

[3] Such political realignment has long been an express goal of policies to promote mass asset ownership, such as George W. Bush's "ownership society" in the U.S. (Davis 2009).
[4] We provisionally refer to these asset-dependent households as a class, though we recognize that this is debatable.

broad, residual definition of capital income from national accounts data. Here capital is measured as total GDP minus labor income, with an imputation adjustment to account for self-employment.

Meanwhile, heterodox economists have sought to quantify *rentier* income specifically by distinguishing financial incomes from profits that are reinvested in productive activities. Stockhammer (2004) treats *rentier* income as synonymous with financial income (interest and dividends). He shows broad increases from 1960-1996 in the *aggregate* share of household income from interest and dividends across the U.S., the U.K., France, and Germany. Epstein and Jayadev (2005) and Duenhaupt (2012) create alternative derivations of the rentier share of national income by measuring property income plus financial sector profits as a proportion of total GDP. They find similar growth in *rentier* income as share of national income.

Although useful for many purposes, these macro-level approaches tell us little about the rentier as an economic class. First, these studies use aggregated data and focus on factor shares across entire national economies, or economic sectors (i.e. household sector). Without micro-data, it is difficult to distinguish the change in capital's aggregate share of household income from the change in the relative share of households whose livelihoods are substantially dependent on capital income. Second, analyses have tended to construe asset-based income narrowly as interest and dividends. This reflects an older imagery of the rentier class as "coupon-clippers" (Keynes 1919). By excluding income from rents and real estate, they overlook a potentially important channel by which asset ownership is transformed into income streams.[5]

Meanwhile, studies utilizing micro-level tax records (e.g. Piketty and Saez 2013; Atkinson and Lakner 2017) have information on households' capital income shares. However, they have focused analytically on deriving point estimates of capital's *average* factor share at

[5] One study that does use household-level data (Nau 2013) excludes income from real estate rents.

particular places on the total income distribution, rather than identifying and quantifying the subgroup of households who exhibit a relative degree of reliance on capital income.

As we elaborate below, we operationalize petit rentier as households whose capital income share (including interest, dividends, rents, individual private pension distributions, and realized capital gains) exceeds a given threshold (either 10% or 20%). This approach highlights that a given household's dependence on capital income is conceptually independent of its relative position in the socio-economic hierarchy: Although petit rentiers will be concentrated disproportionately in the upper income deciles where asset ownership is most prevalent, some will occupy middling income positions (e.g. small landlords). Similarly, the size of the petit rentier class at the country-level is conceptually independent of overall wealth concentration. Even if the top 1% own 50% of the wealth, significant numbers of households may be dependent on smaller stocks of wealth for a significant share of their own incomes. Rising asset values and credit market expansion make an expanded petit rentier class plausible even amid concurrent trends toward increasing top-end wealth concentration. A further difficulty is how to treat retirees, who often rely on invested private pension assets, but have no labor income. Given the differing status of retirees, analyses break out older households separately.

3. Theorizing the Growth of a Petit Rentier Class

Political economy and sociology literatures both offer reasons to believe that capital has come to play a role in income generation for a growing subset of households, though they emphasize different mechanisms. Our discussion begins by first considering the arguments put forth by Piketty in the latter chapters of *Capital in the 21st Century*. We clarify the empirical implications of the theory as stated, and then leverage theories from the economic sociology of financialization to suggest an expanded set of micro-level mechanisms.

3.1 Piketty and the Petit Rentier

Piketty (2014) describes two ideal-typical societies. Where the rate of return on capital ("r") outpaces economic growth ("g"), societies will be characterized by ossified wealth inequality and patrimonial inheritance. Where the growth rate is greater than the rate of return on capital, overall inequality is lower, returns to education grow, and managerial elites (skill) tend to predominate over the owners of capital (rent). Piketty suggests that after moving from the former to the latter during the post-war era, the pendulum has swung again, and the current epoch is witnessing a partial return to conditions in which asset-based accumulation plays a central role.

Piketty's argument casts rentier regrowth as a structural process driven by increasing returns to capital, which propels wealth concentration, and is further compounded by intergenerational transfers. Although one must look to the very top 0.1% of the income distribution before capital income constitutes a majority of total income, a further implication is that a larger group of secondarily asset-dependent *petit rentier* will also emerge as a byproduct of this same process. Piketty gives the illustrative example of a Parisian professional who accrues most of her livelihood from her managerial salary, but also derives significant supplementary income from renting out an extra apartment which she inherited. As metropolitan real estate rents increase, this asset produces ever-more income, allowing her to reinvest a greater portion of her labor income. Her children will likely inherit two Parisian apartments. From this perspective, the growth of the petit rentier reflects processes of passive accumulation over the medium- and long-term. Piketty thus focuses empirically on inheritances as an indirect indicator.

3.2 Economic Sociology of Financialization

Although inheritances are one potential long-term driver of petit rentier expansion, the economic sociology of financialization suggests a complementary set of shorter-term

mechanisms. Here reflexive actors (even those who own relatively little capital) recognize the growing opportunities posed by a world where "r > g" and attempt to seize on this by making entrepreneurial investments in assets, or by finding new ways to monetize their existing assets.

A growing literature highlights the widespread refashioning of the upper-middle classes as investor-citizens (e.g. Langley 2008; van der Zwan 2014; Ailon 2019). This trend has been abetted by five inter-related institutional shifts, all of which have occurred to varying degrees in advanced capitalist countries since the 1990s: 1) the reorientation of social policy toward individualized asset-based welfare (e.g. Ronald and Kadi 2018), which promotes private investments as a substitute for state-provision, and underwrites these activities through tax incentives; 2) the expansion of investment opportunities due to the growth of the financial services industry (Fligstein and Goldstein 2015), and of private housing rental markets in many countries (Hulse et al. 2019; Byrne 2019); 3) the expansion of mortgage credit markets around the globe, which facilitates mass investment by providing ready access to financing (e.g. Fernandez and Aalbers 2017); 4) rapid appreciation in asset values for financial instruments and real estate since the 1990s, which serves as a powerful behavioral inducement to attract non-professionals into asset markets (Akerlof and Shiller 2010); and 5) the diffusion of investment-oriented cultural repertoires and media discourses, which popularizes asset accumulation strategies and furnishes actors with the wherewithal to behave as investors (e.g. Davis 2009; Fridman 2016).

Data on investment activity suggests that growing numbers of upper-middle income actors are *attempting* to become petit rentiers. This trend is most apparent in data on non-occupant real estate investment. In the U.K., double-digit *declines* in the overall homeownership rate since the early 2000s have been accompanied by a 2.5-fold increase in the number of households who own one or more secondary investment properties, from ~800,000 in 2001 to

~2,100,000 by 2012 (Leyshon and French 2009; Arundel 2018). Over 40% of these private landlords fell below the top quartile of the total household income distribution (Ronald and Kadi 2018). Surveys indicate that buy-to-let investors conceive of the strategy as an income-generating response to diminished pension expectations (Ronald and Kadi 2018).

Data from Australia reveals similar trends (Hulse et al. 2019). By 2015, 14% of all households reported owning a rent-generating property. During that same year, mortgage lending for investment purposes briefly outstripped lending for owner-occupant purposes. Mass-participatory real estate investment in Australia also resembles the U.K. case in its framing as an individual asset-based welfare strategy for the upper-middle classes (Hulse et al. 2019).

In the U.S., approximately one-fifth of all residential real estate purchases during the mid-2000s housing boom were made by small-scale investors (Goldstein 2018). More recently, the rapid growth of the Airbnb property rental platform has attracted additional quasi-landlords. A study by the personal finance website SmartAsset.com found that Airbnb rentals of two-bedroom apartments across the fifteen largest cities in the U.S. produced an average annual *net* income of over $20,600 in 2017. Data from the Current Population Survey indicate that the share of U.S. households with some non-zero amount of rental income grew by over 25% from 2008-2018 (authors' calculation from March CPS; see also Garboden 2018).

These processes are not confined to Anglo-liberal cases. French housing policy has also sought to encourage small-scale private rental markets through tax incentives since the 1980s. Acquisition of secondary properties emerged as a popular accumulation strategy. Over 15% of French families own two or more homes (although many of these are solely for personal use). The number of landlords grew steadily to over 6.5 million persons by 2012, while mortgage debt for buy-to-let purchases grew (in real terms) from 5 billion euros in 1998 to over 22 billion euros (Wijburg 2018).

The most dramatic case of mass-participatory real estate investment, however, is China. Housing privatization reforms since 1998, combined with an urban construction boom, have made real estate the main repository of Chinese household savings (Song and Xie 2014; Walder and He 2014). In 2009, multi-home owning buyers accounted for approximately 30% of all residential purchases. By 2018, the share of buyers who already owned at least one home had risen to over 70%, and the share with at least two existing homes reached 25% (China Household Finance Survey 2019), generating politically fraught distortions in the housing market.

All of the above cases highlight the role of entrepreneurial action in forging new asset-dependent positions. This economic sociology approach carries three implications for the petit rentier thesis: First, increasing capital returns will propel the growth of the petit rentier *not only* through the slow march of intergenerational accumulation (Piketty 2014), but also in the short-term through debt-funded entrepreneurial action. Second, it suggests a potentially wider demographic swath in which asset dependence can occur: Piketty's focus on accumulation leads to a conflation of wealth concentration and capital-dependence, but these are conceptually distinct. The central role of credit markets in mass-participatory investment (e.g. Fernandez and Aalbers 2017) allows some enterprising members of the mass middle-classes to acquire income-generating assets. So too does small-scale inherited real estate, especially in cities where rapid price appreciation has transformed working-class neighborhoods into valuable exploitable property. Third, an institutional approach points beyond an overdetermined "r > g" explanation by highlighting middle-range factors that can help explain cross-national variations in the relative size and growth of the petit rentier class. We elaborate these further below.

3.3 An Alternative View: Wealth Concentration and Contradictions of Popular Investment

Before turning to hypotheses about cross-national variations in the size and trajectory of the petit rentier, it is important to emphasize that other theoretical perspectives cast doubt on the prediction of secular expansion of a petit rentier class during the 21st century. Whereas the above frameworks focus on the growing pressures and inducements to diversify household incomes beyond labor, this alternative perspective emphasizes that the discourses and promises of asset-based welfare are often more aspirational than viable when it comes to bolstering household finances (Erturk et al 2007).

First, growing top-end wealth concentration may have diminished the share of households "at-risk" of generating capital income, notwithstanding the expansion of credit markets. The Great Recession, which bisects our study period, induced widespread wealth destruction among the middle-classes in many countries (Balestra and Tonkin 2018). Although asset markets recovered after the crisis, we know that household shocks were lasting, dispossession of assets was widespread, credit access was curtailed, and the recovery was uneven (see e.g. Redbird and Grusky 2016; Thewissen et al. 2018).

Second, even for those households with savings, transforming capital into income is not trivial. Whether offered as public policy or as a private advisory scheme (e.g. Trump University), promises of financial gains through investment are often unrealized (Erturk et al. 2007). Part of the reason is that wealthier investors realize disproportionately higher returns, which crowds out income-generating possibilities for would-be petit rentiers. Using comprehensive registry data from Norway, Fagereng et al. (2019) show a stark association between wealth and rate of return to wealth, even after adjusting for portfolio allocations across asset classes. Risk-adjusted returns for those in the top wealth percentile were three times greater than at the median, and 30%

greater than at the 85th percentile. Although such data is not widely available, the implication is that inequality in rates of return will tend to suppress the growth of a petit rentier.

Third, the literature on popular investment (e.g. Harrington 2008; Fridman 2016) has not clarified to what extent households pursue asset-based strategies for income diversification or labor substitution in the present ("side hustles"), versus saving for an uncertain future. In an interview-study of amateur investors in the U.K., Hillig (2019) found that respondents who embraced a strategy of asset-based welfare did not forsake labor. Instead, they "double down" on their work hours and career commitment in order to save for what they imagine will be their asset-supplemented retirement. Thus capital and labor incomes might grow in tandem (Atkinson and Lakner 2017).

4. Accounting for Cross-National Variation in Petit Rentier Class Size

We expect that cross-national variations in the size and growth of the petit rentier class will be driven partly by institutional differences that affect the opportunities and incentives for households to acquire income-generating assets.

4.1 Financialization

The first set of factors concern the financialization of the national economy. This includes development of the financial industry as a supplier of private credit, development of equity and private real estate markets, and the incorporation of households into the financial economy (as measured by household assets and debts). These factors index the overall accessibility of investment opportunities. Greater financialization will tend to be associated with a larger and growing petit rentier class. It is worth noting that these aspects of financialization will vary in their causal proximity. Financial services and asset market growth shape the background opportunity structure for households to become petit rentiers, whereas the growth of household

debts and assets can be seen as a more proximately necessary condition for the growth of a class who are able to generate capital income.

4.2 Asset-Based Welfare Regimes and Pension Privatization

Another set of factors concerns the motivations for households to seek capital income. The comparative welfare state literature has linked diminishing sufficiency of traditional pensions and a corresponding push for policies to promote individualized asset-building as a bulwark against old-age risks (e.g. Lennartz and Ronald 2017). This asset-based welfare (ABW) regime incentivizes private investment in homes and financial instruments. Although ABW policies such as housing privatization and third pillar individual pension schemes have traditionally been seen to encourage accrual of private *savings* (i.e. wealth) as a substitute for public provision, scholars have come to view ABW's effects more expansively insofar as they also spur a subset of actors to go further and embrace investment as labor-substituting source of *income* (Fridman 2016; Ronald and Kadi 2018; Garboden 2018; Hulse et al. 2019). By empowering financially-savvy ("literate") investor-citizens, ABW policies cultivate financial entrepreneurialism as a general repertoire – not just for retirement saving (Langley 2008; Davis 2009; Fligstein and Goldstein 2015).

While it is generally agreed that privatization of social provision promotes individual investment, the effects of these shifts on current incomes are unclear, and likely vary across age groups. Among the elderly, increasing reliance on private retirement savings will boost the share of petit rentier households in a mechanical fashion over the long-term, as an ever-greater portion of retiree income derives from private investments. However, many countries have only recently introduced third pillar pension programs during recent decades. In these cases, the effect on elderly cohorts' incomes is only beginning to manifest. Moreover, the same perceived

insufficiency of public pensions which incentivizes private investment will also prompt older persons to work longer (Vickerstaff and Cox 2005), thereby maintaining labor income.

Meanwhile, the effect of pension privatization on working-age households' income factors is even more ambiguous. The institutional architecture of 3rd pillar (individual) pensions often relies on tax-incentivized savings accounts, which involve deferring the realization of investment returns into the future. This produces a generational lag insofar as interest, dividends, and capital gains from private retirement savings, which previously would have been counted as annual income, are now only booked upon withdrawal after retirement. This accounting feature could have a suppressive effect on the number of petit rentier households by redirecting investments away from current income-producing assets and into deferred accounts.

The effect of changing homeownership, which is another core indicator of ABW, is equally uncertain. On the one hand, widespread individual ownership generates a pool of investable real estate assets, while furnishing owner-occupants with potentially leverageable wealth. On the other hand, the *declines* in homeownership enhance rental demand and may encourage a small landlord class (e.g. Arundel 2018; Bryne 2019)

4.3 *Monetary Policy and Returns to Capital*

A final time-varying factor is interest rates, which index the returns on savings in fixed-income instruments. Here again, the effect on households' capital incomes is potentially subtle. Central banks' low interest rate policies during the 2000s have been seen as a critical factor in boosting asset values and propelling financial innovation in search of yield. A low lending rate reduces the costs for small investors to finance asset acquisition. Yet low interest rates also reduce returns on the passive savings vehicles that have traditionally been used by households.

5. Data and Methods

5.1 Data Sample

We draw on data from the Luxembourg Income Study (LIS). The LIS offers detailed household-level income data from about 50 countries spanning five decades. The LIS harmonizes microdata so that they conform to a common definitional framework, making it a valuable and widely used resource for cross-national research.

The fact that the LIS adapts data from national agencies creates some variation in data frequency and coverage. For instance, U.S. data are based on the triennial Survey of Consumer Finances, while German data are based on the annual German Socio-Economic Panel Survey. To track changes in the 21st century, we restrict our analysis to countries that participated in Wave V of LIS (~2000) and at least one wave after Wave V. This leaves us with 29 countries, and 170 distinct country-year observations from 1998 to 2016. The minimum number of observed years is 2 (China), the maximum number of observed years is 16 (Germany), and the average is 5.8. Among the 170 country-year datasets, the minimum number of observed households is 1,952 (Hungary 2007), the maximum number of is 235,732 (Norway 2013), and the average number is 23,154. More details on the country sample are presented in appendix table A1.

5.2 Measuring Capital Income

The specificity of available capital income measures also varies across countries due to the different underlying datasets. There is a tradeoff between the comprehensiveness of the capital income measure and the number of countries for which detailed components are available. We thus conducted three separate sets of analyses.

Our main analysis uses the LIS's basic definition of capital income, which includes interest, dividends, rental income, and royalties. This is the least encompassing definition of

capital income, but it includes the most comprehensive set of all 29 countries. This measure is harmonized to be consistent both within- and between-countries. The second and third analyses expand the definition of capital income to include voluntary individual pension disbursements and capital gains on sales of assets, but at the cost of smaller samples. The category of individual private pensions in the LIS excludes employer contributory pensions, even if they are individually-managed. Including private pension income (analysis 2) reduces the sample to 18 countries and 106 country-years. Further adding capital gains reduces the sample to 9 countries and 41 country-years (analysis 3). The third analysis also sacrifices between-country comparability due to variability in the treatment of windfall gains.

Importantly, *none* of our capital income definitions include imputed rents.[6] Imputed rents are added to capital income in national income accounts as a means of equivalizing the economic impact of rented and owned dwellings, but they are not an actual income flow for households. Moreover, incorporating imputed rent as capital income would make almost all homeowners *petit rentier* by our definition, rendering the concept theoretically meaningless.

5.3 Measuring Petit Rentier Status

We conceive of the petit rentier as households who accrue a meaningful share of current income from capital as opposed to labor- and/or government transfers. For the main results we use >10% capital income as a cutoff to demarcate petit rentier status, although we also experimented with other cutoffs given the arbitrary nature of the classification.

We calculate each household's capital income share using the LIS's total income definition as the denominator. This is the sum of income from labor, capital, pensions (including

[6] Imputed rent is a fictitious income stream which represents the estimated amount that owner-occupants "pay to themselves" in the form of foregone rent payments.

both public and private), transfers stemming from insurance, universal or assistance schemes (including in-kind assistance), and private transfers. We noted some variation in whether the LIS total income measure is pre-tax or post-tax.[7] The mixed tax treatment seems troubling given that using post-tax income as the denominator might inflate the PR10 share. However, most (146 out of 170) country-years with pre-tax income also provide post-tax income information, allowing us to gauge the impact of this discrepancy. Sensitivity analysis reveals little inconsistency in the trends whether we use pre-tax or post-tax income (see Appendix Figure 1). For a trivial share of observed households, we convert negative income into zero,[8] such that the capital income definition reflects gross positive income flows from asset investments. This is a liberal definition. It can thus be seen to represent an *upper bound* estimate. We apply probability weights from each country-year dataset when calculating the proportion of PR10 households.

We additionally chart trends in the size of the petit rentier across age groups (less than/greater than 65 years) and total income level. Sixty-five represents the median effective retirement age across OECD countries. We define households where no member is younger than 65 as senior households. Among senior households, we further differentiate those with labor income and those who rely completely on savings or transfer income. To measure the prevalence of petit rentier households across the income distribution, we calculated the share of PR10 households within each country-year quartile, using weights to construct the quartiles.

5.4 Country-level Covariates

As theorized above, variations in the size of the petit rentier class will be partly a function of cross-national differences in asset-based opportunities, as indexed by various dimensions of

[7] Thirteen countries in our sample use pre-tax income, six use post-tax, and ten are mixed. See appendix Table A1.

[8] Among the 170 country-years, 40% do not report any observations with negative total income. For those that do, the mean share of households with negative total income is 0.1%.

financialization. We acquired data to construct six time-varying measures of financialization from the OECD and the World Bank. Where possible we utilize multiple measures to make the analysis less measure-dependent. To capture variation in the size of the domestic financial sector, we calculated: a) finance industry value added (as % of total value added; b) private domestic credit from the financial sector (as % of GDP). To capture variation in the extent of asset market development, we measure a) total income from real estate activities (as % of GDP), and b) the annual value of stock equities traded. Finally, we capture variations in the degree to which households are integrated into the financial economy *using a)* household debt (as % of household income), and b) household financial assets (as % of GDP).

On the demand side, we focus on two measures of asset-based welfare regimes: 1) the share of GDP invested in traditional protective public pensions, and 2) homeownership rate. The first represents an inversely coded measure of ABW insofar as it captures spending on traditional cash benefits. This is based on a similar logic as Lenartz and Ronald's (2017) measure of protective spending. It proxies the growing vacuum of welfare state insufficiency for which private investment is cast as an alternative. Ideally, we would have direct measures of privatization, individual pension assets, or prospective projections of public pension adequacy, but comparable data are not available across our study period.

5.5 Modeling Approach

To assess the association between country-level factors and petit rentier share, we estimate a series of simple hybrid panel model specifications (Allison 2009), which are also sometimes known as correlated random-effects or "within-between model" (Bell and Jones 2015). Whereas a standard random effect estimate reflects a matrix-weighted average of the within- and between-unit estimators, the hybrid approach permits a straightforward

decomposition of total associations into within- and between-country components. The model takes the following form:

$$y_{it} = \beta 0 + \beta 1(x_{it} - \bar{x_i}) + \beta 2\bar{x_i} + u_i + \epsilon_{it}$$

, where $\beta 1$ represents the within-country effect, $\beta 2$ represents an estimate of the between-county effect, and u_i represents a country-level intercept. The models do not include control variables. Nor does the regression make any pretenses to identifying causal relationships between macro-institutional changes and petit rentier growth. Rather, it is intended as a tool for decomposing total associations into within- and between-country components.

6. Empirical Results

Our first-stage analysis charts country-level trends in the proportion of households whose capital income (as a share of total income) exceeds a 10% threshold. We start with the basic LIS-defined capital income definition, which includes dividends, interest, rents, and royalties.

Figure 1 shows country-level plots of the share of households who are classified as petit rentier using 10% cutoff. The series is plotted with free-y-axis scale in order to highlight within-country trends rather than between-country differences. The most significant pattern is the overall downward trend in the share of PR10 households across a majority of the most heavily financialized economies from 1998-2016. With a few exceptions, similar patterns hold among under- and over-65 households, and across income quartiles.[9]

[Figure 1 here]

The contraction of the petit rentier is particularly pronounced in Europe. In Germany, there was a continuous decline in the share of PR10 households from 8.5% in 2000 to 7% in

[9] Using the 20% capital income threshold (not shown) yields very similar patterns, though the absolute proportions are of course lower given the higher cutoff point.

2015. Similar patterns are evident in Denmark, Norway, Switzerland, Italy, and France (although the French data only extend to 2010, in the midst of the global financial crisis). Declines in the Anglo-liberal U.S. and U.K. were of a similar magnitude. The share of PR10 households in the U.S. went from 13% in 2000 to 10% by 2016, while the share in the U.K. went from 9% in 1999 to 5.5% in 2013. There is a petit rentier class of asset-dependent households in the most financialized economies, but it has *not* expanded in size since 2000, with a few exceptions such as Spain and the Netherlands. The contraction of PR10 households in continental Europe is especially at odds with Piketty's predictions, as these are the sites where petit rentier resurgence is expected to be most pronounced.[10]

The share of petit rentier households did grow in several countries outside of the United States and Western Europe. The most significant and pronounced case is China, where the PR10 share increased from 3% in 2002 to over 17% in 2013. This trend is based on only two data points, but it accords with other evidence of the key role played by the urban property market as a savings repository for the rising upper-middle classes. Even as many upwardly mobile Chinese move capital abroad, even more have invested in secondary and tertiary apartments for rental.

Other countries with PR10 growth include several which experienced real estate booms during this period, such as Australia, Spain, and Israel. The European post-socialist countries (Russia, Poland, the Czech Republic, and Slovenia, but not Hungary) also saw expansion of PR10 households. However, in these cases, the growth is somewhat deceptive insofar as they began at a very low level (this is also true of Mexico to some extent). The share of asset-dependent households in European post-socialist countries remained modest in absolute terms. The one exception is Slovenia, where the PR10 share grew to 6% of all households by 2012.

[10] Based on a sub-sample of countries for which earlier data waves are available, the downward trend in Europe was already occurring during the 1990s (see Appendix Figure A1).

Figures 2a and 2b clarify these divergent patterns by plotting the same figures for selected countries on an equivalent y-axis. Here we see the downward trend in the PR10 share in the Anglo-liberal and continental economies juxtaposed against the upward trend in Australia, China, Israel, and several "peripheral" European countries (Spain, Slovenia, and Ireland up until the 2008 real estate crash).

[Figure 2a and 2b here]

To what extent do the downward trends in the U.S. and Europe reflect our particular definition of the petit rentier as households with greater than 10% capital income? Figure 3 shows trends for the same focal countries using a more conventional measure of capital's average factor share. Rather than the share of households with greater than 10% capital income, this graph shows capital's mean share of household income across all households. The similarity in trends between figure 2 and figure 3 implies that the pattern of petit rentier expansion in China and a contraction in Europe is not merely an artifact of the arbitrary cutoff of the PR10 measure.

[Figure 3 here]

Figure 4 disaggregates capital income *among petit rentier households* into its main components. This figure highlights two important points. First, the constitution of the petit rentier class varies across countries. In countries characterized by more extensive homeownership, such as the U.S., the U.K., Australia, and Denmark, dividends from stocks represent a majority share of PR10 households' capital incomes throughout the entire study period. Meanwhile, real estate rents play a greater relative role in Latin American countries, and those European countries with less mass stock ownership, such as Germany and Italy.

The second key pattern in figure 4 is the declining contribution of financial income relative to rental income among PR10 households. This trend is apparent both in countries where the PR10 class grew and where it shrank. We suspect that the increasing relative contribution of

rental incomes compared to financial incomes reflects a convergence of two of the processes hypothesized above. First is the elevated rate of return to urban real estate all around the world during this period (Bonnett et al. 2014). Second is the concomitant decline in interest rates. This diminished households' interest incomes, especially in countries with high levels of bank deposit savings, such as Germany.

[Figure 4 here]

Finally, figure 5 shows the PR10 trends broken down by total income quartile. PR10 households tend to be concentrated disproportionately but not exclusively in the top quarter of the income distribution. The significant representation of asset-dependent households in the bottom income quartile in many countries might appear implausible at first glance. It is important to bear in mind, however, that these figures cover all households, including those outside of the labor market. Petit rentiers in the bottom income quartiles most likely represent fledgling landlords or retirees with supplementary private pensions.

[Figure 5 here]

6.1 Petit Rentier Share Including Voluntary Individual Pensions and Capital Gains

We now turn briefly to the trends in PR10 using the expanded definition of capital income that includes proceeds from individual pensions. Here we disaggregate the PR10 share of households across age groups. We define households as senior only if all members are over 65.

Figure 6 shows the PR10 share using this alternative definition. Adding this additional component to the numerator dampens (but does not reverse) the apparent decline of the PR10 class (represented by the red lines with round points in figure 6). In the U.S., the overall share of PR10 households diminishes by only a few percentage points from 2001 to 2016 if disbursements from individual retirement accounts are included in the capital income calculation.

There tends to be a greater share of PR10 households among over-65 households, as labor income plays a lesser role for this group. In most cases there is also faster growth (or slower decline) in the PR10 share among the over-65 population compared to all households. This likely reflects the increasing significance of private pensions, which we examine explicitly in the regression analysis below. Based on the descriptive trends, however, there is little evidence of within-country divergence between over-65 and under-65 households (except in Austria).

[Figure 6 here]

Figure 7 shows estimates of the PR10 share using the most expansive measure of capital income, which includes pensions, as well as capital gains on sales of real estate, stocks, and other assets. The data necessary to construct these figures are only available for a small subset of countries, and in several of these cases only for a limited portion of our total study period. Notwithstanding these data limitations, the results in figure 7 are consistent with those reported above. Including gross capital gains from asset sales implies larger absolute estimates of the portion of PR10 households in the population, but it does not alter the trends over time.[11]

[Figure 7 here]

6.2 Regression Results

Figure 8 shows covariate-standardized regression estimates from panel models using outcome measure #1 above. These are based on eleven separate model specifications, one for each covariate. The within- and between- components are estimated together. The one exception is asset prices, for which data is already country-demeaned. For these two variables we only

[11] Figure 7 should be interpreted cautiously. These estimates reflect our attempt to harmonize several LIS sub-aggregates which the LIS opted not to harmonize. The elevated Wave V5 observations (~2000) for Russia are likely erroneous due to inconsistent treatment of the residual category "extraordinary capital income". For the U.S. case we reconstructed the estimate using the underlying Survey of Consumer Finances data.

estimated within-country associations using separate country-fixed effects models. The headings in the chart organize the covariates thematically; they do not denote specifications.

These results indicate that financialization indicators, including household debts, assets, and levels of domestic equity and credit provision, are all associated with between-country variation in the relative size of the petit rentier (among all households). However, changes in the degree of financialization have no within-country effect over time. Similarly, countries with lower homeownership rates have more PR10 households, but the over-time association is null, notwithstanding the compositional shift from financial income toward rental income reported above. There is some evidence that contraction of the PR10 over time can be partly explained by declining interest rates, but this association is modest: for each one standard deviation increase (decrease) in lending rates, the average share of households who are petit rentier is expected to increase (decrease) by approximately .4 percentage points.

[Figure 8 here]

We also replicated the regression models among over-65 households (see appendix figure A2). The results for this group are similar to the overall sample. Notably, there is no strong evidence that pension privatization has led to an increased portion of seniors whose incomes are substantially dependent on private capital. This could be attributable to the fact that seniors in many countries are also working longer and continuing to accrue labor income. In unreported models, we examined only the seniors without labor income. Although the PR10 share is greater among this group in absolute terms, the multivariate patterns are again similar. Given the relative recency of third-pillar pension scheme development in many countries, its non-effect on the share of PR10 elderly households might also reflect a generational lag.

7. Discussion and Conclusion

The present analysis has sought to assess a) whether the first two decades of the 21st century financialized capitalism produced a growing segment of asset-dependent households, and b) how the size and growth of the petit rentier varies across countries. In contrast to the expectations of Piketty (2014, Chap. 6) and sociological accounts of popular financialization, we have not seen expansion in the share of households who generate supplementary income from assets. If anything, there is a marked contraction of asset-dependent households in the majority of Anglo-liberal, Scandinavian social-democratic, and coordinated continental countries.

To the extent that a new petit rentier is emerging, it is happening primarily in post-socialist countries (especially China), and in Australia and Spain to a lesser extent. By 2013, a staggering 17% of Chinese households accrued at least some substantial supplementary income from ownership of assets. Much of this comes from rental income. Our data for China only extends to 2013, and they do not include capital gains on real estate sales. Thus, the figures reported here should be seen as lower-bound estimates.

Our initial cross-national regression analysis focuses on proximate explanatory factors that are presumed to shape opportunities and incentives for households to seek supplementary investment income. These include the penetration of consumer financial institutions, the rapidity of real estate and equity price booms, changes in interest rates, and the individualization of welfare policy. Measures of financialization are associated with between-country variation in the size of the PR10, but they offer little help in explaining within-country trends. Real estate and equity market booms also have no association with changes in PR10 share. Asset prices have risen everywhere on average, but only in a few countries has this manifested in a growing asset-dependent class. There is some evidence that declining interest rates during the 21st century have

contributed to the declining share of capital-dependent households by reducing returns on small savers' fixed-income assets. However, this contribution is modest in magnitude.

These results – both the downward overall trends and the null associations in the country-level panel models – come with a few caveats due to data limitations. First, our analysis only captures realized capital gains in a small subset of countries. Although the observed trends appear similar when capital gains are included, it is possible that the PR10 share did grow in more countries than we can detect. Several covariate measures in the regression analysis are also imperfect. In the case of ABW, it is possible that our current measure of public pension expenditures is too blunt to capture the institutional particularities of private savings incentives faced by households. Finally, it is important to reiterate that we have defined the population of interest in terms of current (realized) income from assets, as opposed to unrealized accumulation. It is possible that the economic transformations discussed above are creating the pre-conditions for a reemergent petit rentier in Western countries, but its manifestation in current capital income shares is subject to longer temporal or generational lags than we are able to observe presently (Piketty 2014). Future research should continue to revisit this question in the coming decades.

Implications and Future Research

Our results carry several theoretical implications. First, the findings add additional empirical nuance to sociological accounts of financialization. Survey data and previous research cited above indicate that the rise of mass-participatory real estate investment has expanded the number of small landlords in countries such as the U.S., France, and the U.K. during recent decades (e.g. Ronald and Kadi 2018; Garboden 2018). Yet according to the results above, this has not manifested in a growing number of small rentiers. In other words, the basic *practices* of mass-participatory finance are being embraced, but the promises of the ownership ideology are not being realized, at least with respect to income generation.

These findings highlight a larger unexamined tension between two divergent portrayals of financialization: One casts financialization as an expansive process of forging mass-participatory investor-subjects who embrace the mantra of asset-based accumulation (e.g. Harrington 2008; Langley 2008). The other portrayal emphasizes financial capitalism as a wealth-concentrating system in which the actual returns accrue to an ever-smaller portion of the population at the top of the distribution (e.g. Epstein and Jayadev 2005; Nau 2013). An analogous tension also appears within Piketty's (2014) framework, wherein rising returns to capital are thought to concentrate wealth at the very top, while also simultaneously spawning a larger *petit rentier* group of enterprising second-home owners and small heirs as a byproduct. One way to interpret our findings is that 21st-century financial capitalism has produced mutually offsetting effects, but the concentration effect tends to predominate over the diffusion effect when it comes to the social distribution of asset-based income accrual in most countries.

The non-growth of the PR10 group is also notable from the vantage of class analysis. We began this article by critiquing the class analysis literature for its failure to interrogate whether financialization and asset-based welfare regimes are creating emergent positions which are not captured by production-centric schemes. It is thus important to acknowledge that our empirical results largely validate traditional approaches in class analysis insofar as they confirm the predominance of labor income in household income generation for a constant (or growing) share of households within most advanced economies. This facet of our results dovetails with the "working rich" thesis, which casts financialization's effect on income inequality as operating through labor markets (via firms) rather than through capital income (Godechot 2016).

To some readers, our failure to detect a growing segment of upper-middle households with supplementary capital income might beg the prior conceptual question of whether we should care about the petit rentier in the first place. We believe the answer is yes. First, there are several

countries where the share of asset-dependent households did grow. In China especially, this group now constitutes a substantial minority of the social structure. Second, even where the PR10 has not expanded, mass asset ownership still carries implications for class-based political interests (Pagliari et al 2018). As continued pension privatization exposes households to financial markets more directly, we expect that concerns about investments will increasingly color class identities, policy preferences, and political allegiances (Chwieroth and Walter 2020).

Several empirical puzzles arise from our results, all of which point to opportunities for future research. First, how do we explain cross-national variation in the development of the petit rentier class over this time period? China may be a *sui generis* case, but there is plenty of variability throughout the sample. Even in Europe, countries such as the Netherlands and Spain saw increases in the PR10 share. In North America, Canada remained constant, Mexico grew, and the U.S. declined. We also observe heterogeneous trajectories within the traditional "varieties of capitalism" categories. Second, and more pointedly, how can we account for the seemingly paradoxical pattern of widening mass-participatory investment without widening accrual of capital income in the U.S. and Western Europe?

The largely null findings in our initial regression analysis call for further research on factors that might explain variation in the petit rentier share. One avenue would be to go beyond country-level institutions and consider the socio-demographic determinants of capital income share at the household level. Such an approach shifts the explanatory emphasis to compositional shifts in the population that affect the balance of household income sources, and thereby the total number of capital-dependent households. For example, an increase in multigenerational residence or more women joining the formal labor market may boost household transfer income or labor income at a faster rate than capital returns. We note that cross-national and over-time variation in

the socio-demographic composition of rentier households is an interesting outcome unto itself, independently of whether it helps explain changes in the total size of the rentier class.

Another strategy is to consider changes in asset ownership by linking income and wealth data. We argued above that households' relative dependence on asset-based income should not be conflated with their total quantity of wealth by theoretical fiat. However, the possibility of accruing capital income is conditional on having some wealth and/or access to credit. Here it is important to bear in mind that our study period is bisected by the most severe wealth and credit shock in the global north since the 1930s. The declining number of PR10 households might reflect the fact that many were left without assets to invest in the ensuing recovery.[12] In unreported analyses we find that countries with declines in the proportion of PR10 households also tended to see increases in the share of households with zero capital income. The share of U.S. households with zero capital income increased from 40% in 2001 to 52% in 2013. In the U.K. it grew from 35% to 60%, and in Germany, it increased from 16% to 25%. Although this pattern is not itself an explanation, it hints at the possibility that the lack of PR10 growth could reflect the hollowing of middle-class wealth, which leaves fewer households with the resources to pursue asset-based strategies.[13] Unfortunately, the necessary household-level wealth data to test this is not available for most of the countries in our sample over the study period.

Although we focused on the share of *total* capital income rather than its sub-components, the growing role of rental income accrual also highlights the need for more comparative study of varying pathways and consequences of housing commodification (Fernandez and Aalbers 2017). Since the 1980s, many countries have sought to grow housing markets through privatization of

[12] However, this explanation is tempered somewhat by the fact that several Anglo and European countries were already exhibiting downward trends in PR10 share during the 1990s (see appendix figure A1).
[13] It is possible that the COVID-19 pandemic will have a similarly liquidating effect on household finances.

formerly public or collective housing, expansion of mortgage credit, and policies to encourage small-scale private rental housing development. But only in some cases (China being the most dramatic), did such privatization render residential real estate into a mass-participatory investment market. More comparative research is needed on this latter transformation.

Finally, the results raise policy-relevant questions about the dynamics and limitations of individual investment paradigms in increasingly unequal societies. To the extent that households are pursuing asset-based strategies, this may fail to produce any corresponding growth of capital income because would-be *petit rentiers* are crowded-out of the most lucrative investment opportunities. In fact, some of the very same mimetic processes which heighten the attractions of asset-based strategies for the middle-classes (Erturk et al. 2007) might also make these strategies less universally viable as the highest returning assets become concentrated at the top (Arundel 2017). With more suitable micro-level data on wealth and investment returns, future research could test this stratification mechanism directly by examining variations in the return rate from capital investment across the household SES distribution (e.g. Grigoryeva 2016; see Fagereng et al. 2019).

Similarly, the lack of PR10 growth in most countries suggests the need for additional research on the temporal horizons of households' financial strategies and actions. Prior theorizing about mass-participatory investment has been ambiguous about when lay investors tend to be motivated by a compensatory logic of guarding against privatized risks in the future (e.g. Fligstein and Goldstein 2015), or by seeking to circumvent a stagnant labor market and supplement their incomes in the present (Fridman 2016). One likely reason for the lack of growth in current capital income share is that those members of the upper-middle classes who possess sufficient resources to invest are more often oriented toward future savings than current income supplementation. Here again, we suspect that the rise of asset-based welfare regimes has had

mutually offsetting effects, as declining entitlements to old-age security push citizens to embrace private investment, but also continue working ever-longer. Future research should probe these temporal aspects of household financial strategies at the micro-level.

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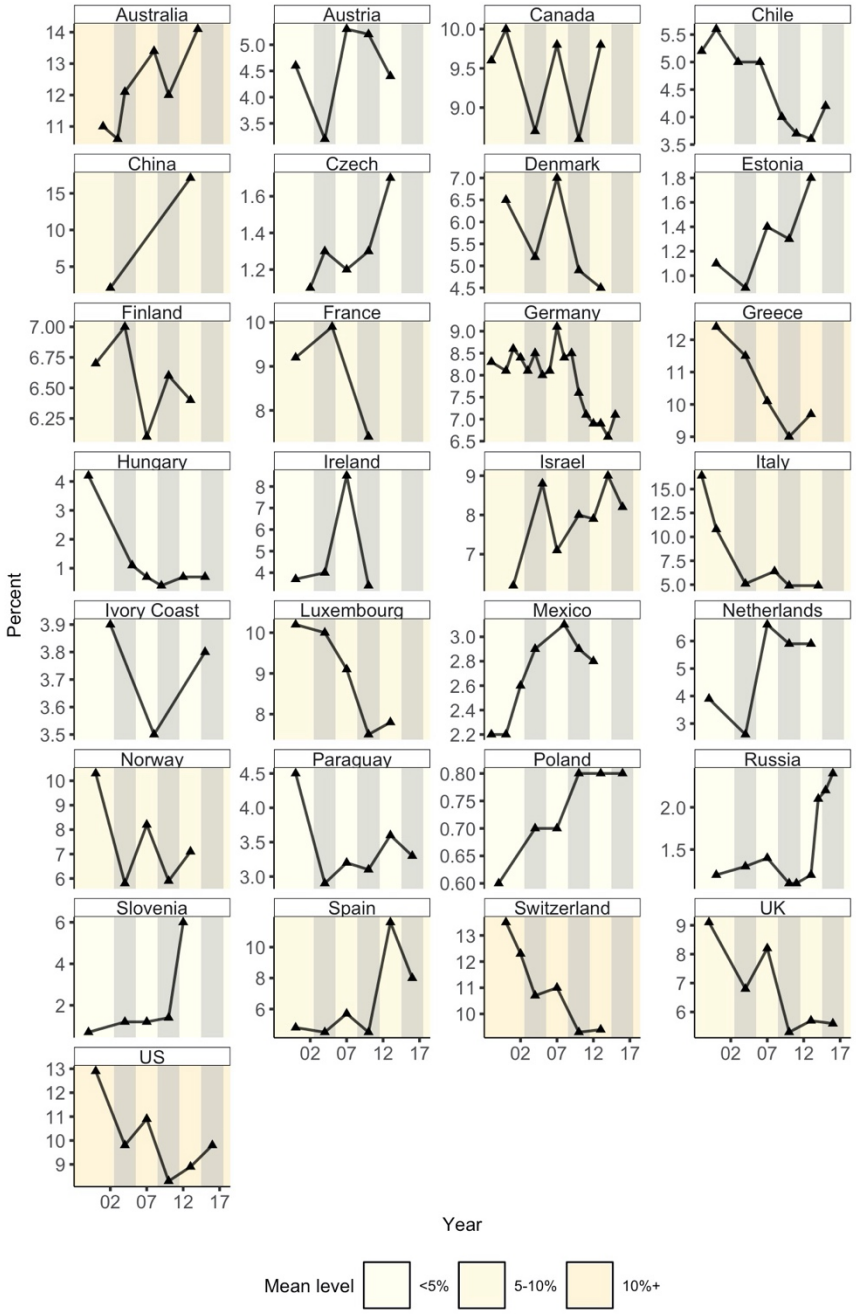
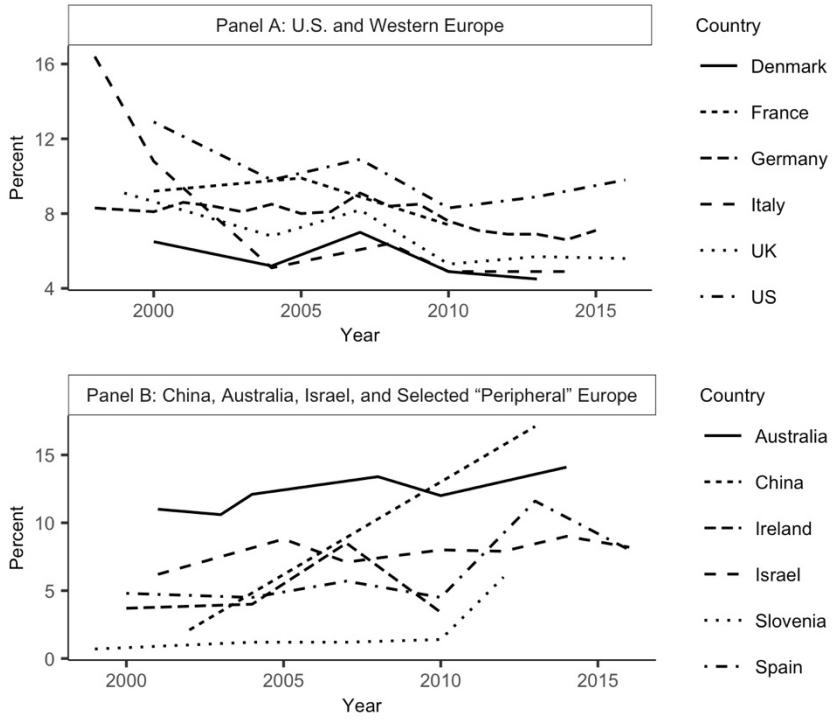
Figure 1: Country-Level Trends in Petit Rentier Class Size, 1999-2016



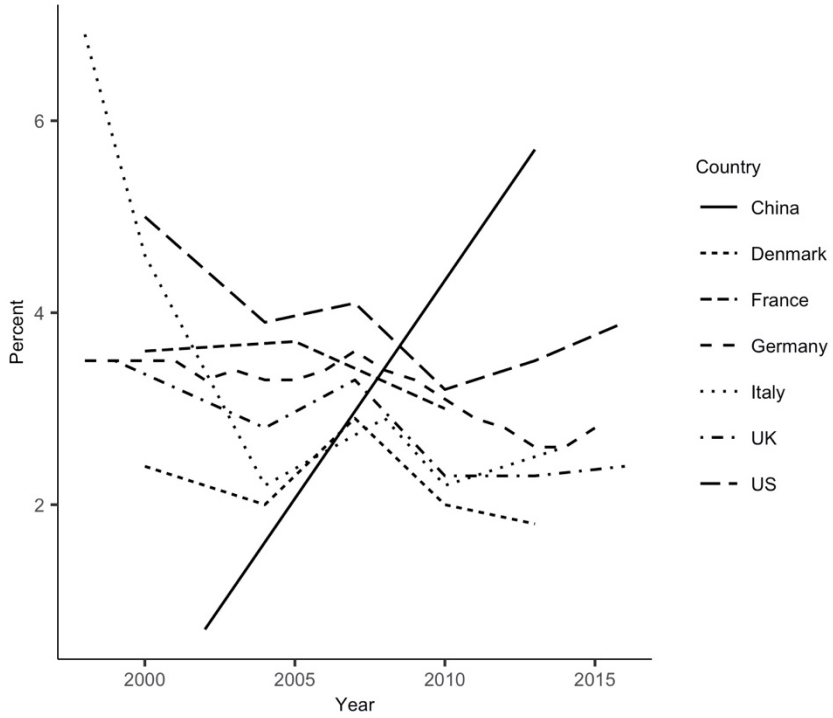
Notes: A household is defined as a petit rentier household if 10% or more of their yearly income is capital income from interest, dividends, rents, and royalties. The capital income definition used in Figure 1 does not include capital gains or proceeds from individual private pensions. Background zebra stripes represent the waves of the Luxembourg Income Study from Wave V to Wave X. Since we allow the y-axis scale to be free for each country, we use background color in each panel to represent the mean share of PR10 households (under current definition) for that country across waves.

Figure 2: Estimates of Petit Rentier Class Size for Selected Countries



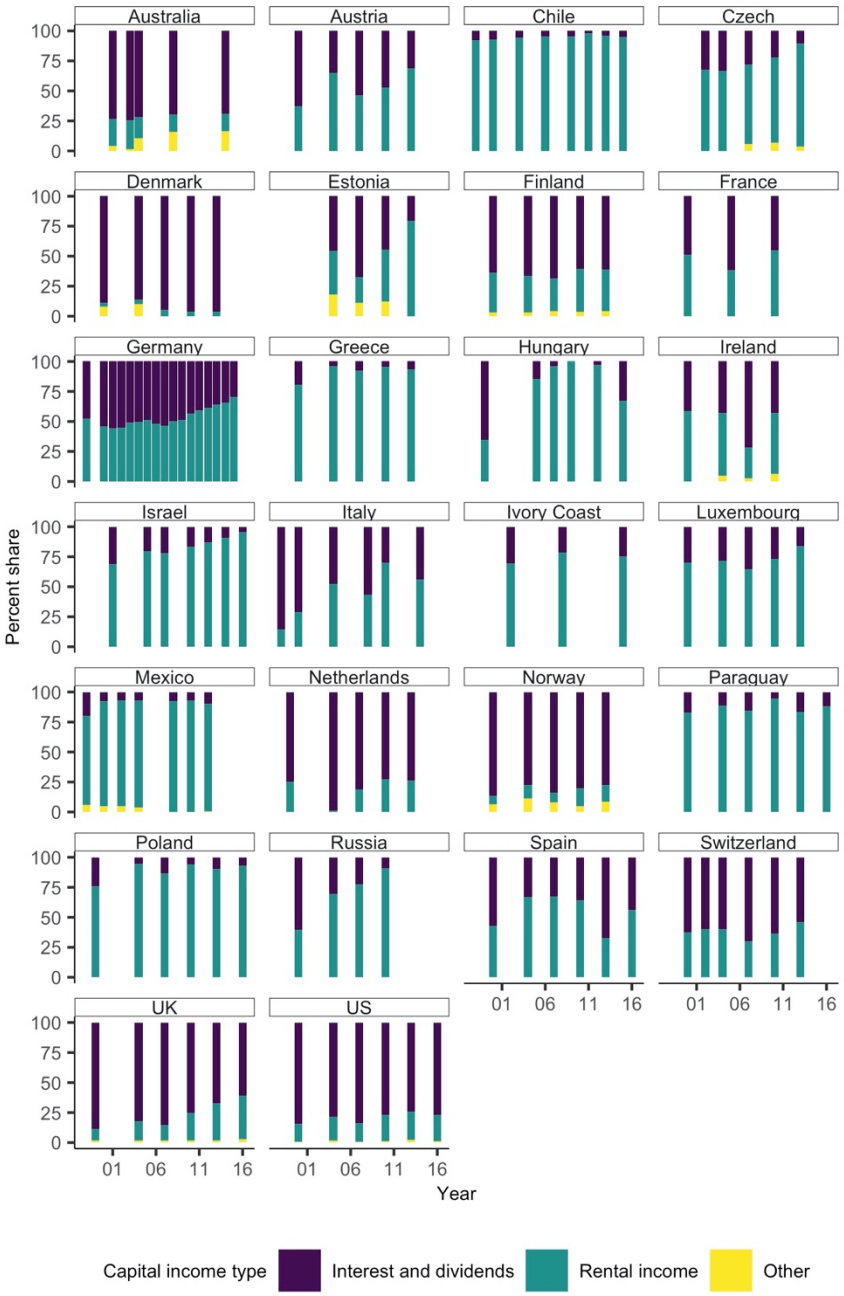
Notes: A household is defined as a petit rentier household if 10% or more of their yearly income is capital income from interest, dividends, rents, and royalties. The capital income definition used in Figure 2 does not include capital gains or proceeds from individual private pensions.

Figure 3: Alternative Measure – Capital Income's Mean Household Factor Share Among All Households for Selected Countries



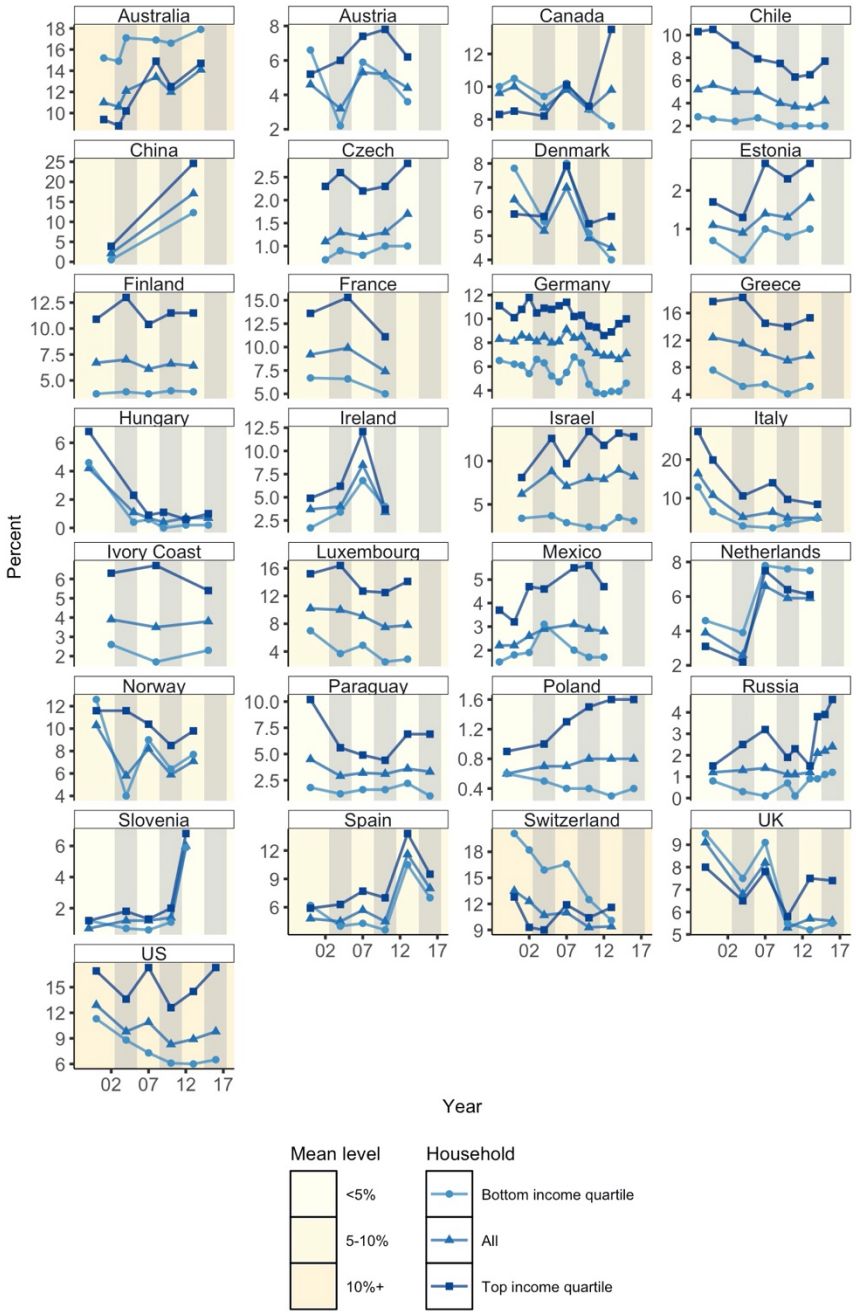
Notes: Figure 3 shows the average share of yearly income from capital among all households for selected countries. The capital income definition used here includes income from interest, dividends, rents, and royalties. It does not include capital gains or proceeds from individual private pensions.

Figure 4: Disaggregation of Petit Rentier Households' Capital Income into Rental Income and Financial Income



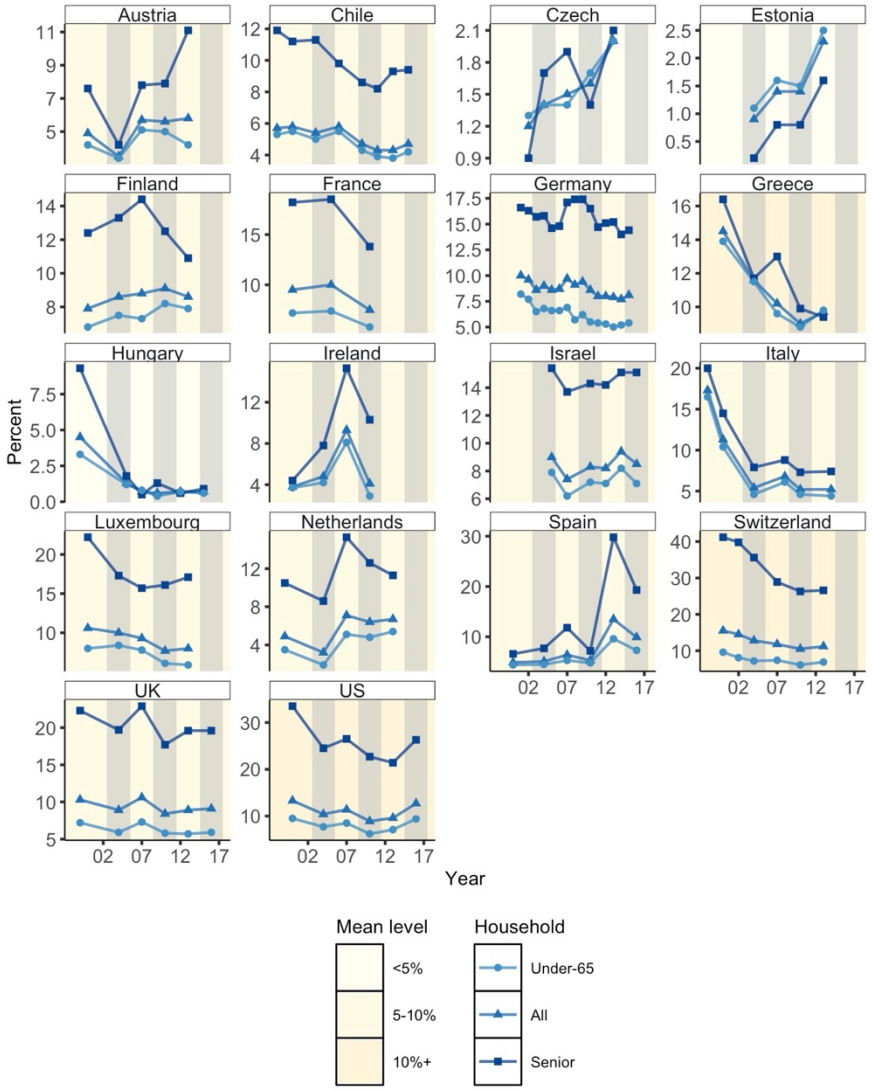
Notes: Data restricted to country-years where subcomponents of capital income are available (disaggregated components are unavailable for three of the sample countries). The Luxembourg Income Study (LIS) defines interest and dividends (i.e. financial income) as interest received from assets including bank accounts, certificates of deposit, bonds and the like; and dividends. Rental income refers to actual rentals from dwellings, business buildings, land, vehicles, equipment, etc.; and receipts from boarders and lodgers, net of operating costs. Other capital income refers to amounts that are directly placed at the level of capital income variable named "hicapital" in the LIS data.

Figure 5: Proportion of Petit Rentier Households by Total Income Quartiles



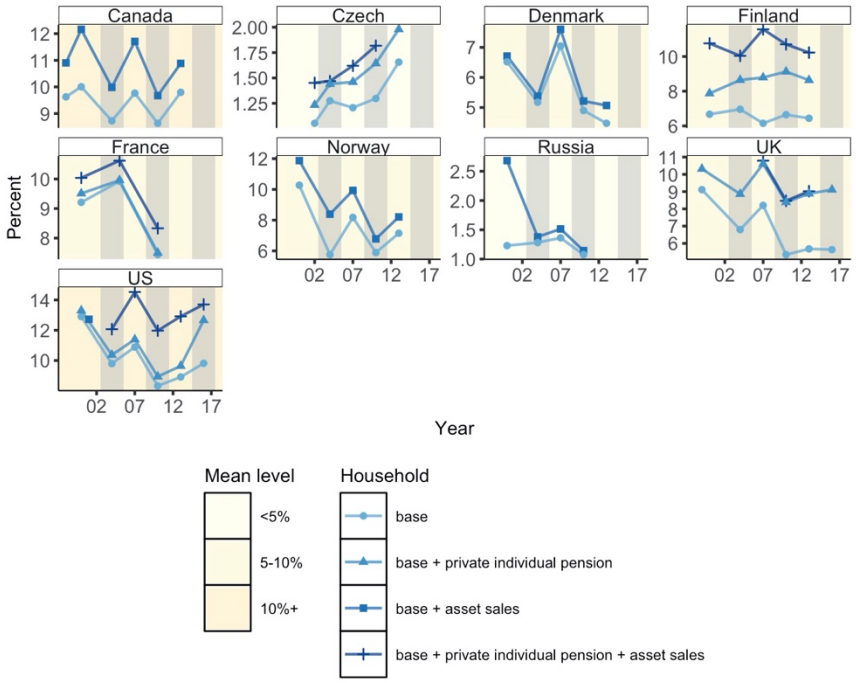
Notes: A household is defined as a petit rentier household if 10% or more of their yearly income is capital income from interest, dividends, rents, and royalties. The capital income definition used in Figure 5 does not include capital gains or proceeds from individual private pensions. Background zebra stripes represent the waves of the Luxembourg Income Study from Wave V to Wave X. Since we allow the y-axis scale to be free for each country, we use background color in each panel to represent the mean share of PR10 households (under current definition) for all households in that country across waves. Different shades of blues (from light to dark) represent the PR10 share in households from the bottom income quartiles, all households, and households from the top income quartile.

Figure 6: Proportion of Petit Rentier Households with Expanded Capital Income Definition Including Disbursements from Private Individual Pension Accounts



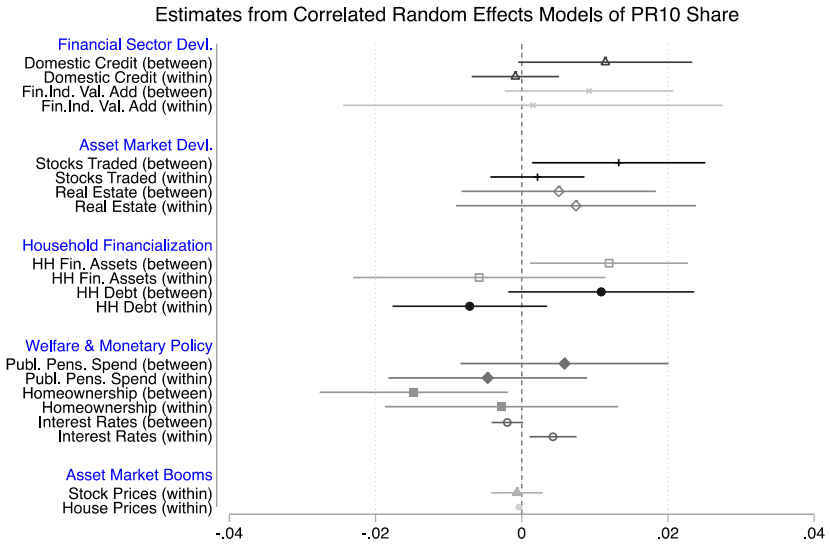
Notes: Private individual pension refers to monetary payments from personal pension accounts not linked to employment, including annuities from life insurance and other pension-like annuities. A household is defined as a petit rentier household if 10% or more of their yearly income is capital income, which is defined as the sum of interest, dividends, rents, royalties, and private individual pension. A household is deemed senior if all household members are above 65 years old. Under-65 households refer to households where at least one member is younger than 65 years old. Background zebra stripes represent the waves of the Luxembourg Income Study from Wave V to Wave X. Since we allow the y-axis scale to be free for each country, we use background color in each panel to represent the mean share of PR10 households (under current definition) for all households in that country across waves. Different shades of blues (from light to dark) represent the PR10 share in under-65 households, all households, and senior households.

Figure 7: Proportion of Petit Rentier Households with Expanded Capital Income Definition Including Disbursements from Private Individual Pension Accounts & Capital Gains from Asset Sales



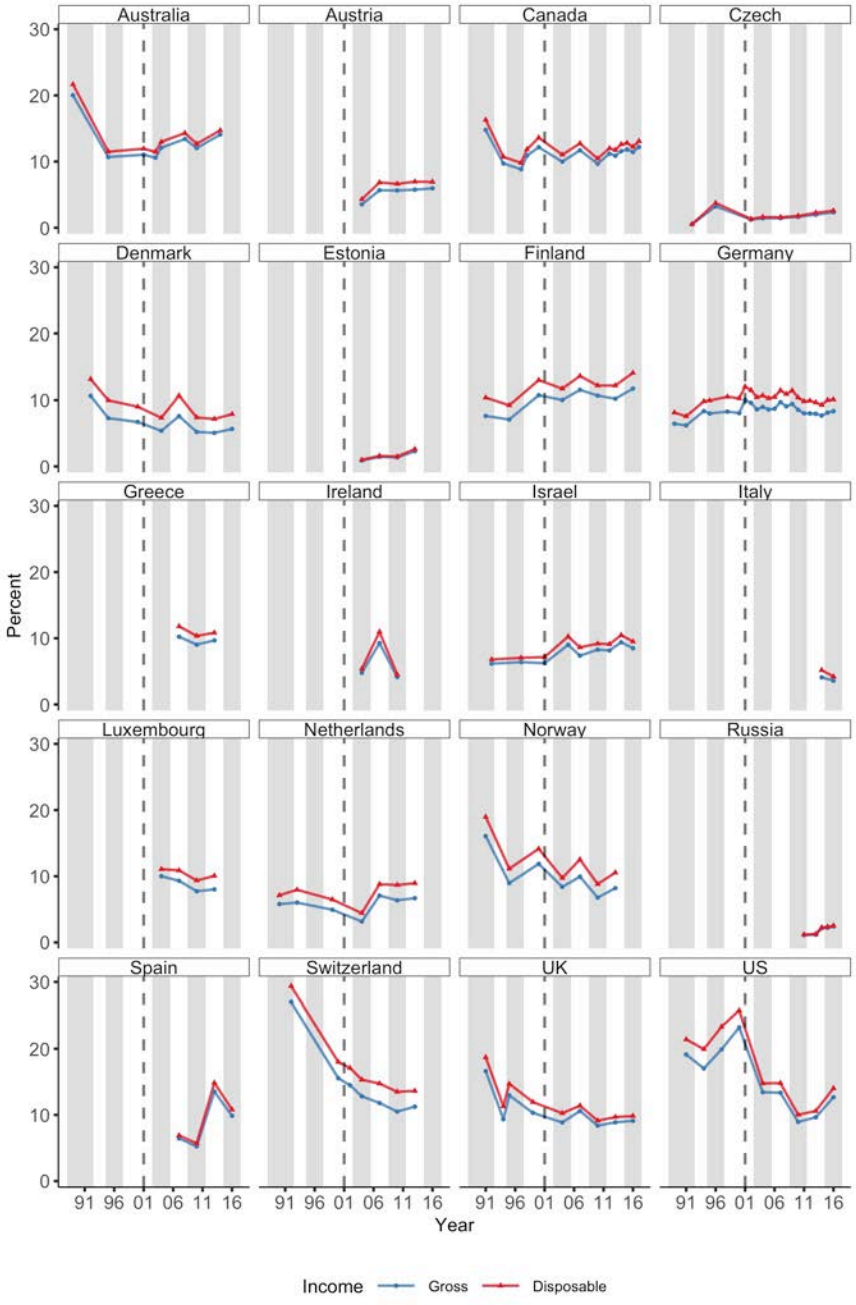
Notes: Baseline capital income refers to interest, dividends, rental income, and any amount directly placed at the capital income variable named "hicapital" defined by the Luxembourg Income Study (LIS). Data points plotted are restricted to country-years where profits from sales of property and securities data is available, despite the availability of private individual pension data. A household is defined as a petit rentier household if 10% or more of their yearly income is capital income, the definition of which varies as shown. Background zebra stripes represent the waves of the LIS from Wave V to Wave X. Since we allow the y-axis scale to be free for each country, we use background color in each panel to represent the mean share of PR10 households (across all possible definitions as plotted) for all households in that country across waves.

Figure 8: Correlated Random Effects Estimates of Share of Petit Rentier Households, Among All Households



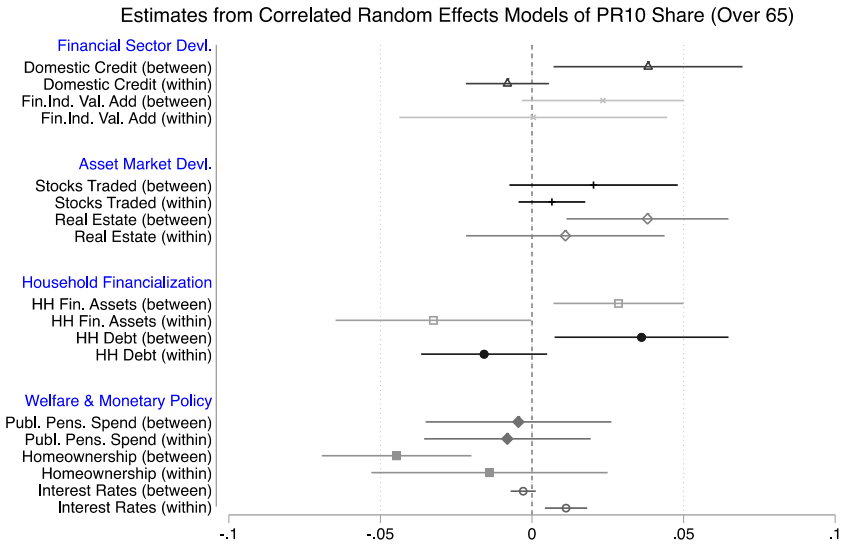
Notes: Figure 8 plots the combined results from eleven separate model specifications. Each model regresses the share of households with >10% capital income in a country-year (PR10 share) on the country-level mean of the respective covariate (representing the between-country effect), the year-specific deviation from the country-level mean (representing the within-country effect), and a series of year dummies to capture secular shocks in the global economy. Because data series on stock prices and housing prices are already normalized within countries, the final two models are estimated using simple country-fixed effects specifications. Thus there is no estimate of the between-country mean effect for either of these covariates.

Figure A1: Country-Level Trends in Petit Rentier (PR10) Class Size with Alternate Calculations of Total Income and Extended Observation Periods, 1989-2016



Notes: Data points plotted are restricted to country-years where gross income is collected. A household is defined as a petit rentier household (PR10) if capital income is equal to or greater than 10% of their total income, the definition of which varies as shown. Disposable income refers to gross income, less the amount of income taxes and social contributions paid. The vertical dashed line marks the start of the 21st century. In contrast with the main figures, the y-axis scale is fixed across countries to demonstrate its absolute level of PR10 share. Background zebra stripes represent the waves of the Luxembourg Income Study.

Figure A2: Correlated Random Effects Estimates of Share of Petit Rentier Households, Among Over-65 Households



Notes: Figure A2 plots the combined results from eleven separate model specifications. Each model regresses the share of households with >10% capital income in a country-year (PR10 share) on the country-level mean of the respective covariate (representing the between-country effect), the year-specific deviation from the country-level mean (representing the within-country effect), and a series of year dummies to capture secular shocks in the global economy. Because data series on stock prices and housing prices are already normalized within countries, the final two models are estimated using simple country-fixed effects specifications. Thus there is no estimate of the between-country mean effect for either of these covariates.

Appendix

Table A1: List of LIS Country-Year Datasets Used in Analysis of Household Capital Income

LIS ID	Country	Year	LIS Wave	Default Total Income Definition	Availability of Private Individual Pension Income	Availability of Capital Gains Income	No. of Households
AU01	Australia	2001	V	Pre-tax	No	No	6786
AU03	Australia	2003	VI	Pre-tax	No	No	10210
AU04	Australia	2004	VI	Pre-tax	No	No	11361
AU08	Australia	2008	VII	Pre-tax	No	No	9345
AU10	Australia	2010	VIII	Pre-tax	No	No	18008
AU14	Australia	2014	IX	Pre-tax	No	No	14115
AT00	Austria	2000	V	Post-tax	Yes	No	2340
AT04	Austria	2004	VI	Pre-tax	Yes	No	5147
AT07	Austria	2007	VII	Pre-tax	Yes	No	5707
AT10	Austria	2010	VIII	Pre-tax	Yes	No	6187
AT13	Austria	2013	IX	Pre-tax	Yes	No	5909
CA98	Canada	1998	V	Pre-tax	No	Yes	31218
CA00	Canada	2000	V	Pre-tax	No	Yes	28970
CA04	Canada	2004	VI	Pre-tax	No	Yes	27820
CA07	Canada	2007	VII	Pre-tax	No	Yes	26745
CA10	Canada	2010	VIII	Pre-tax	No	Yes	25019
CA13	Canada	2013	IX	Pre-tax	No	Yes	23014
CL98	Chile	1998	V	Post-tax	Yes	No	48107
CL00	Chile	2000	V	Post-tax	Yes	No	65036
CL03	Chile	2003	VI	Post-tax	Yes	No	68153
CL06	Chile	2006	VII	Post-tax	Yes	No	73720
CL09	Chile	2009	VIII	Post-tax	Yes	No	71460
CL11	Chile	2011	VIII	Post-tax	Yes	No	59084
CL13	Chile	2013	IX	Post-tax	Yes	No	66725
CL15	Chile	2015	X	Post-tax	Yes	No	83887
CN02	China	2002	V	Mixed	No	No	17113
CN13	China	2013	IX	Pre-tax	No	No	17887
CZ02	Czech Republic	2002	V	Pre-tax	Yes	Yes	7973
CZ04	Czech Republic	2004	VI	Pre-tax	Yes	Yes	4351
CZ07	Czech Republic	2007	VII	Pre-tax	Yes	Yes	11294
CZ10	Czech Republic	2010	VIII	Pre-tax	Yes	Yes	8866
CZ13	Czech Republic	2013	IX	Pre-tax	Yes	No	8053
DK00	Denmark	2000	V	Pre-tax	No	Yes	82062
DK04	Denmark	2004	VI	Pre-tax	No	Yes	83349
DK07	Denmark	2007	VII	Pre-tax	No	Yes	84669
DK10	Denmark	2010	VIII	Pre-tax	No	Yes	85645
DK13	Denmark	2013	IX	Pre-tax	No	Yes	87517
EE00	Estonia	2000	V	Post-tax	No	No	6068
EE04	Estonia	2004	VI	Pre-tax	Yes	No	4155
EE07	Estonia	2007	VII	Pre-tax	Yes	No	4744
EE10	Estonia	2010	VIII	Pre-tax	Yes	No	4993
EE13	Estonia	2013	IX	Pre-tax	Yes	No	5772
FI00	Finland	2000	V	Pre-tax	Yes	Yes	10423
FI04	Finland	2004	VI	Pre-tax	Yes	Yes	11228
FI07	Finland	2007	VII	Pre-tax	Yes	Yes	10472
FI10	Finland	2010	VIII	Pre-tax	Yes	Yes	9351

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FI13	Finland	2013	IX	Pre-tax	Yes	Yes	11030
FR00	France	2000	V	Mixed	Yes	Yes	10305
FR05	France	2005	VI	Mixed	Yes	Yes	10240
FR10	France	2010	VIII	Mixed	Yes	Yes	15797
DE98	Germany	1998	V	Pre-tax	No	No	7220
DE00	Germany	2000	V	Pre-tax	No	No	11796
DE01	Germany	2001	V	Pre-tax	Yes	No	12320
DE02	Germany	2002	V	Pre-tax	Yes	No	11909
DE03	Germany	2003	VI	Pre-tax	Yes	No	11644
DE04	Germany	2004	VI	Pre-tax	Yes	No	11294
DE05	Germany	2005	VI	Pre-tax	Yes	No	12361
DE06	Germany	2006	VII	Pre-tax	Yes	No	11552
DE07	Germany	2007	VII	Pre-tax	Yes	No	10921
DE08	Germany	2008	VII	Pre-tax	Yes	No	10270
DE09	Germany	2009	VIII	Pre-tax	Yes	No	13888
DE10	Germany	2010	VIII	Pre-tax	Yes	No	16703
DE11	Germany	2011	VIII	Pre-tax	Yes	No	16397
DE12	Germany	2012	IX	Pre-tax	Yes	No	17992
DE13	Germany	2013	IX	Pre-tax	Yes	No	15946
DE14	Germany	2014	IX	Pre-tax	Yes	No	15908
DE15	Germany	2015	X	Pre-tax	Yes	No	14426
GR00	Greece	2000	V	Post-tax	Yes	No	3895
GR04	Greece	2004	VI	Post-tax	Yes	No	5567
GR07	Greece	2007	VII	Pre-tax	Yes	No	6504
GR10	Greece	2010	VIII	Pre-tax	Yes	No	6024
GR13	Greece	2013	IX	Pre-tax	Yes	No	8616
HU99	Hungary	1999	V	Post-tax	Yes	No	1986
HU05	Hungary	2005	VI	Post-tax	Yes	No	2018
HU07	Hungary	2007	VII	Post-tax	Yes	No	1952
HU09	Hungary	2009	VIII	Post-tax	Yes	No	1992
HU12	Hungary	2012	IX	Post-tax	Yes	No	2019
HU15	Hungary	2015	X	Post-tax	Yes	No	2771
IE00	Ireland	2000	V	Post-tax	Yes	No	2420
IE04	Ireland	2004	VI	Pre-tax	Yes	No	6080
IE07	Ireland	2007	VII	Pre-tax	Yes	No	5241
IE10	Ireland	2010	VIII	Pre-tax	Yes	No	4322
IL01	Israel	2001	V	Pre-tax	No	No	5787
IL05	Israel	2005	VI	Pre-tax	Yes	No	6272
IL07	Israel	2007	VII	Pre-tax	Yes	No	6172
IL10	Israel	2010	VIII	Pre-tax	Yes	No	6168
IL12	Israel	2012	IX	Pre-tax	Yes	No	8742
IL14	Israel	2014	IX	Pre-tax	Yes	No	8465
IL16	Israel	2016	X	Pre-tax	Yes	No	8903
IT98	Italy	1998	V	Post-tax	Yes	No	7147
IT00	Italy	2000	V	Post-tax	Yes	No	8000
IT04	Italy	2004	VI	Post-tax	Yes	No	8012
IT08	Italy	2008	VII	Post-tax	Yes	No	7977
IT10	Italy	2010	VIII	Post-tax	Yes	No	7941
IT14	Italy	2014	IX	Pre-tax	Yes	No	8151
CI02	Ivory Coast	2002	V	Post-tax	No	No	10746
CI08	Ivory Coast	2008	VII	Post-tax	No	No	12482
CI15	Ivory Coast	2015	X	Post-tax	No	No	12472
LU00	Luxembourg	2000	V	Post-tax	Yes	No	2415
LU04	Luxembourg	2004	VI	Pre-tax	Yes	No	3622

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LU07	Luxembourg	2007	VII	Pre-tax	Yes	No	3755
LU10	Luxembourg	2010	VIII	Pre-tax	Yes	No	5452
LU13	Luxembourg	2013	IX	Pre-tax	Yes	No	3873
MX98	Mexico	1998	V	Post-tax	No	No	10952
MX00	Mexico	2000	V	Post-tax	No	No	10108
MX02	Mexico	2002	V	Post-tax	No	No	17167
MX04	Mexico	2004	VI	Post-tax	No	No	22595
MX08	Mexico	2008	VII	Post-tax	No	No	29468
MX10	Mexico	2010	VIII	Post-tax	No	No	27655
MX12	Mexico	2012	IX	Post-tax	No	No	9002
NL99	Netherlands	1999	V	Pre-tax	Yes	No	4344
NL04	Netherlands	2004	VI	Pre-tax	Yes	No	9356
NL07	Netherlands	2007	VII	Pre-tax	Yes	No	10337
NL10	Netherlands	2010	VIII	Pre-tax	Yes	No	10492
NL13	Netherlands	2013	IX	Pre-tax	Yes	No	10174
NO00	Norway	2000	V	Pre-tax	No	Yes	12919
NO04	Norway	2004	VI	Pre-tax	No	Yes	13131
NO07	Norway	2007	VII	Pre-tax	No	Yes	217884
NO10	Norway	2010	VIII	Pre-tax	No	Yes	228200
NO13	Norway	2013	IX	Pre-tax	No	Yes	235732
PY00	Paraguay	2000	V	Post-tax	No	No	8126
PY04	Paraguay	2004	VI	Mixed	No	No	7817
PY07	Paraguay	2007	VII	Post-tax	No	No	4802
PY10	Paraguay	2010	VIII	Post-tax	No	No	4999
PY13	Paraguay	2013	IX	Post-tax	No	No	5397
PY16	Paraguay	2016	X	Post-tax	No	No	10219
PL99	Poland	1999	V	Mixed	No	No	31428
PL04	Poland	2004	VI	Mixed	No	No	32214
PL07	Poland	2007	VII	Mixed	No	No	37366
PL10	Poland	2010	VIII	Mixed	No	No	37412
PL13	Poland	2013	IX	Mixed	No	No	37181
PL16	Poland	2016	X	Mixed	No	No	36886
RU00	Russia	2000	V	Post-tax	No	Yes	3112
RU04	Russia	2004	VI	Post-tax	No	Yes	3061
RU07	Russia	2007	VII	Post-tax	No	Yes	3335
RU10	Russia	2010	VIII	Post-tax	No	Yes	5658
RU11	Russia	2011	VIII	Pre-tax	No	No	9990
RU13	Russia	2013	IX	Pre-tax	No	No	45000
RU14	Russia	2014	IX	Pre-tax	No	No	45000
RU15	Russia	2015	X	Pre-tax	No	No	60000
RU16	Russia	2016	X	Pre-tax	No	No	160008
SI99	Slovenia	1999	V	Post-tax	No	No	3859
SI04	Slovenia	2004	VI	Post-tax	No	No	3725
SI07	Slovenia	2007	VII	Post-tax	No	No	3697
SI10	Slovenia	2010	VIII	Post-tax	No	No	3924
SI12	Slovenia	2012	IX	Post-tax	No	No	3663
ES00	Spain	2000	V	Post-tax	Yes	No	4776
ES04	Spain	2004	VI	Post-tax	Yes	No	12950
ES07	Spain	2007	VII	Pre-tax	Yes	No	13014
ES10	Spain	2010	VIII	Pre-tax	Yes	No	13109
ES13	Spain	2013	IX	Pre-tax	Yes	No	11965
ES16	Spain	2016	X	Pre-tax	Yes	No	13740
CH00	Switzerland	2000	V	Pre-tax	Yes	No	3642
CH02	Switzerland	2002	V	Pre-tax	Yes	No	3726

CH04	Switzerland	2004	VI	Pre-tax	Yes	No	3270
CH07	Switzerland	2007	VII	Pre-tax	Yes	No	6778
CH10	Switzerland	2010	VIII	Pre-tax	Yes	No	7502
CH13	Switzerland	2013	IX	Pre-tax	Yes	No	6792
UK99	United Kingdom	1999	V	Pre-tax	Yes	No	24988
UK04	United Kingdom	2004	VI	Pre-tax	Yes	No	27753
UK07	United Kingdom	2007	VII	Pre-tax	Yes	Yes	24977
UK10	United Kingdom	2010	VIII	Pre-tax	Yes	Yes	25350
UK13	United Kingdom	2013	IX	Pre-tax	Yes	Yes	20135
UK16	United Kingdom	2016	X	Pre-tax	Yes	No	19380
US00	United States	2000	V	Pre-tax	Yes	No	78054
US04	United States	2004	VI	Pre-tax	Yes	Yes	76447
US07	United States	2007	VII	Pre-tax	Yes	Yes	75872
US10	United States	2010	VIII	Pre-tax	Yes	Yes	75188
US13	United States	2013	IX	Pre-tax	Yes	Yes	51498
US16	United States	2016	X	Pre-tax	Yes	Yes	69957