Structuring the analysis of wealth inequality using the functions of wealth: a class based approach*

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Abstract

Piketty (2017) argues in favor of a multidimensional and relational approach to the analysis of wealth inequality. Specifically, he suggests that social classes should be analyzed in terms of the power and production relations between social groups, not just the percentiles in statistical distributions into which various groups fall. We propose such a relational approach by focusing on different functions of wealth. We operationalize functions of wealth by empirically analyzing the groups of renters, owners, and capitalists. Employing recent European and US data, we find that classifying households based on these decisive functions of wealth aligns well with the wealth distribution, in ways that vary considerably across countries. We discuss potential advantages of this class typology in measuring and analyzing wealth and wealth inequality in particular.

JEL Classifications: D14, D15, D31, D63, Z13
Key Words: wealth, inequality, households, survey data, class, economic stratification

*The views expressed in this outline are exclusively those of the authors and do not necessarily reflect those of the OeNB or the Eurosystem.

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Extended Outline

Background This outline is mainly based on our working paper Fessler and Schürz (2018b) and a larger research agenda on the functions of wealth and the relationship between private and public wealth (Fessler and Schürz, 2018a). In our analysis we include not only the US (SCF 1962/1963, SCF 2013) but also 20 European countries among them all countries of the Euro area. We extend our main empirical analyses by including empirical evidence on the subjective rankings of functions of wealth based on direct questions on the functions of wealth we introduced in a large scale Austrian wealth survey. See also a note on the website of the Institute for New Economic Thinking (Link) as well as an article in the Washington Post (Link) discussing our approach as well as main results.

In a Nutshell The most popular contemporary form of analysis of wealth inequality is one-dimensional: it separates a group of the rich from the rest, defined by having more wealth than the others. Typically this is the group of the wealthiest top 10%, top 5%, or top 1%. The share of this group in total wealth is estimated and compared across countries and time.

This one-dimensional approach is agnostic with regard to the fact that differences in quantities might imply qualitative changes with regard to the prospects that come with wealth. Further, the approach ignores the fact that the meaning of wealth levels and wealth shares also depend on the context in society at a certain point in time. In particular, pension systems and other institutions of welfare states are different over time and across countries.

Looking at the wealth distribution alone provides an incomplete picture of the social implications of wealth inequality. Additional insight can be gained by classifying households based on functions of their wealth holdings. We look at structured wealth inequality. The social structure concerning wealth can be characterized by roughly three classes which align well with the wealth distribution. First, renters, who mainly have wealth for precautionary reasons. Second, owners, who additionally to precautionary reasons also use their wealth to live in by means of owner occupation, and therefore generate non-cash income (imputed rent) from their wealth. Third, capitalists, who not only own their home, but additionally rent out further real estate and/or have self-employed business wealth.

Bringing these definitions to the data, we find renters in the bottom, owners in the middle, and capitalists at the top of the wealth distribution. The country patterns likely differ due to institutional settings, tax law, history, the welfare state, and many other conditions. As an example, different policies for owner-occupiers target different groups in different countries. The bottom 50 shares of wealth in one country can consist mostly of renters' precautionary wealth while it can comprise mainly of the homes of owners in another country. This alignment of social classes and the wealth distribution holds even if one controls for socioeconomic characteristics used in class analysis such as education and occupation or main determinants

of wealth accumulation such as age.

This demonstrates that percentile and top share analyses and comparisons might be misleading, as the functions of wealth and corresponding relations between social groups are different across the wealth distribution in different countries. A class-based approach has advantages with regard to the measurement and analysis of wealth. The main advantage is that implicitly assumed links to power and production relations – which are the foundation of contemporary interpretation of top shares (Piketty, 2013; OECD, 2015) – are made explicit. On top of that, such an approach can be directly linked to questions of justification of wealth inequality and allows us to distinguish between wealth as a means of capitalist production and other forms of wealth such as private wealth as a substitute for public wealth (precautionary wealth) and private wealth as a source for non-cash income (housing wealth used).

Related literature So far, the two main questions in empirical research in economics on private wealth were about its definition, i.e. "What should we consider, when we are analysing private wealth?" (Jenkins, 1990; Davies and Shorrocks, 2000; OECD, 2013), as well as its distribution, i.e. "Who holds how much of private wealth?" (Sierminska et al., 2006; Kennickell, 2012). This literature mainly used surveys to analyse the wealth distribution.

In the most prominent recent strand of the literature, using administrative tax data, the main focus was wealth concentration and the evolution of top-shares. Piketty (2013) and others extensively document the evolution of the concentration of income (Alvaredo et al., 2013) and inheritances (Piketty, 2011) as a source of flows into wealth as well as the stock of wealth itself (Kopczuk and Saez, 2004). This literature follows a quantitative-counting logic of more and less, has no reference to power or production relations, and seems to have no normative ingredients. This statistical approach is agnostic with regard to the fact that (i) differences in quantities might imply qualitative changes with regard to the functions of wealth and that (ii) the meaning of wealth levels and/or wealth shares, depends on the context in a certain society at a certain point in time.

The agnostic stance of the literature, however, stands in sharp contrast to common interpretations of the statistical results. Recent examples include Piketty (2013) who argues to prevent extensive capital concentration for the sake of democracy, a tax on wealth ought to be implemented to slow down the process of wealth concentration. So he relates large top-shares to power, which could endanger democracy. The OECD (2015) argues that, higher inequality drags down economic growth and harms opportunities, and that specifically high wealth inequality limits investment opportunities and therefore growth. In discussions about wealth inequality there is not enough precautionary saving at the bottom, not enough wealth or to high income taxes for the downpayment to buy a home in the middle, and too much wealth concentration for a functioning democracy at the top. Such ideas are implicitly based on drawing a distinction between different functions wealth can have for its owners. The pure

counting logic of the current approach to analyze wealth does not justify such interpretations.

The main contribution of our paper is to make implicitly assumed functions of wealth explicit already in the statistical analysis. Too often wealth analyses hide their normative considerations behind deciles, percentiles and top shares. Without narratives about power and production relations between social classes which are only added afterwards in interpretations they would hardly make a lot of sense. To make these relations explicit in the statistical analysis of wealth inequality is a step towards a more transparent and consistent analysis of wealth inequality as a social reality.

Data We use the two most comprehensive wealth surveys for the United States and Europe to illustrate our relational approach of analyzing wealth and wealth inequality.

The Survey of Consumer Finances (SCF) in its current form surveys United States households every three years since the 1980ies. It is the gold standard of wealth surveys using state of the art techniques in all steps of data production (Kennickell, 2012, 2011). The Board of Governors of the Federal Reserve System runs the SCF and provides detailed documentation (https://www.federalreserve.gov/econres/scfindex.htm [accessed on 9^{th} April 2019]). The net sample size is about 6000 households representing about 120 million US households. We use the 2013 wave of the SCF.

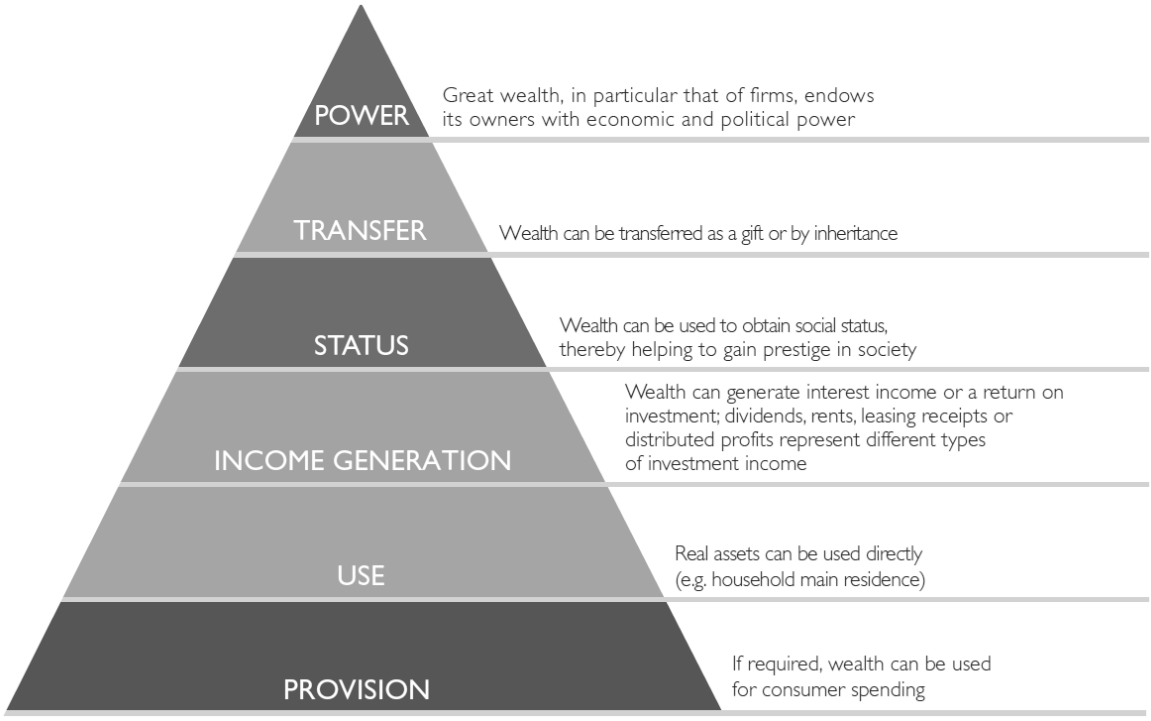
The Household Finance and Consumption Survey (HFCS) of the European Central Banks (ECB) started in 2010 and gathers information for all Euroarea countries. We use the second wave, which was mostly collected 2014 and 2015. i.e relatively close to the collection period of the SCF wave we use. The HFCS is a large scale a priori harmonized wealth survey following closely the US SCF. The survey consists of country-level surveys which are coordinated at the ECB and follow closely the common rules with regard to all steps of data production. All the data are then validated at and provided by the ECB. The net sample size for the Euroarea is about 85,000 households representing about 145 million European households. As Hungary and Poland also joined the effort to produce comparable household balance sheet statistics, we include these countries in all country-level analyses.

Functions of wealth Figure 1 shows a schematic illustration of a potential structure of functions of wealth across the wealth distribution. The more wealth, the more functions are potentially available.

At the very bottom, associated with low amounts of usually very liquid wealth holdings the main function of wealth is provision. Households save for all kinds of precautionary reasons among them the motive of "saving for a rainy day" such as the necessary replacement of a washing machine or car repairs, but also for unexpected unemployment, sickness or vacation. The necessity of this precautionary wealth accumulation heavily depends on welfare state policies and to which degree they insure these contingencies of life in an organized way.

With increasing wealth, use becomes more prevalent. The main item in household wealth, which is used and therefore provides non-cash income is home ownership. Theoretically, households should be indifferent between renting or owning a house under the standard assumptions (strict life cycle preferences, no bequest motives, no credit constraints, rational behaviour etc.). In practice, however, all of the conditions of the standard model are violated. Households care about bequests (both as recipients and as givers), they face borrowing constraints (like down-payment requirements), they show less-than-fully-rational behaviour and in addition the tax system often favours ownership vis-a-vis renting. As we will see later, all of these factors lead to a situation in which renters of their home are mostly found at the very bottom of the distribution - which stands in sharp contrast to what standard economic theory would predict. With even higher wealth the function of income generation becomes more important. This function is more dominant for households with considerable ownership of true "means of production", in the sense that they own self-employed businesses and/or real estate wealth they rent out to earn capital income.

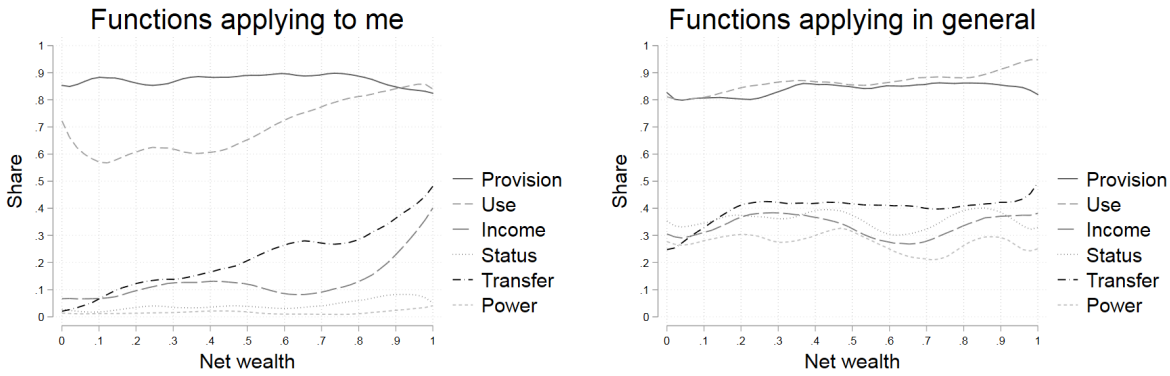
Figure 1: Functions of wealth



Notes:
(i) This graph shows an illustration of the additive functions of wealth. The pyramid suggests the increasing prevalence with increasing wealth.
(ii) *Source:* Own Illustration.

Figure 2 is based on a direct question to Austrian respondents in the HFCS. It shows that subjective perceptions of functions of wealth are in line with the structure of the functions in figure 1. The idea that provision and use are the most important functions for most people is strongly supported. As expected income generation is a function of wealth more relevant at the top of the distribution (see left panel). Note that (i) people generally assume that more functions of wealth apply to others than to themselves (especially power and status) and (ii) that the pattern with regard to the functions of wealth for others is rather stable across the full distribution, i.e. the same share of wealthy people think that the function of power applies to themselves (hardly anybody) and others (roughly 30%).

Figure 2: Subjective perceptions of functions of wealth



Notes:
(i) This graph shows respondents answers to the questions which functions of wealth apply to them personally (left graph) and which to individuals in general (right graph) across the distribution of net wealth. We use a local polynomial estimator with an epanechnikov kernel, a bandwith of 0.05 and degree 1 to prevent boundary bias as it allows for any trends also close to the endpoints.
(ii) *Source:* HFCS Austria 2014.

Social classes based on functions of wealth While in the 19th century the antagonism between those who owned the means of production ("capitalists") and those who did not ("workers") was dominant, the rise of the welfare state in the 20th century changed social class structures by adding a third social class in between as documented by Piketty (2013), Wright (2005), Therborn (2012) and others. Therefore we study three social classes of households. First, renters, who mainly have wealth for precautionary reasons. Second, owners, who additionally to precautionary reasons also use their wealth to live in by means of owner occupation, and therefore generate non-cash income (imputed rent) from their wealth. Third, capitalists, who not only own their home, but additionally rent out further real estate and/or

have self-employed business wealth. The work most closely related to ours — we are aware of — is Hugrée et al. (2017), which share the cross-country perspective on social classes when analyzing the wealth distribution.

1. **Renters.** Renters are those who do not own their home. They mainly hold wealth for precautionary reasons. They need to pay a rent to capitalists (or the state) to life in their houses or apartments.

2. **Owners.** Owners (additionally) use wealth by living in their own house or apartment. In the vast majority of cases this house or apartment is also their single most valuable asset. They do not pay a rent to live in their houses or apartments. Living in their own apartment generates a rent, the imputed rent, which is a form of non-cash capital income.

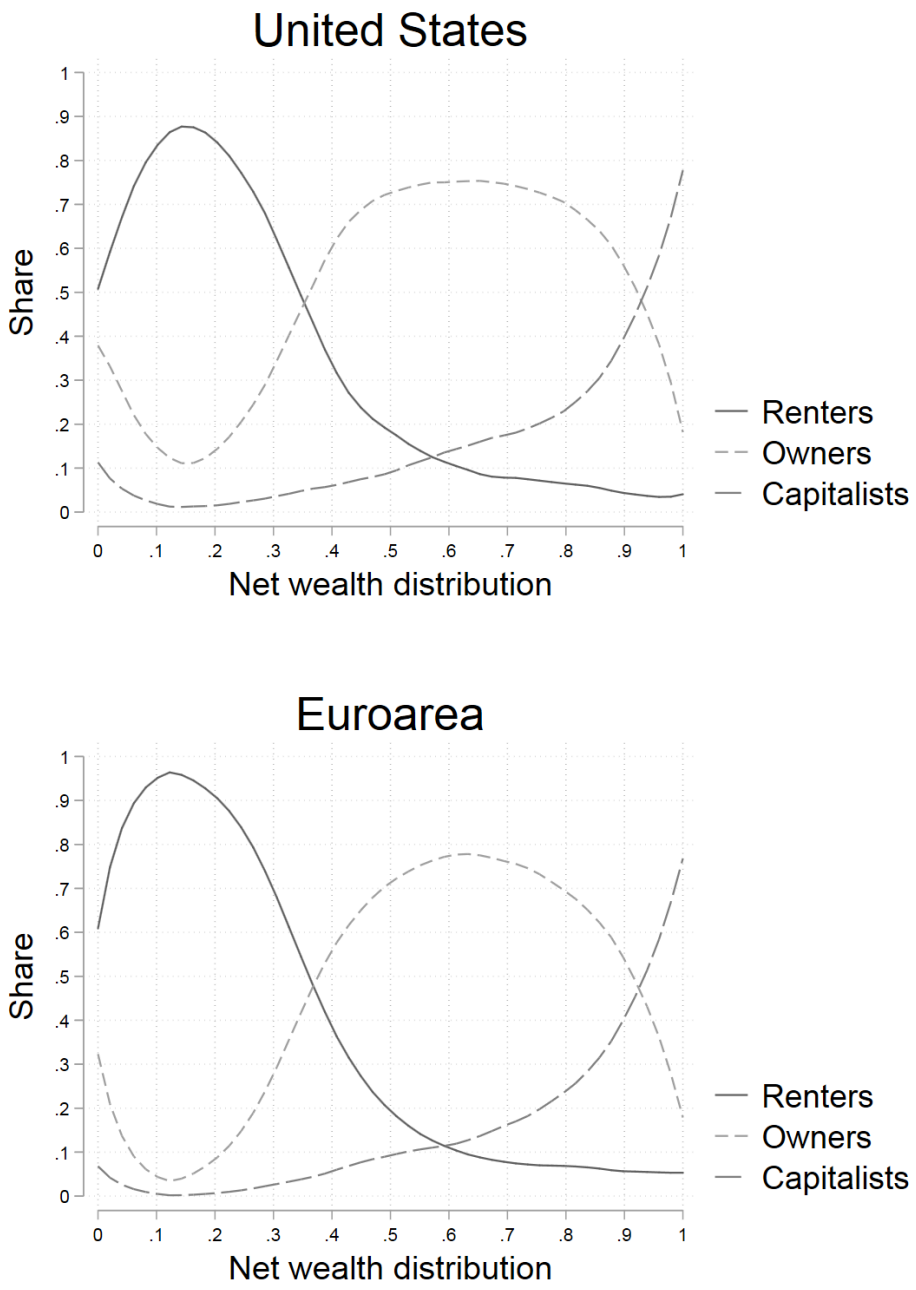
3. **Capitalists.** Capitalists (additionally) either rent out their further real estate to the renters and/or own a business and make profit by using renters and owners as workforce and selling goods or services to them or other capitalists (or businesses).

Figure 3 shows the resulting estimates for renters, owners and capitalists in the United States and the Euroarea. The lines can be interpreted as probability, that a household with wealth $w = w_0$ is a renter, owner or capitalist. Renters are mostly found in the lower half of the wealth distribution, owners mostly in the upper-middle part and capitalists dominantly in the very upper part. In both, the United States and the Euroarea, the turning point where it is more likely to be a owner than a renter is just below the 40th percentile – marginally lower in the United States than in the Euroarea.Figures A.1, A.2 and A.3 in appendix Appendix A show analogous estimates for all Euroarea countries. Figure A.4 includes the estimates for Hungary and Poland.

Figure 4 shows that this pattern was already the same in the US in 1962, however less clear cut and with a smaller owner class. Today the classes are even more aligned with the wealth distribution. In the US there are fewer renters in the middle and at the top and fewer capitalists in the bottom an the middle than in 1962. Generally, owners are also more likely to be found in the middle today. However, due to the availability of mortgage credit with very low downpayment we find also more owners at the very bottom of distribution compared to 1962.

Class shares One perspective on income and wealth shares is to relate them to the actual population shares. That relates closely to the usual calculation of top 1%, top 5%, top 10% or sometimes bottom 50 % shares of wealth and income, as at the center is also the relation between the share in wealth or income and the population share. A top 5% share of 30% in income means, that the income share is 6 times the population share and therefore strongly

Figure 3: Renters, owners and capitalists in the United States and the Euro area

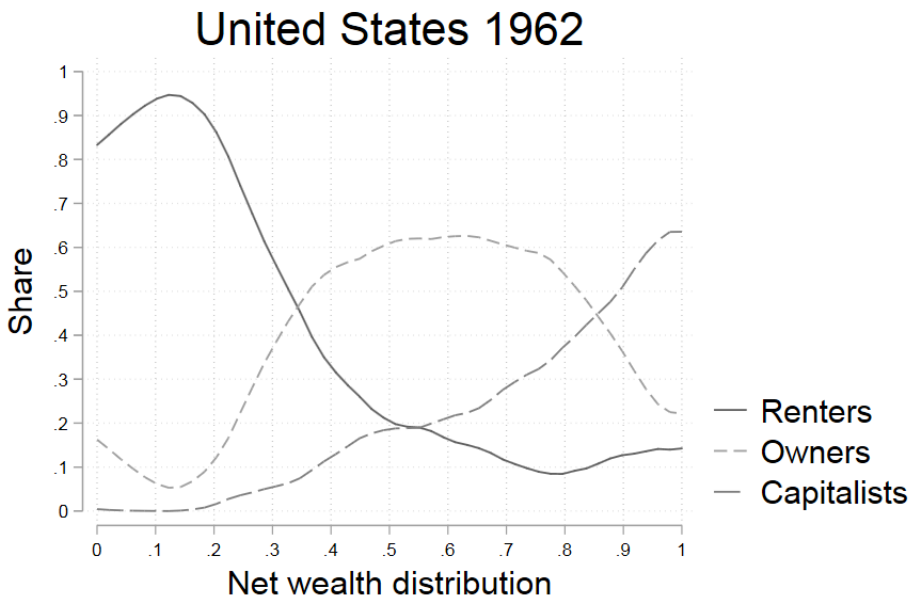


Notes:

(i) This graph shows the prevalence of renters, owners and capitalists over the net wealth distributions of the United States and the Euroarea. We use a local polynomial estimator with an epanechnikov kernel, a bandwith of 0.05 and degree 1 to prevent boundary bias as it allows for any trends also close to the endpoints.

(ii) *Source:* SCF 2013. HFCS 2014.

Figure 4: Renters, owners and capitalists in the United States 1962



Notes:

(i) This graph shows the prevalence of renters, owners and capitalists over the net wealth distributions of the United States 1962. We use a local polynomial estimator with an epanechnikov kernel, a bandwith of 0.05 and degree 1 to prevent boundary bias as it allows for any trends also close to the endpoints.

(ii) *Source:* SCF 1962/1963.

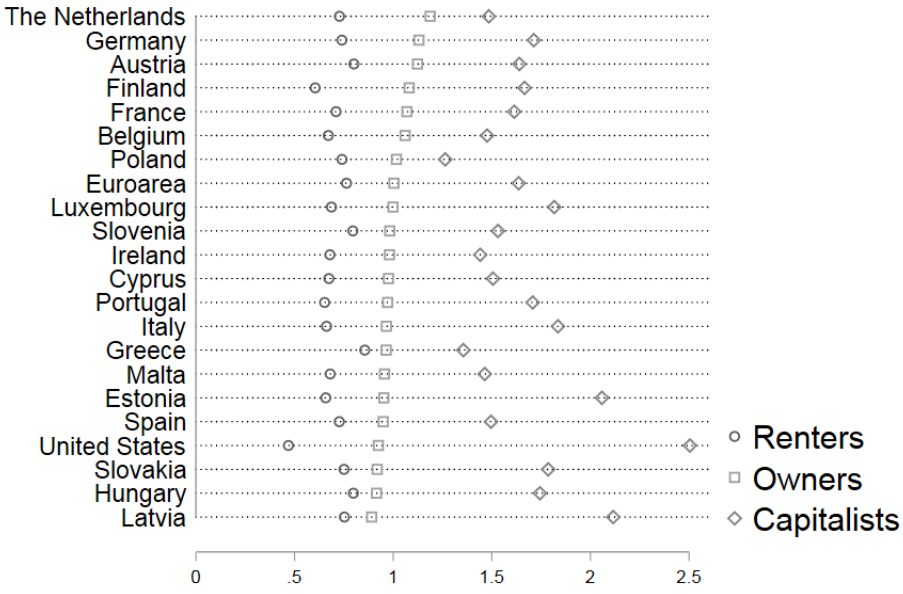
overproportional. Similarly, figure 5 relates the share in gross income (a) as well as the share in net wealth (b) to the respective population shares of renters, owners and capitalists. In both graphs countries are sorted by the ratio of owners which is in all countries and for both, income and wealth, closest to one, which means that their share in income and wealth is closest to their population share. Capitalists have in all countries an overproportional share in income and wealth, whereas renters have in all countries an underproportional share of income and wealth. As the wealth distribution is more unequal than the income distribution, wealth ratios generally show higher variation than income ratios.

Micro capital to income ratios Figure 6 shows class specific wealth-to-income ratios, similarly to the economy wide capital-to-income ratios provided by Piketty (2017) and others. The wealth-to-income ratios are to be interpreted as a form of disaggregated capital-to-income ratios, which are usually defined as the capital stock divided by national income of an economy. Panel (a) shows wealth-to-income ratios based on means, which are analogous to the economy-wide capital-to-income ratios commonly used.

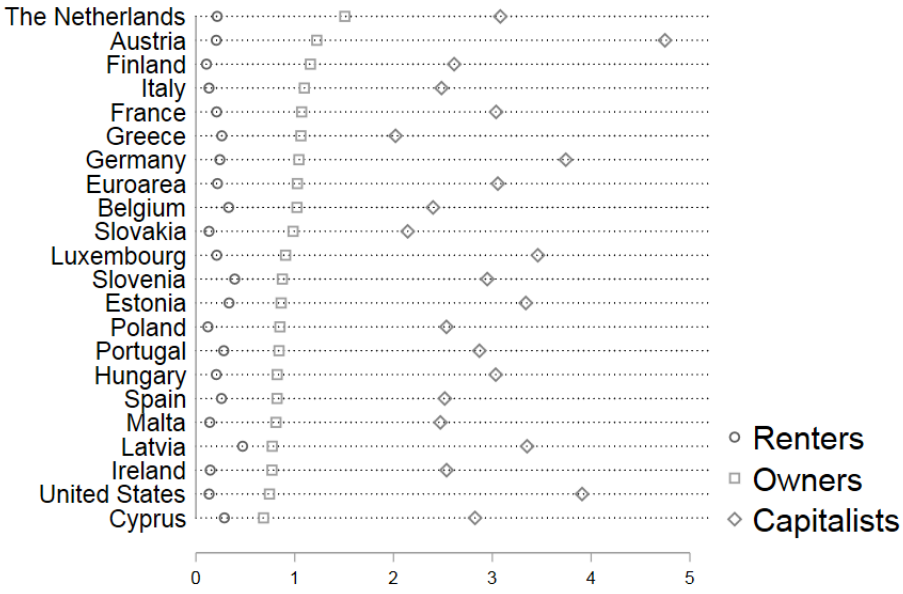
Prevalence of renters and social security expenditure Figure 7 shows the prevalence of renters as well as social security expenditure per capita across countries. As social security expenditure serves as substitute for private wealth accumulation. one can see a clear positive relationship. Especially Austria and Germany seem to have a large share of renters. In both countries there exists a relatively large share of social housing and rent control mechanisms.

Figure 5: Shares of wealth and income in relation to population share

(a) Income



(b) Wealth



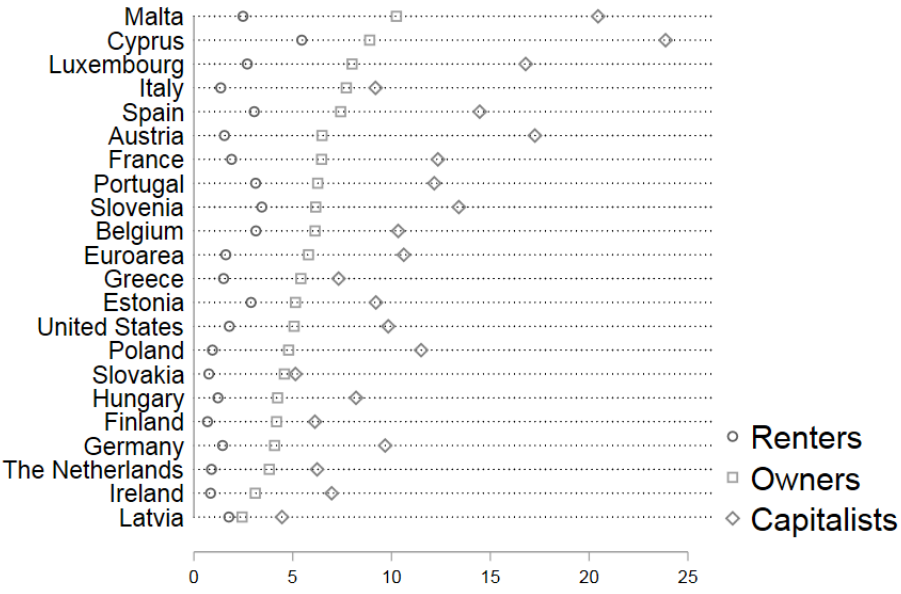
Notes:

(i) These graphs show shares of income and wealth in relation to the population share of renters, owners and capitalists across countries.

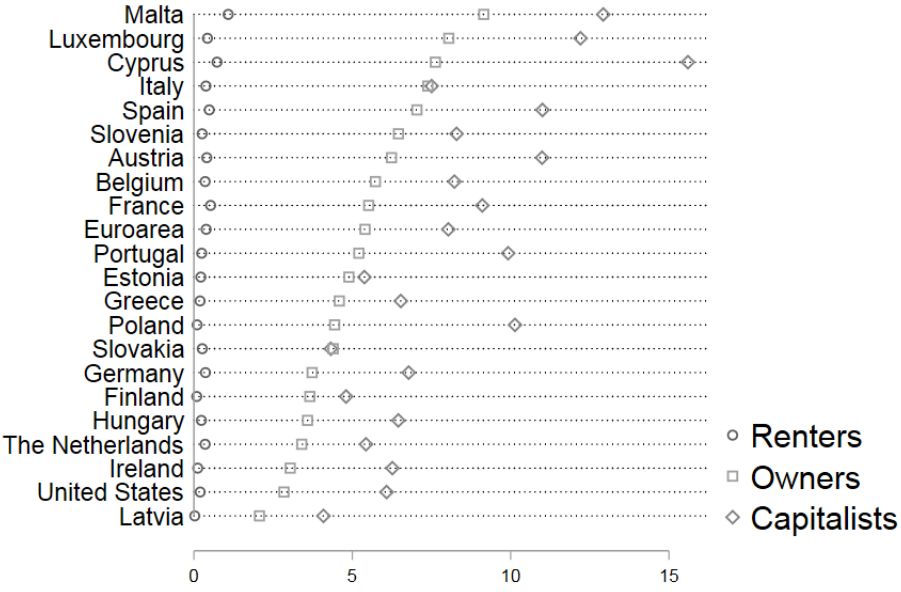
(ii) *Source:* SCF 2013. HFCS 2014.

Figure 6: Wealth to income ratios of renters, owners and capitalists

(a) Means



(b) Medians



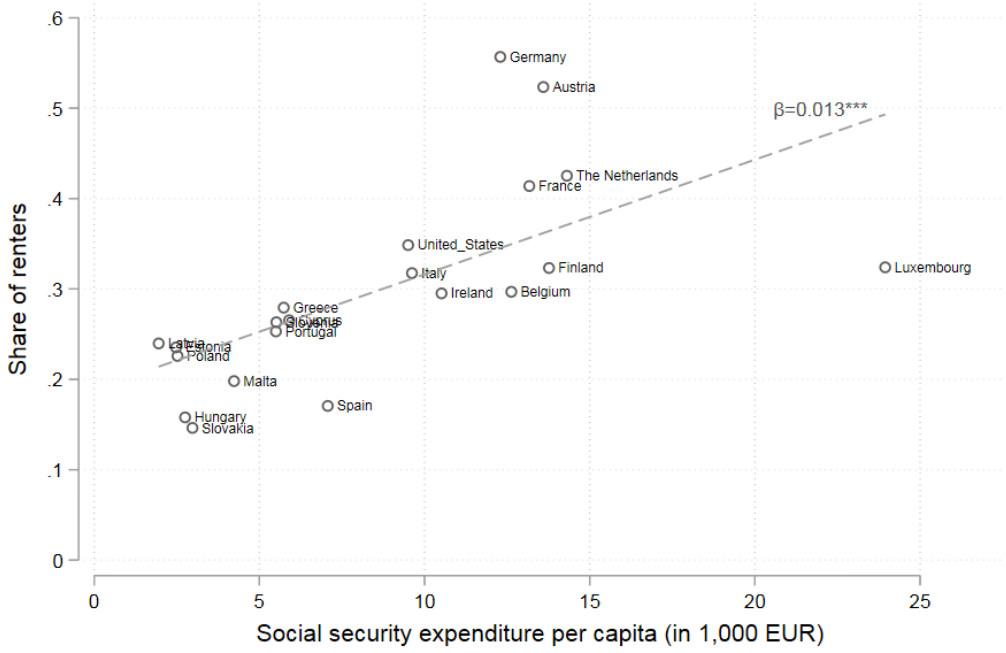
Notes:

(i) This graph shows wealth to income ratios of renters, owners and capitalists in the US, the Euroarea, Euroarea countries as well as Hungary and Poland.

(ii) All statistics are calculated taking into account multiple imputations and survey population weights.

(ii) *Source:* SCF 2013. HFCS 2014.

Figure 7: Share of renters and social security expenditure



Notes:

(i) This graph shows the prevalence of renters as a share of all households and social security expenditure per capita in EUR thousands of countries as measured by the OECD.

(ii) *Source:* SCF 2013. HFCS 2014. OECD 2014.

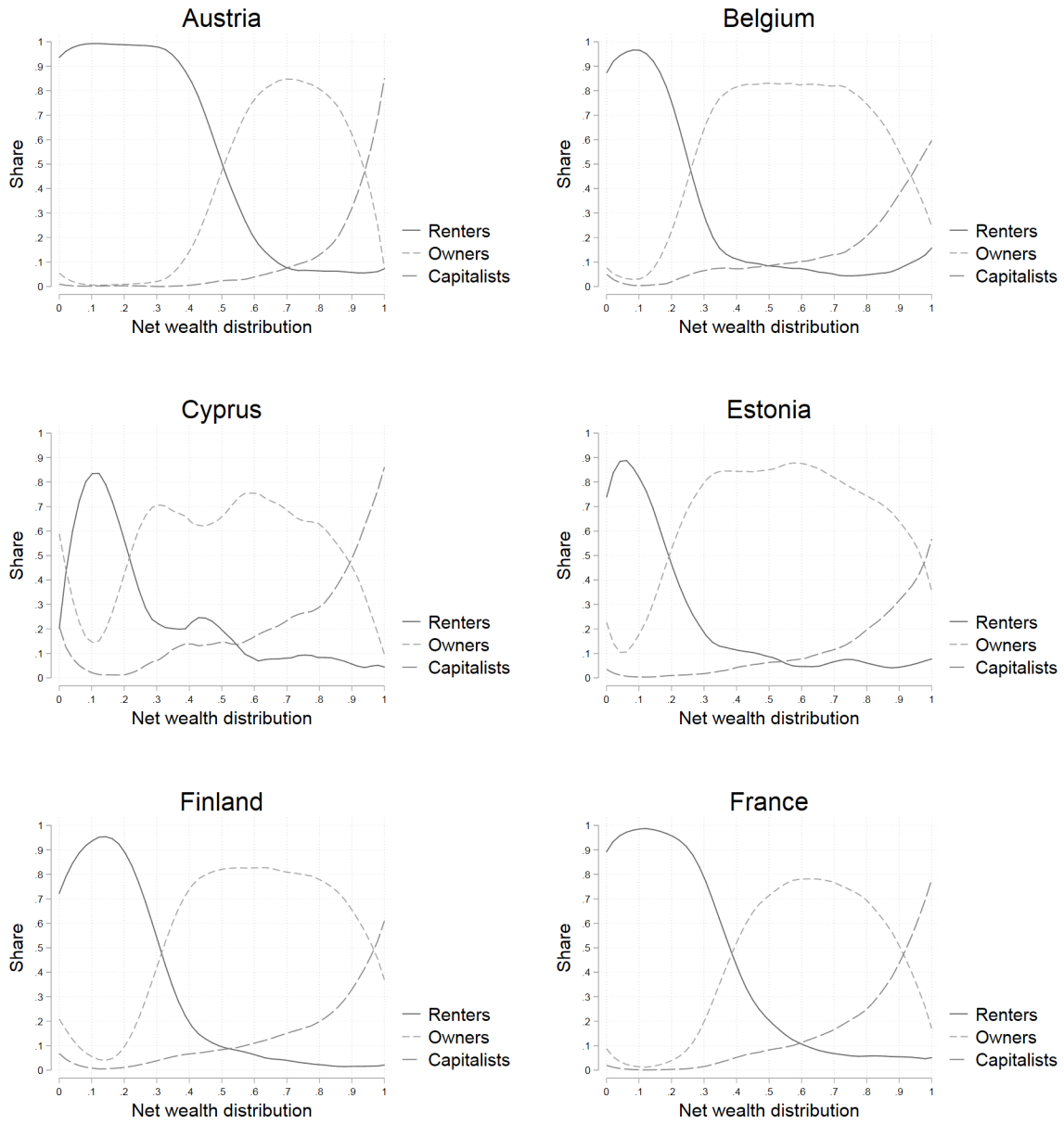
Appendix A Country level figures

Prevalence across the net wealth distribution. Figures A.1, A.2 and A.3 show the prevalence of renters, owners and capitalists across the net wealth distribution in all Euroarea countries. Figure A.4 those in Hungary and Poland. The points in the distribution at which there are more owners than renters and - at a higher level of wealth - more capitalists than owners differ considerably. Similar patterns emerge in all countries. The only difference being that in some countries the overlap is a little larger and in others smaller and the switching points where owners become more dominant than renters and, in the upper part of the distribution, where capitalists become more dominant than owners are at different percentiles of the respective country level net wealth distribution.

We hypothesize that different institutions and more specifically different degrees of welfare state interventions shape the profiles of this social class typology across the wealth distribution. In particular, state pension systems, public health provision, public education, unemployment insurance and other forms of public welfare are substitutes to the precautionary function and therefore will partly crowd out the accumulation of private wealth, especially in the lower parts of the wealth distribution (see Feldstein (1974), Jappelli (1995), Alessie et al. (2013), and Fessler and Schürz (2015)).

See also figure 7.

Figure A.1: Renters, owners and capitalists in euroarea-countries

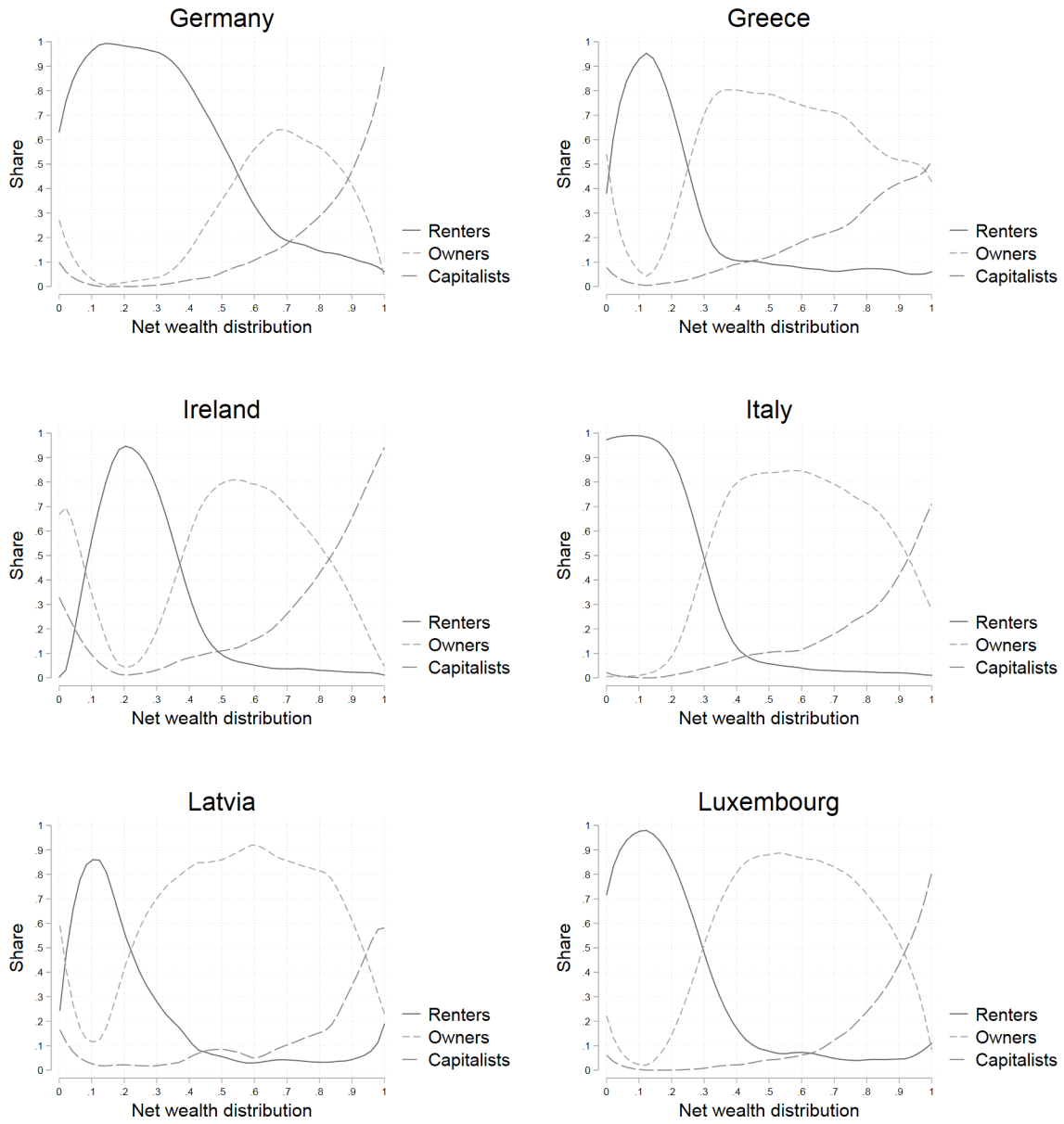


Notes:

(i) These graphs show the prevalence of renters, owners and capitalists over the net wealth distribution for different countries. We use a local polynomial estimator with an epanechnikov kernel, a bandwith of 0.05 and degree 1 to prevent boundary bias as it allows for any trends also close to the endpoints.

(ii) *Source:* HFCS 2014.

Figure A.2: Renters, owners and capitalists in euroarea-countries

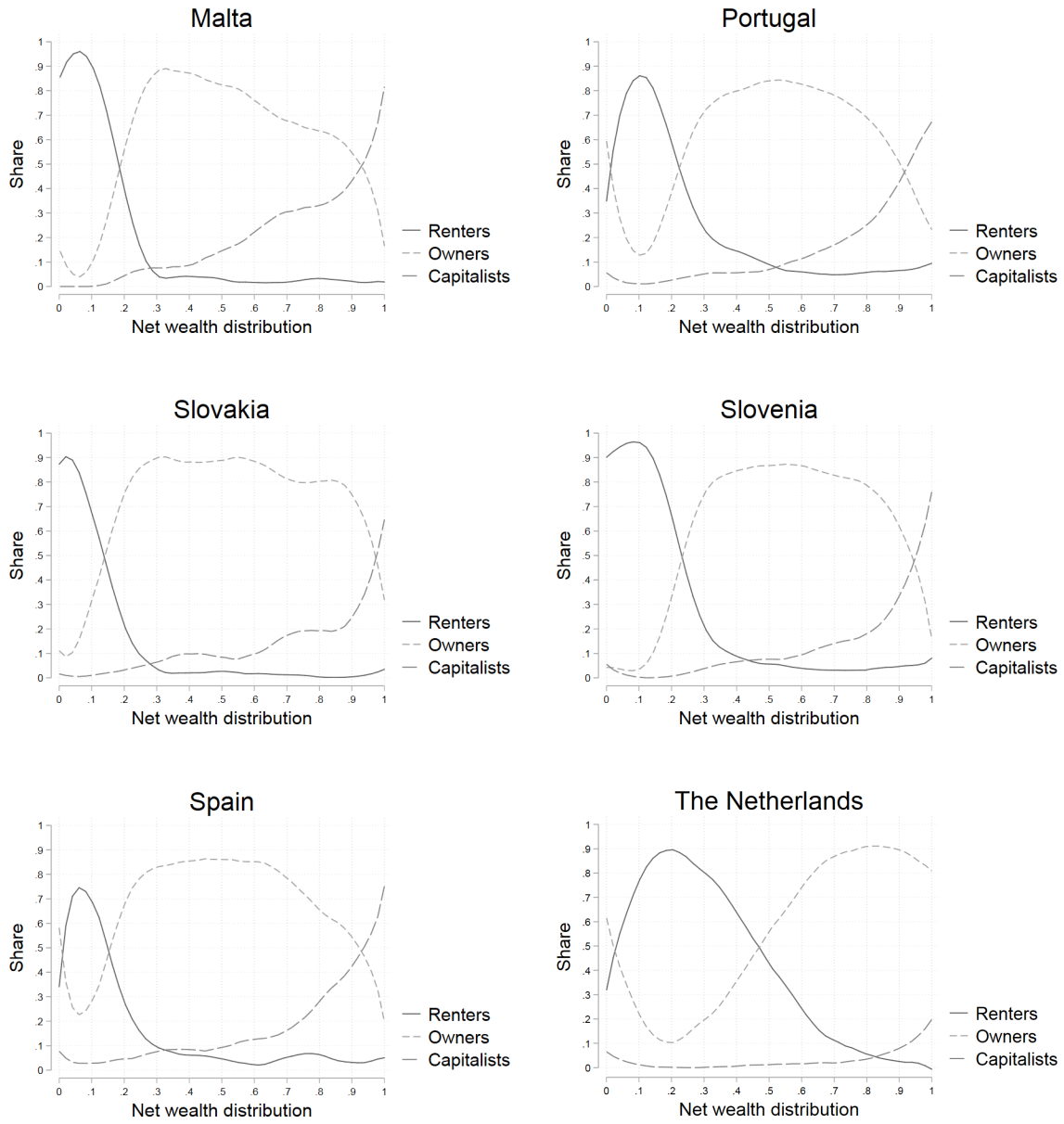


Notes:

(i) These graphs show the prevalence of renters, owners and capitalists over the net wealth distribution for different countries. We use a local polynomial estimator with an epanechnikov kernel, a bandwith of 0.05 and degree 1 to prevent boundary bias as it allows for any trends also close to the endpoints.

(ii) *Source:* HFCS 2014.

Figure A.3: Renters, owners and capitalists in euroarea-countries

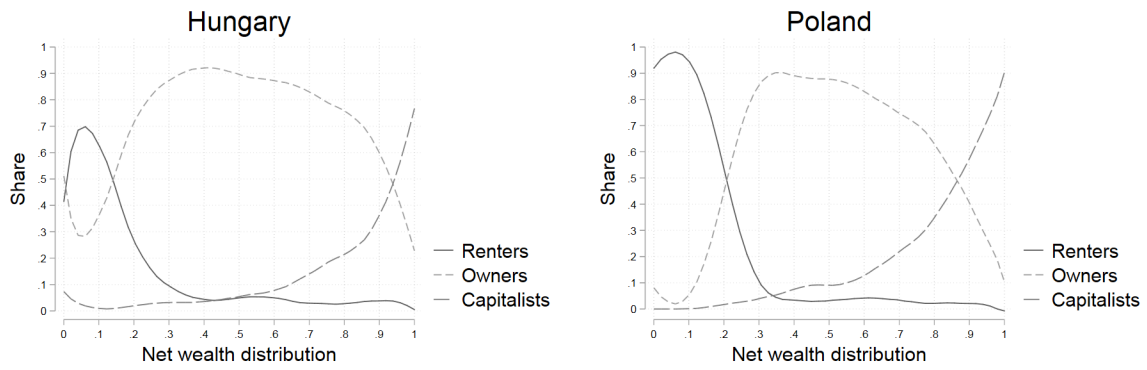


Notes:

(i) These graphs show the prevalence of renters, owners and capitalists over the net wealth distribution for different countries. We use a local polynomial estimator with an epanechnikov kernel, a bandwith of 0.05 and degree 1 to prevent boundary bias as it allows for any trends also close to the endpoints.

(ii) *Source:* HFCS 2014.

Figure A.4: Renters, owners and capitalists in Hungary and Poland



Notes:
(i) These graphs show the prevalence of renters, owners and capitalists over the net wealth distribution for different countries. We use a local polynomial estimator with an epanechnikov kernel, a bandwith of 0.05 and degree 1 to prevent boundary bias as it allows for any trends also close to the endpoints.
(ii) *Source:* HFCS 2014.

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