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Abstract

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Keyword: Ageing, Wealth, Inequality, Europe, RIF regressions

JEL Cassification: D31, E24, J11, J14

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1. Introduction

The average level of wealth in an economy is an important indicator of the prosperity of a country, while its distribution reveals how equal or unequal that prosperity is spread over the population. In recent years the issue of wealth inequality and its determinants has emerged as a key topic of discussion in public debate, academic circles and among policymakers. This increased attention is not only due to the availability of new, more robust data on wealth, but also because high economic inequality can weaken social cohesion, interpersonal trust, cooperation and other types of prosocial behaviour. While some differences in wealth can be the result of individual efforts, others may be attributable to circumstances beyond the control of individuals (e.g. gender, disability, race, family circumstances) or to luck (e.g. accidents, illness, economic crises). Certain vulnerable groups may therefore have limited opportunities to accumulate wealth and reap its protective benefits.

Most advanced economies are experiencing significant population ageing, driven by declining fertility rates and increasing life expectancy. Consequently, the working-age population is expected to shrink, potentially constraining future economic growth and the capacity to sustain welfare systems. Simultaneously, the proportion of economically inactive individuals is set to rise, leading to a substantial increase in the dependency ratio. Japan is already experiencing severe demographic challenges due to ageing, while the phenomenon is also intensifying across Europe, particularly in southern European countries such as Italy, Spain, and Portugal.

Beyond its purely economic implications—such as its effects on production and labour markets—population ageing may also contribute to shifts in wealth inequality. A well-documented relationship exists between age and wealth accumulation, with individuals typically exhibiting low or negative net wealth in early adulthood, followed by wealth accumulation during mid-life and eventual decumulation in retirement. Changes in the age composition of the population are likely to affect wealth distribution both between and within age groups. For instance, increasing life expectancy may necessitate greater savings at retirement to finance a longer lifespan. However, prolonged old age may also lead to higher rates of wealth depletion, potentially reducing the size of bequests left to subsequent generations. Moreover, an expanding elderly population could result in greater heterogeneity within this group, increasing wealth disparities among older individuals. Additionally, shifts in wealth distribution across age groups may be influenced by policy responses to demographic changes. For example, adjustments to pension systems, such as higher contribution rates or extended retirement ages, could constrain individuals' ability to save and accumulate wealth over their lifetime, further shaping patterns of wealth inequality.

While much of the existing literature on ageing and inequality focuses on income disparities, this paper examines the impact of ageing on wealth inequality using microdata from the Household Finance and Consumption Survey (HFCS), a euro area-wide survey modelled after the U.S. Survey of Consumer Finances. We analyse the distribution of net wealth, as well as its key components—real assets, financial assets, and debt—to assess whether ageing has heterogeneous effects across different forms of wealth. To quantify the role of ageing in shaping wealth inequality, we employ a recentered influence function (RIF) approach, an econometric technique that estimates the impact of marginal changes in covariates on distributional statistics, such as the Gini index. Specifically, we estimate RIF regressions to examine how different age groups and other covariates influence the Gini index of net wealth and its components across two periods: 2010 and 2021.

We focus the analysis on a pooled sample of 15 European countries with available survey information in 2010 and 2021. When analysing the overall wealth of the fifteen European, no clear impact of ageing on net wealth inequality is found. However, ageing appears to contribute to rising inequality when its main components—real assets, financial assets, and debt—are examined. This effect is observed in both 2010 and 2021, with evidence suggesting that its magnitude has increased over time. When considering individual countries separately, no consistent trend is identified for the relationship between ageing and net wealth inequality. However, in countries experiencing more advanced population ageing, such as Portugal, Spain, and Italy, ageing appears to have an increasing impact on wealth inequality, as well as on the inequality of its main components, although statistical significance varies.

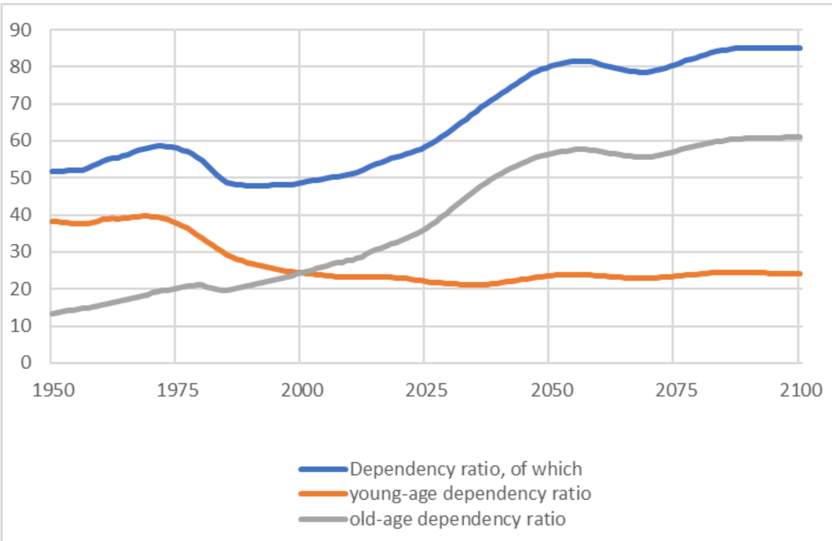
The paper is structured as follows. In section 2, demographic prospects are described, to illustrate the ongoing process of ageing in Europe. Section 3 provides an overview of the literature about the impact of ageing on the economy and on wealth building, as well as the available empirical studies on the effect of ageing on income and wealth inequality. In section

4, the HFCS data and the applied RIF methodology are introduced, followed by the main analysis and the description of the results in section 5. Section 6 concludes and provides some indications for further research.

2. Demographic prospects

While population projections vary across institutions and forecasting vintages, all estimates consistently indicate that the population of high-income countries has been ageing and will continue to do so in the future. The European continent is undergoing a demographic shift characterised by an ageing population and lower fertility rates. In the fifteen European countries analysed in this paper, referred to as EU-15, the dependency ratio, which measures the number of dependents (i.e. individuals aged 0-14 and 65+) relative to the number of those of working age (15-64), started to rise from the beginning of the 1990s onwards. From around 2010 it went up more clearly, as the decrease of the young-age dependency ratio slowed down while the old age dependency ratio further increased sharply (see Figure 1).

Figure 1: Dependency ratio in Europe (percentages)



Source: Own calculations based on UN population figures and prospects 2024. Notes: The dependency ratio is defined as the ratio of dependent population (aged 0-14 or 65+) over working age people (aged 15-64), the young-age dependency ratio as the ratio of young people (aged 0-14) over working age population, and the old-age dependency ratio as the ratio of elderly population (aged 65+) over working age people. The figures correspond to aggregate population of the 15 European countries analysed in the study: Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia and Spain.

According to the United Nations, the dependency ratio in Europe will increase further the coming decades, from on average 58% in 2024 to 80% in 2050, and it will reach 85% by the year 2100 (see Table 1). This indicates that for every ten persons of working age, there will be 8.5 persons who are considered either too young or too old to work. This evolution is almost entirely attributable to the increasing proportion of the elder population: the old-age dependency ratio is projected to rise from 36 to 61%. Therefore, the European population evolves towards a situation where there are three persons aged 65 or over for every five people of working age. By 2100, more than 16% of the population will be 80 or over.

Table 1: Ageing patterns in selected countries (percentages)

	Dependency ratio		Old-age dependency ratio		Population share of people aged 80+		Change in population of working age
	2024	2100	2024	2100	2024	2100	(2100-2024)
World	53.7	67.9	15.7	40.2	2.0	9.3	+14.2
EU-15	57.8	85.0	35.6	61.0	6.8	16.5	-30.7
Germany	59.0	81.3	36.9	56.6	7.5	14.6	-26.5
France	63.0	81.6	36.1	56.2	6.3	15.7	-7.6
Italy	57.5	94.3	38.8	72.8	7.8	19.8	-51.7
Spain	51.7	91.9	32.1	69.6	6.3	19.5	-45.3
Belgium	57.6	82.8	32.4	59.3	5.7	16.2	-18.7
UK	57.9	80.8	30.8	56.6	5.3	14.9	-6.1
US	54.4	74.8	27.7	49.7	4.1	12.8	+7.7
JP	70.1	95.6	50.7	73.2	10.6	21.0	-46.0

Source: Own calculations based on UN population prospects 2024.
Notes: The dependency ratio is defined as the ratio of dependent population (aged 0-14 or 65+) over working age people (aged 15-64). The old-age dependency ratio is defined as the ratio of elderly population (aged 65+) over working age people. Figures for Europe15 correspond to weighted average of the 15 European countries analysed in this paper, i.e. Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia and Spain.

Within Europe, certain countries such as Italy and Spain are projected to experience particularly severe demographic shifts, with dependency ratios anticipated to reach 92–94% and old-age dependency ratios rising to around 70%.[1] Although less pronounced, the populations of the UK and the US are also expected to age significantly. Over time, these

1 For a more detailed overview of expected demographic evolutions in different European countries, see for instance Bodnár and Nerlich (2022).

countries appear to be following a similar ageing trajectory to that of Japan, where the phenomenon began earlier. However, even in Japan, population ageing is projected to intensify further: by 2100, over one-fifth of the population will be aged 80 or above. In addition, in most countries the working-age population is forecast to decline substantially in absolute terms. In Europe, it is projected to decrease by an average of 31% between 2024 and 2100, with declines reaching as high as 45% in Spain and 52% in Italy, implying that by the end of the century the population of working age will only be half as large anymore in those countries.

In addition to the dependency ratio, which is a purely demographic concept, an economic dependency ratio can be useful to better illustrate the possible economic consequences of ageing. As explained in Loichinger et al. (2017), several concepts can be used, like the relationship between non-workers and workers, without considering their age. Using the National Transfer Accounts (NTA) data, more sophisticated measures can be calculated too, by considering the difference between consumption and production at each age.[2] Such a dependency ratio is calculated by relating the (positive) differences between consumption and labour income of children and elderly to total labour income. This so-called life cycle deficit measures the share of consumption of children and elderly which is not financed out of their own labour income, as a share of total labour income. This measure reflects the population structure as well as the involvement in production and consumption activities (Hammer et al., 2015). According to the 2024 Revision of the NTA indicators, this ratio would increase in Europe from about 53% in 2024 to 81% in 2100, as the sole result of the rising contribution of the elderly. In countries such as Belgium, Italy and Spain, it would evolve towards more than 90% by the end of the century, and in Japan it would then reach 103%. Although such high levels of the indicator do not have to imply that the economic system is unsustainable, its substantial increase in several countries shows that the needs of the elderly will rise considerably in the future, related to the ability of the working age population to provide for them. Nevertheless, the projected strong increase of economic dependency can be mitigated if economic behaviour is adapted, i.e. by changing economic activity or labour income and consumption patterns (Loichinger et al., 2017).

2 See https://www.ntaccounts.org/web/nta/show/ for more details on the NTA project.

3. Literature review

3.1 The economic impact of ageing

The decline in the population of working age individuals will have important consequences for the economies of various countries, thereby diminishing their capacity to generate wealth and welfare in the future. Consequently, the labour market will undergo substantial structural changes. Although measures can be taken to incentivize or force people to work longer (see for instance OECD, 2024), working careers cannot perpetually be extended, for instance because of health reasons. In addition, older workers often prefer to work less hours, so that the total labour volume will probably diminish. This implies that growth will mainly depend on productivity developments, but the potential impact of keeping older persons at work on productivity is uncertain. The general idea that an ageing workforce will reduce productivity growth (Aiyar et al., 2016 and Maestas et al, 2023), supporting the idea of a hump-shaped relation between productivity and age, is disputed in some studies which find (small) positive labour productivity effects if the share of older workers rises (Hernaes et al., 2023). In any case, the ageing of the workforce will imply major disruptions of the labour market and of the production systems of the impacted countries.

Ageing might decrease investment, and thus have a negative effect on capital formation (Bodnár and Nerlich, 2022). Interest rates and asset prices can also be affected, via lower savings and a higher demand for safe assets from older people, although their impact may be counterbalanced by higher precautionary savings from the younger part of the population, in order to prepare for longer periods of retirement (Bodnár and Nerlich, 2022). Based on an overlapping generations model, Sun et al. (2024) found that the impact of ageing on housing prices is uncertain, as a declining fertility rate reduces these prices, while a longer lifespan increases them. The ultimate impact on housing prices is thus contingent on the relative importance of these two determinants and is subject to change over time. Furthermore, a decline in credit demand may occur, which could have adverse consequences for banks' profitability and the effectiveness of monetary policy (Bodnár and Nerlich, 2022).

The significant shift in population structure will have substantial implications for public finance, as government revenues may decline while expenses rise. In many countries, tax revenues rely heavily on labour income, meaning that a shrinking workforce could weaken the government's revenue base (Bodnár and Nerlich, 2022). In particular pay-as-you-go pension systems will be put under pressure, as the contributing part of the population will shrink while the receiving one will become substantially larger. Unless fundamental reforms are made to reduce the imbalances between contributors and receivers and between contributions and allowances, many of these systems will not be futureproof. In addition, public spending on health care will increase vigorously, as well as on long-term care due to reduced self-reliance of older people. These higher costs are only partially compensated by reduced spending on education (European Commission, 2024). Although governments surely can take measures to soften the impact, these may be highly unpopular amongst a growing share of the electorate, implying that actions taken might come late or be too soft. As population ageing reduces the share of the younger voters—who are likely to be affected by policy decisions for the longest period (Berry, 2014)—it may shorten the time horizon of politicians. This shift could make it more challenging to implement timely and necessary reforms, thereby exacerbating the potential fiscal impact of ageing (Terai et al., 2021).

The impact of ageing on public finance is also analysed using generational accounts. These indicate, in present value, what the typical member of each generation can expect to pay, now and in the future, in net taxes (Auerbach et al., 1994). Decoster et al. (2013) use this approach for Belgium, and show that ageing and the related increase in age related expenditures are the main drivers of the long run unsustainability of Belgian public finances. Using a similar method, Arévalo et al. (2019) has analysed the sustainability of EU countries' public finances, given high public spending on pension and health care in the context of ageing. They find that implemented pension reforms had already ensured significant savings for governments at aggregate EU level, reducing the fiscal burden for future generations. But these measures have primarily been borne by current younger living cohorts and future generations, for whom remaining lifetime net taxes increase, and to a lesser extent to current older generations.

Despite concerns about the economic consequences of ageing, its impact may be less problematic than commonly assumed. Lee et al. (2014) argue that while low fertility poses challenges for public finances and very low fertility may undermine living standards, moderately low fertility and population decline do not necessarily lead to a deterioration in material well-being. This is because the negative effects of a shrinking workforce and tax base can be offset by greater human capital investment, which enhances worker productivity. Additionally, international capital flows, trade, and technological innovation may help mitigate some of the adverse effects of population ageing, alongside behavioural adjustments such as shifts in work and consumption patterns and policy responses, including the reform of unsustainable systems. Furthermore, Mason et al. (2022) emphasize that while ageing is expected to have significant long-term effects, its precise economic consequences remain uncertain. The ultimate impact will depend on whether current generations anticipate future demographic trends by accumulating capital to support their old age needs or whether they assume that the burden of ageing can be shifted onto future generations.

3.2 Ageing and wealth

According to the life-cycle hypothesis, first developed by Modigliani and Brumberg (1954), households engage in consumption smoothing to try to equalize expenditure over their lifespan. As income is most often lower after retirement than during working life, this implies that wealth is first accumulated, and subsequently used during the last phase of life, giving rise to a hump-shaped profile of wealth according to age. This implies that substantial wealth inequality can exist inside a population, solely because of age differences, and that wealth inequality can increase or decrease if the age composition of the population changes (Davies and Shorrocks, 2000). This predicted profile has been found in several studies. For instance, Cowell et al. (2017) showed that net wealth peaks at 60 to 70 years of age in eight European and Anglo-Saxon countries. This pure impact of age on measured inequality does not reflect inequality of circumstances (Cowell and Van Kerm, 2015). In that respect, Ihle and Siebert-Meyerhoff (2017) concluded that more than one third of German overall wealth inequality can be explained by transitory lifetime wealth differences due to age.

The "basic" model underlying the life-cycle hypothesis has been adapted and extended in different ways, for instance to include the imperfect functioning of financial markets, or to account for the possibility to support descendants through gifts or bequests. Households wanting to support their offspring by means of an inheritance can indeed want to accumulate more wealth during their active life and/or dissave less at an older age (Davies and Shorrocks, 2000). Conversely, receiving a gift or an inheritance has an impact on the pattern of wealth accumulation too. Inheritances can increase or decrease wealth inequality. On the one hand, they may reduce inequality because they represent a larger share of poorer households' wealth, but they can also increase the wealth of individuals who are already wealthy (Cowell et al., 2017).

Health is another factor influencing the decisions to save or dissave. The prospect of a longer healthy life may have an ambiguous effect on savings, because it can give rise to longer working lives and postponed retirement (Bloom et al., 2003).

Public pension systems can also influence household savings behaviour. While actively participating in the labour market, workers contribute to social security, which reduces their disposable income; after retirement, they receive pension benefits. This structure may create an incentive for households to save less during their working years, as they anticipate future pension income. In other words, social security contributions can crowd out private savings (Feldstein, 2014). However, social security and private wealth are not perfect substitutes due to factors such as limited financial literacy (Wroński, 2023a). Empirical evidence of a partial crowding-out effect has been documented by Alessie et al. (2013), who analysed data from 13 European countries. Their study found that the extent of this effect varies by education level: while highly educated individuals exhibit a complete crowding-out of private wealth by pension wealth, no displacement was observed among the less educated. As a result, government measures aimed at reducing public pensions are likely to increase private savings, though not to a degree that fully compensates for the decline in pension benefits—particularly among low-skilled and financially less literate households (Alessie et al., 2013). Moreover, most empirical studies find a negative relationship between social security and private savings (Wroński, 2023b). Public pension systems also have implications for wealth inequality. Since public pension benefits are more evenly distributed than private wealth, accounting for accrued pension rights reduces measured wealth inequality (Wolff & Marley, 1994; Bönke et al., 2020; Wroński, 2023c). By contrast, voluntary private pension plans tend to increase pension wealth inequality (Olivera, 2019).

Many studies have found that the life-cycle hypothesis does not hold in practice, or at least only to a certain degree, as a considerable part of retired elder people still accumulate wealth or decumulate it too slowly to dissolve wealth by the moment of death (see for instance Poterba (1994), Hassan et al. (2011), and Mäki-Fränti (2022)). This observation is called the Wealth Decumulation (or the Retirement Saving) Puzzle. In a recent article, Horioka and Ventura (2024) analysed the factors driving this phenomenon in Europe. They show that the intention to leave bequests is a major explanatory factor, as well as the generosity of public pension systems. Decumulation is in addition weaker if households are homeowners, as older people are reluctant to sell their house because of its illiquidity and indivisibility, their wish to stay in the house they know, etc. Precautionary saving because of uncertainty over the expected lifetime and in order to anticipate higher future (medical and care) costs, by contrast, only plays a minor role. The importance of bequest motives to explain lower dissaving of elder people is also highlighted in Lockwood (2012, 2018), as he found that the will to leave a bequest increases saving and decreases purchases of long-term care insurance and annuities.

3.3 Empirical studies on ageing and inequality

Most empirical studies analysing the impact of ageing on inequality focus on income. As shown by an extensive literature overview in Shaik et al. (2024), the effect is not unequivocal, as several studies find that ageing increases inequality while other authors conclude ageing has no clear impact on or reduces income inequality. This ambiguity is confirmed in recent publications. On the one hand, Hwang et al. (2021) find that the Gini index of income in South Korea increased when a marginal part of the 35-44 age group is substituted by people 65 or above. Shaik et al. (2024) conclude that the effect of ageing on income inequality is positive in Australia, New Zealand, Japan, and South Korea, although at varying degrees of intensity, while income inequality in Hong Kong is negatively influenced by its ageing population. According to Gao et al. (2024), income inequality has not intensified in rural China with the progression of ageing. The impact of ageing on income inequality may therefore vary from one country to another.

By contrast, little empirical work has been done on the consequences of ageing on wealth inequality. Ihle and Siebert-Meyerhoff (2017), using German wealth data at individual level for the years 2002, 2007 and 2012, concluded that the ageing of the population might lead to a growing dispersion of wealth at the upper tail of the distribution, implying that the ageing of the German population may lead to an increase in overall wealth inequality.

Notable recent initiatives have sought to enhance the availability of data for analysing wealth inequality. One such initiative is the World Inequality Database (WID), launched in 2017, which aims to provide detailed and internationally comparable statistics on income and wealth.[3] While the age decomposition is not yet developed in the WID, the National Transfer Accounts (NTA) initiative explicitly tries to measure how people at each age produce, consume, and save. Data are currently available for about 60 countries, including the largest (but not all) European countries. Inside Europe, the European Central Bank (ECB) has undertaken some projects to increase data availability on income and wealth, in order to improve its knowledge on the impact monetary and macroprudential policy may have on specific groups of the population. In particular, the Household Finance and Consumption Survey (HFCS)[4] can be mentioned, a survey which is organized every three or four years in all euro area countries, since 2010. In addition, the Distributional Wealth Accounts (DWA)[5] are made, in which sectoral accounts and HFCS are combined to produce quarterly flow and stock data, allowing to assess the distribution of household wealth. Several studies have been published using these data. For instance, Hammer (2015) constructed age-specific balance sheets for the household sector in 13-euro area countries, using HFCS data.

4. Data and empirical strategy

4.1 Data

We use the Household Finance and Consumption Survey (HFCS), which is a nationally representative household survey, implemented in all euro area countries, that includes detailed information on wealth, portfolio composition, and income, and a rich set of socioeconomic variables. Each Central Bank organizes the survey at approximately three-year

3 https://wid.world/wid-world/

4 https://www.ecb.europa.eu/stats/ecb_surveys/hfcs/html/index.en.html

5 https://data.ecb.europa.eu/data/datasets/DWA/data-information

intervals. The first wave of the survey was organised in 2010, at that time in 15 European countries. Further waves have been implemented in 2014, 2017, 2021 and 2023.[6] The most recent available data relate to 2021. In that year, the survey was implemented in 22 European countries, for a total sample of more than 80,000 households.

The main objective of the survey is to provide comparable microdata on household finances, income and consumption for all euro area countries and other participating European countries. The European Central Bank provides guidelines for the production and collection of survey data with the goal to have harmonized and comparable household financial data. For methodological considerations about this data, see ECB (2023). In particular, we exploit the first and last available rounds of the survey (2010 and 2021) for the 15 European countries that have observations in those years. These countries are Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain. For the purpose of this paper, a weighted aggregate of these countries has been calculated, referred to as EU-15, in order to be able to identify Europe-wide findings. A total of 61,961 households are included in 2010, and 61,488 in 2021 (see Table 2).

Table 2: Sample of households in HFCS

Country	Wave 1 (2010)	Wave 4 (2021)
Austria	2,380	2,293
Belgium	2,327	2,130
Cyprus	913	1,332
Germany	3,565	4,119
Spain	6,085	6,312
Finland	10,865	9,474
France	15,006	10,253
Greece	2,971	3,386
Italy	7,951	6,239
Luxembourg	950	2,010
Malta	843	1,018
Netherlands	1,301	2,690
Portugal	4,404	6,107
Slovenia	343	1,951
Slovakia	2,057	2,174
Total	61,961	61,488

6 Data collection for the fourth HFCS-wave was delayed by one year because of the COVID-19 pandemic.

4.2 Empirical strategy

This study examines the relationship between ageing and the distribution of net wealth by using the *recentered influence function* (RIF) regressions introduced by Firpo et al. (2009). This method is well-suited for our purposes as we can examine results beyond the mean and consider the complete distribution of our variable of interest. Importantly, this method enables to assess the effect of a covariate of interest (age in our case) on wealth inequality, keeping the distribution of all other covariates constant. These regressions assess how a marginal change in the distribution of a covariate can impact on an inequality statistic (e.g. the Gini index, the median, the coefficient of variation, a quantile, etc). More formally, let $v(F)$ be the inequality index, as a function, calculated in the distribution F. The influence function of v is a function of income y and F and is defined as:

$$IF(y; v, F) = \lim_{\in \to 0} \frac{v\left((1-\epsilon)F + \epsilon\Delta_y\right) - v(F)}{\epsilon} \qquad (1)$$

The IF captures the effect on $v(F)$ of an infinitesimal contamination of F at point mass y. Expressions for $IF(y; v; F)$ exist (or can be derived) for a wide range of statistics. We focus on the case of the Gini index. The Gini-RIF regressions consist of two stages. In the first stage, the influence function (IF) of each household on the Gini index is estimated as a function of their own wealth and the total distribution of net wealth. A greater proportion of individuals in the tails of the distribution increases inequality, while a greater proportion of individuals close to the average reduces the level of inequality.

In the second stage, linear estimations of IF are run on key predictors —such as age groups, education and home ownership— making it possible to find the effect of a small change in the predictor on the level of inequality, keeping the distribution of the other covariates constant.[7] Interpreting the estimated coefficients is straightforward. For example, a negative coefficient for the homeownership variable implies that a greater number of homeowners, keeping the distribution of all other covariates constant, leads to a reduction in wealth inequality. An illustration closest to our study is the application by Hwang et al. (2021). They

[7] As noted by Choe and Van Kerm (2018), a key advantage of RIF regressions over traditional inequality decomposition methods (Shorrocks, 1984) is their flexibility in assessing the distributive effects of covariates both unconditionally and conditionally.

use Gini-RIF regressions to study the role of ageing on income inequality in Korea and estimate the effect of marginal substitution between age groups. They consider the effect of a swap between the 35-44 age group (which is the reference group) and the 65+ age group. They refer to a change in the Gini index when a given percentage of the reference group is marginally substituted by the 65+ age group. Another helpful application of RIF regressions for the Gini index and specific quantiles is the one by Choe and Van Kerm (2018), who assess the role of the share of foreign workers on the distribution of wages.

Formally, the Gini index is defined with the following formula:

$$G = 1 - 2\mu^{-1} \int_0^1 GL(p; F_Y)dp \qquad (2)$$

Where $p(y) = F_Y(y)$, μ is the mean, and where $GL(p; F_Y)$ is the generalized Lorenz curve of F_Y given by $GL(p; F_Y) = \int_{-\infty}^{F^{-1}(p)} z dF_Y(z)$. The Lorenz curve reflects the relationship between the cumulative change of variable *Y* and the total size of the cumulative total population size up to a given value of *Y*. See Monti (1991) and Firpo et al. (2018) who discuss RIF expressions for the Gini index (*G*), which is shown below:

$$RIF(y; G) = 2\frac{y}{\mu}G + 1 - \frac{y}{\mu} + \frac{2}{\mu}\int_0^y F(z)dz \qquad (3)$$

Equation 4 presents the second stage of the Gini-RIF regressions, where the subscripts *i* and *c* denote the individual and the country, respectively. The dependent variable is the Gini influence function, estimated in the first stage, normalized by the corresponding country's Gini index of net wealth, ($\widetilde{RIF}_{i,c}$). This normalization allows the dependent variable to represent everyone's relative contribution to their country's Gini index. Dividing the influence function by the country's Gini index enhances the interpretability of the estimated coefficients. Specifically, each coefficient can quantify the percentage change in the Gini index resulting from a marginal shift, i.e. when 1 percentage point of the reference group for a given covariate is replaced by 1 percentage point of the specified covariate.

$$\widetilde{RIF}_{i,c} = \alpha + \beta_1 X_{i,c} + \beta_2 agegroup_{i,c} + \varepsilon_{i,c} \qquad (4)$$

The individual covariates ($X_{i,c}$) included in the regressions are dummy variables for education, marital status, number of household members, number of dependent children, and homeownership status. $agegroup_{i,c}$ indicates distinct age groups, which we divide into five groups of people aged 65+, 55-64, 45-54, 35-44, and <35. The age groups are our variables of interest because we seek assessing the role of ageing on wealth inequality. The error term $\varepsilon_{i,c}$ is assumed to be normally distributed. β_1 and β_2 are vectors of coefficients to be estimated for each variable. Table A1 in the Appendix shows the descriptive statistics of the variables used in the regression analysis.

Since wealth is measured at the household level, the household serves as the unit of analysis. Accurately attributing wealth to individual household members requires assumptions that may be restrictive. One approach could be to distribute wealth equally among all adult members, but this may distort the wealth distribution, particularly among young adults. To avoid such biases, we rely on the characteristics of the household's reference person—the individual identified in the survey as the most knowledgeable about the household's financial situation. Accordingly, variables such as education, gender, and marital status correspond to this reference person, while other selected covariates are already measured at the household level. In any case, we also run our regressions on a database where wealth has been individualized according to some standard assumptions to examine the robustness of our main results.

Furthermore, we estimate Gini-RIF regressions for the same countries in two different periods (2010 and 2021), enabling us to assess the potential impact of population ageing on wealth inequality over time. An important advantage of the RIF methodology is its ability to examine additional drivers of inequality within the older population. For example, by focusing on a subsample of individuals aged 65 and over, we can analyse how the influence of factors such as homeownership, marital status, and inheritance receipt in explaining wealth inequality among older households has evolved over time.

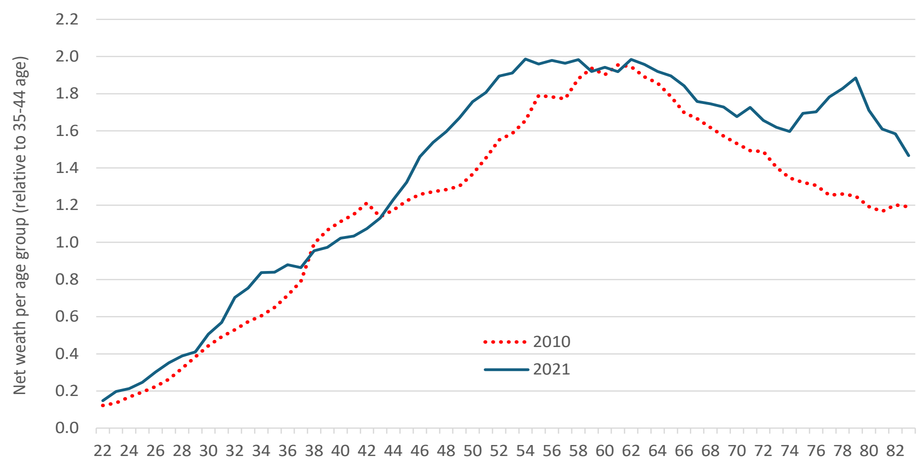
Apart from assessing distribution regressions per country and period, we also consider a pooled sample of all the 15 European countries where all monetary values were previously normalized by purchasing power parity (EU-27=1) to either 2010 or 2021. The regressions for the pooled sample include country dummies and weights that are calibrated to resemble the distribution of country populations within our sample of European countries. Consequently, survey observations from larger countries have greater weight than those from smaller countries.

5. Results

5.1 Descriptive patterns

Before presenting the econometric results, it is useful to examine key patterns in our pooled sample of European countries from 2010 to 2021. Figure 2 illustrates the net wealth profiles of individuals across different age groups. Net wealth is measured as the average wealth observed at a given age, expressed relative to the average wealth of individuals aged 35-44, which serves as the reference group. This approach facilitates comparisons across different periods and allows us to assess the extent to which older individuals have accumulated greater relative wealth over time. Consistent with the standard life-cycle hypothesis, both the 2010 and 2021 curves exhibit the expected pattern of wealth accumulation during youth, reaching a peak, followed by decumulation in old age. However, the rate of decumulation appears to be more gradual in 2021 compared to 2010. Specifically, individuals aged 44 and older tend to hold relatively more wealth in 2021 than their counterparts in 2010. This trend is particularly pronounced for individuals aged 60 an over, who exhibit significantly higher relative wealth in 2021 than in the earlier period.

Figure 2. Profiles of net wealth by age groups in EU-15 sample

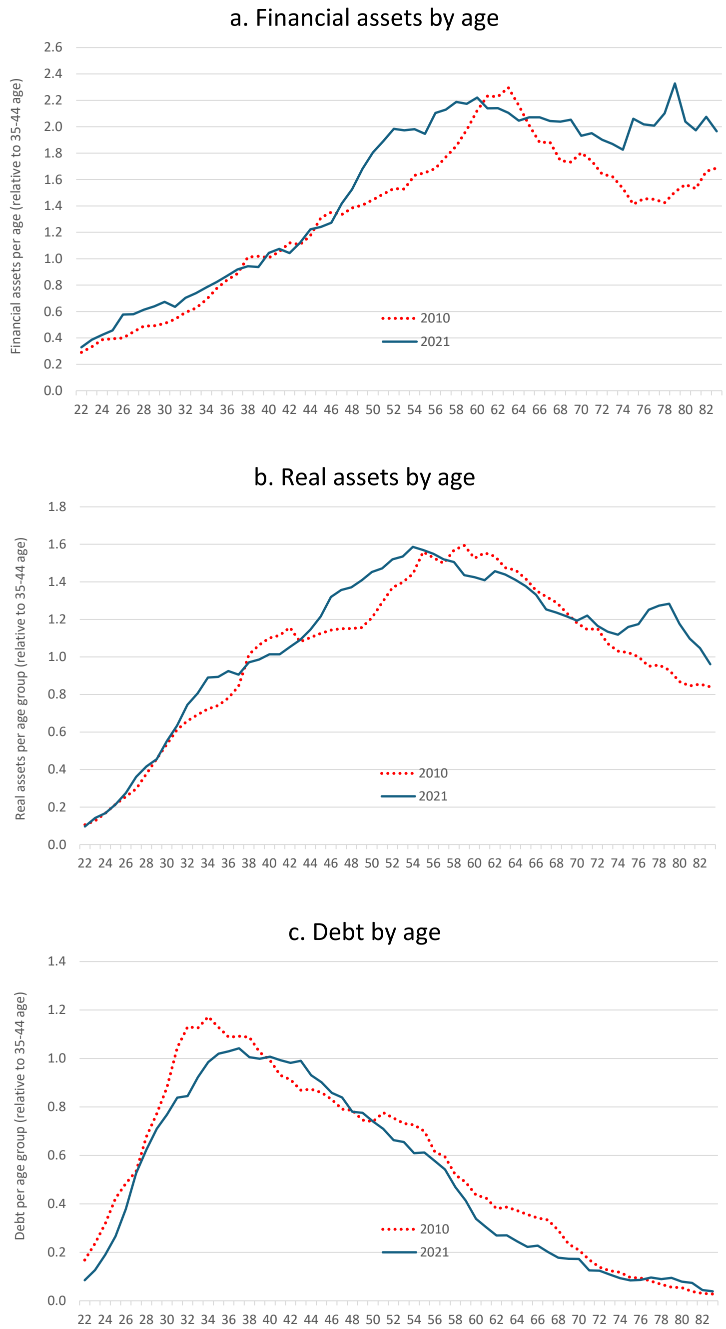


Notes: The figure shows profiles of net wealth per age, which are expressed relative to the average net wealth of individuals aged 35 to 44. The series have been smoothed using 5-year mobile averages.

The concept of net wealth includes various types of financial and real assets owned by the household less liabilities. Some examples of financial assets are bank deposits, stocks, bonds, shares in companies or investment funds, and life insurance policies, while examples of real assets include the household main residence, other real estate, and vehicles. Liabilities are, for instance, a mortgage debt, consumer credit or other loans. Given that the distribution, pricing and accumulation patterns of these assets and liabilities could be very different, we also analyse the age profiles of the main components of wealth.

Figure 3 illustrates age profiles for financial assets, real assets, and debt. The pattern observed for financial assets in both 2010 and 2021 closely resembles that of net wealth. However, the decumulation phase in old age appears even more attenuated than in the case of net wealth. Specifically, after the age of 60, financial assets do not decline substantially; instead, they largely maintain their relative importance compared to those held by other age groups. In terms of real assets, we observe an increase in 2021 for individuals aged approximately 43-57 and those aged 70 and older, while a decline is evident for individuals aged 58-69. Thus, while real asset increases over time among the elderly, it appears less pronounced than that of financial assets. Another key finding from Figure 3 is the reduction in relative debt levels across most age groups between the two periods, except for a slight increase among individuals aged approximately 40-50 and those aged 77 and older. Overall, these trends suggest that older individuals have become relatively wealthier, particularly in terms of financial assets, while the relative age-debt profiles have flattened, benefiting younger individuals. However, this shift does not necessarily represent a positive outcome, as it may reflect increased credit constraints disproportionately affecting younger cohorts compared to middle-aged individuals.

Figure 3: Wealth components by age groups (2010 and 2021)



The figures present age profiles of financial assets, real assets, and debt expressed relative to the respective average for individuals aged 35–44. The data series are smoothed using 5-year moving averages.

Having examined changes in relative wealth by age, we now turn to the evolution of wealth inequality. The Gini index of net wealth increased slightly from 0.679 in 2010 to 0.690 in 2021 for our EU-15 sample. However, the changes in inequality levels vary across age groups. For instance, the Gini index for individuals aged 75-79 rose from 0.612 in 2010 to 0.649 in 2021, while for the 35-39 age group, it increased from 0.682 to 0.695 over the same period. Figure A1 in the Appendix presents the Gini indices of net wealth across different age groups and time periods. In general, younger cohorts exhibit higher levels of wealth inequality compared to older cohorts. Moreover, wealth inequality has increased across most age groups during the analysed period, with the exception of the 25-29, 40-44, and 70-74 age groups, where the Gini index remained stable or slightly declined.

Figure A2 in the Appendix provides Gini indices for different wealth components across age groups. Unlike net wealth, financial asset inequality tends to increase with age. For example, while the Gini index for financial assets was 0.690 for individuals aged 30-34 in 2010, it reached 0.782 for those aged 80 and older. Furthermore, financial asset inequality increased over time, particularly among the oldest individuals (75-79 and 80+ age groups). Significant increases in financial asset inequality were also observed for individuals aged 45-49, 50-54, and 55-59 between 2010 and 2021. The same figure also presents Gini indices for real assets and debt across age groups. Notably, the inequality patterns for real assets closely resemble those of net wealth, with higher levels of inequality observed among younger age groups compared to older cohorts. Similar to financial assets, the 75-79 and 80+ age groups experienced an increase in real asset inequality between 2010 and 2021. In contrast, debt inequality remained relatively stable over the period, with no significant changes observed across age groups.

5.2 Distribution regressions for wealth and its main components

Table A1 in the Appendix reports descriptives statistics for the EU-15 sample. As mentioned before, the covariates of interest use the characteristics of the reference person identified in the HFCS survey, who is the most knowledgeable person about the household finances. For the base 2010 year, about 35% and 55% are women and married, respectively, and 28% are elderly individuals aged 65 and older. 20% of the sample are aged 35-44, which will serve as the reference group in our regression results. The average number of household members and dependent children is 2.3 and 0.5, respectively. Regarding education levels, 19%, 15%, 41%, and 25% have primary education, lower secondary education, upper secondary education, and tertiary education, respectively. Home ownership is an important variable to take into account when wealth inequality is studied as this tend to attenuate wealth inequality (see De Mulder et al. 2024, Garbinti and Savignac 2018, and Causa et al. 2019). 60% of households were homeowners in 2010.

Table 3 presents the results of Gini-RIF regressions, estimating the "unconditional effect" of population ageing on net wealth inequality while controlling for key covariates. The findings indicate that ageing, as captured by the proportion of individuals aged 65 and older, has no statistically significant impact on the wealth distribution as measured by the Gini index. In 2010, replacing 1% of the reference group (individuals aged 35-44) with 1% of individuals aged 45-54 reduces the Gini index by 0.023%, suggesting that wealth inequality declines as the 45-54 age group replaces younger cohorts. Conversely, substituting 1% of the reference group with individuals younger than 35 increases the Gini index by 0.078%, indicating higher wealth inequality among younger individuals. While education does not exhibit a significant effect on the Gini index, marital status appears to influence wealth inequality. Specifically, replacing 1% of non-married individuals with married individuals reduces the Gini index by 0.031%. A particularly notable result, consistent with previous findings (e.g. De Mulder et al. 2024), is the strong negative association between homeownership and wealth inequality. Replacing 1% of non-homeowners with homeowners reduces the Gini index by 0.5%, underscoring the role of homeownership in wealth distribution. The results for 2021 largely mirror those from 2010, with the only significant age-related effect on inequality stemming from the youngest cohort (individuals under 35). As in 2010, homeownership remains a key determinant of wealth inequality, with a substantial and statistically significant association.[8]

[8] It should be noted that the estimated coefficient in 2021 is lower than the one estimated in 2010. This could be an indication that the equalisation power of home ownership has been marginally reduced.

Table 3. Estimates of Gini-RIF regressions for net wealth

	2010	2021
Age 65+	-0.003	0.021
	(0.028)	(0.032)
Age 55-64	0.051	0.048
	(0.034)	(0.035)
Age 45-54	-0.023**	0.044
	(0.01)	(0.028)
Age <35	0.078***	0.099***
	(0.02)	(0.022)
Female	-0.012	-0.005
	(0.01)	(0.026)
Married	-0.031***	-0.007
	(0.011)	(0.028)
Number of household members	0.019*	-0.007
	(0.011)	(0.007)
Number of dependent children	-0.002	0.048***
	(0.018)	(0.01)
Upper secondary education	0.004	-0.012
	(0.014)	(0.02)
Tertiary education	0.06	0.015
	(0.045)	(0.053)
Home ownership	-0.499***	-0.467***
	(0.035)	(0.023)
Constant	1.337***	1.196***
	(0.03)	(0.052)
Observations	61964	61488

Notes: The sample includes all 15 EU countries with available information in HFCS waves of 2010 and 2021. The regressions include country dummies and survey weights calibrated to resemble the distribution of country populations within the pooled sample of European countries. The dependent variable is the Influence Function (IF) of each household in the Gini index of net wealth estimated in the first stage and divided by the Gini index. The reference group for age dummies is 35-44. The standard errors are robust and clustered by country. Statistically significant levels are *p<0.10, **p<0.05 and ***p<0.01.

While ageing does not seem to have a clear impact on net wealth inequality, we now focus on its effect on the main components of wealth. Table 4 presents the Gini-RIF regression estimates for financial assets, real assets, and debt. While we report only the estimated coefficients for the age dummies, the full set of coefficients for other covariates is available in Table A2 in the Appendix. The coefficients for the oldest age group—our primary variable of interest—are estimated with greater precision when analysing wealth components separately rather than net wealth as a whole. Notably, we find a positive and statistically significant effect of the share of individuals aged 65 and older on inequality levels across all wealth components and time periods. Moreover, this effect has intensified between 2010 and 2021, suggesting that population ageing has contributed to rising inequality over time. For example, replacing 1% of the population aged 35–44 with individuals aged 65 and older increases the Gini index of financial assets by 0.078% in 2010 and by 0.101% in 2021. Similarly, the effect on the Gini index for real assets rises from 0.074% in 2010 to 0.082% in 2021, while for debt, the corresponding increase is from 0.218% to 0.233% over the same period. The larger coefficient for the 65+ group in the case of debt reflects the higher levels of debt inequality among older individuals (see Figure A2 in the Appendix).

Table 4. Estimates of Gini-RIF regressions for wealth components

	Financial assets		Real assets		Debts	
	2010	2021	2010	2021	2010	2021
Age 65+	0.078**	0.101***	0.074***	0.082***	0.218***	0.233***
	(0.031)	(0.032)	(0.024)	(0.021)	(0.03)	(0.038)
Age 55-64	0.075***	0.096**	0.113***	0.095***	0.136***	0.138***
	(0.015)	(0.038)	(0.027)	(0.026)	(0.033)	(0.029)
Age 45-54	0.018**	0.053***	0.011	0.087***	0.04	0.052**
	(0.008)	(0.019)	(0.02)	(0.021)	(0.029)	(0.023)
Age <35	0.06***	0.086***	0.006	0.063***	-0.003	0.018
	(0.012)	(0.019)	(0.009)	(0.015)	(0.013)	(0.016)
Observations	61964	61488	61964	61488	61964	61488

Notes: The sample includes all 15 EU countries with available information in HFCS waves of 2010 and 2021. The regressions include country dummies and survey weights calibrated to resemble the distribution of country populations within the pooled sample of European countries. The dependent variable is the Influence Function (IF) of each household in the Gini index of a wealth component estimated in the first stage and divided by the Gini index. The reference group for age dummies is 35-44. The regressions also include the covariates used before in the analysis but are not reported. The standard errors are robust and clustered by country. Statistically significant levels are *p<0.10, **p<0.05 and ***p<0.01.

We have conducted Gini-RIF regressions for each country; however, no clear pattern emerges regarding the impact of ageing on wealth inequality. Due to smaller sample sizes, the coefficients for the age dummies are estimated with lower precision and are often not statistically significant, except in certain countries and for specific wealth components. The estimated coefficients for individuals aged 65 and older are reported in Table A3 in the Appendix.

Focusing on countries with more advanced population ageing—Portugal, Spain, and Italy—we observe an increasing influence of ageing on wealth inequality, though statistical significance varies. In Portugal, for instance, replacing 1% of the population aged 35-44 with individuals aged 65 and older increases the Gini index of net wealth by 0.164% in 2010 and by 0.207% in 2021, with both estimates being statistically significant. In Italy, the impact on financial asset inequality is significant in both years, rising from 0.078% in 2010 to 0.115% in 2021.

For real assets, we find a statistically significant and increasing effect on the Gini index across the period in all three countries. The effect is particularly pronounced in Italy, where the influence of the 65+ age group on real asset inequality rises from 0.102% in 2010 to 0.172% in 2021. Similarly, the impact on debt inequality increases over time in these countries, with Italy again exhibiting the largest rise, from 0.123% to 0.214%.

5.3 Distribution regressions for more disaggregated wealth components

While the disaggregation of wealth in its main components already provides important insights into the relationship between ageing and wealth inequality, a more detailed breakdown of asset types can offer further nuances. For instance, some asset types are owned by large shares of the population while others are mostly in the hands of specific groups, so that the impact on inequality with an ageing population might be different. However, greater disaggregation involves a trade-off, as RIF regressions may be less suitable for variables with mass points (e.g., many zero values for specific assets). To explore this further, we decompose real assets into: (i) the Household's Main Residence (*HMR*), (ii) *other real estate*, and (iii) *other real assets* (including valuables, vehicles, and self-employment business equity). Financial assets are split into: (i) *deposits*, and (ii) *other financial assets* (such as bonds, shares, and mutual funds).[9] Table A5 in the Appendix presents the results of RIF-Gini regressions for these components. We find that a higher share of individuals aged 65 and older is associated with significantly greater inequality in the distribution of other real estate and other financial assets. In contrast, ageing appears to be associated with a reduction in inequality for other real assets. No significant effects are found for *HMR* and *deposits*, which are components that tend to be more evenly distributed across the population compared to other wealth categories such as non-primary housing and financial instruments.

Figure A3 in the Appendix presents age profiles for the three categories of real assets under consideration. The decumulation phase in old age appears more attenuated for the *HMR*

[9] *HMR, other real estate*, and *other real assets* account for approximately 59%, 23%, and 12% of total real assets, respectively. *Deposits* and *other financial assets* represent about 44% and 56% of total financial assets.

compared to other real asset types, which aligns with the expectation that primary residences are typically retained until the end of life. Interestingly, a relative increase in *HMR* holdings among individuals aged about 74 and more is observed between 2010 and 2021. However, Gini-RIF regression results do not indicate a statistically significant effect of this age group on *HMR* inequality. In contrast, holdings of *other real estate* have increased over time for the oldest age group (74+), while declining among individuals aged 50-73. For *other real assets* (including valuables, vehicles, and self-employment business equity) the data reveal more clearly defined accumulation and decumulation phases, consistent with the greater liquidity and disposability of these asset types. The Gini-RIF regressions suggest that a higher share of elderly individuals may contribute to a reduction in the inequality of these assets. Figure A4 displays age profiles for the further breakdown of financial assets, distinguishing between *deposits* and *other financial instruments*. Little evidence of decumulation is found in *deposits*, a pattern that aligns with the broader empirical observation that retirees often under-consume their wealth late in life. The second panel of Figure A4 shows a notable increase in *other financial assets* held by the elderly between 2010 and 2021. However, the Gini-RIF regressions indicate that this rise has not translated into increased inequality in the distribution of these assets over time.

5.4 Assessing individualized wealth

We assess the robustness of our main findings by using “individualized” wealth rather than household wealth. As previously mentioned, this approach requires restrictive assumptions, and the results should therefore be interpreted primarily as a robustness check. We individualize net wealth and its main components by dividing the household-level values by the number of household members aged 25 and older. While this method may be less problematic for households consisting of older married couples without additional members, it could artificially inflate the wealth attributed to younger household members. Table A4 in the Appendix presents the Gini-RIF estimates using these individualized wealth measures. Consistent with the results reported in Tables 3 and 4, we do not find substantial differences in the estimated effects of ageing on wealth inequality.

6. Conclusions

Inequality has recently gained a lot of attention in the public debate but also in the academic literature. That is also the case for the distribution of wealth over the population. In addition, the ageing of the population is an important characteristic of many advanced economies, and this phenomenon will intensify in the coming decades. While a clear wealth pattern according to age is found, the impact of ageing on wealth inequality has been given little attention in the literature, although it may help to get an idea how the distribution of wealth, and of its components, might evolve in the future, in the context of further ageing.

This paper uses data from the Household Finance and Consumption Survey (HFCS) with respect to fifteen European countries in 2010 and 2021 to assess the effect of ageing on the distribution of wealth and its main components (real assets, financial assets and debt). To do so, a recentered influence function (RIF) approach is used to evaluate the effect of the marginal substitution of the 35-44 age group by the 65+ group on the Gini index of the wealth distribution.

When analysing the fifteen European countries as a whole, the results concerning the impact of ageing on net wealth inequality are not statistically significant. However, when examining its main components—real assets, financial assets, and debt—ageing appears to contribute to rising inequality. This effect is observed in both 2010 and 2021, with evidence suggesting that its magnitude has increased over time. When considering individual countries separately, no consistent trend is identified for the relationship between ageing and net wealth inequality. However, in countries experiencing more advanced population ageing, such as Portugal, Spain, and Italy, ageing appears to have an increasing impact on wealth inequality, as well as on the inequality of its main components, although statistical significance varies.

This study has focused on analysing wealth inequality using the Gini index, which provides a useful measure of overall inequality, although it should be noted that there are other potential metrics capturing inequality with a varying degree of popularity and perhaps rooted on different normative grounds. We have also disaggregated wealth into more fine-grain components, but it is important to note the limitations of our method when the distribution of some assets includes high concentrations of zero values.

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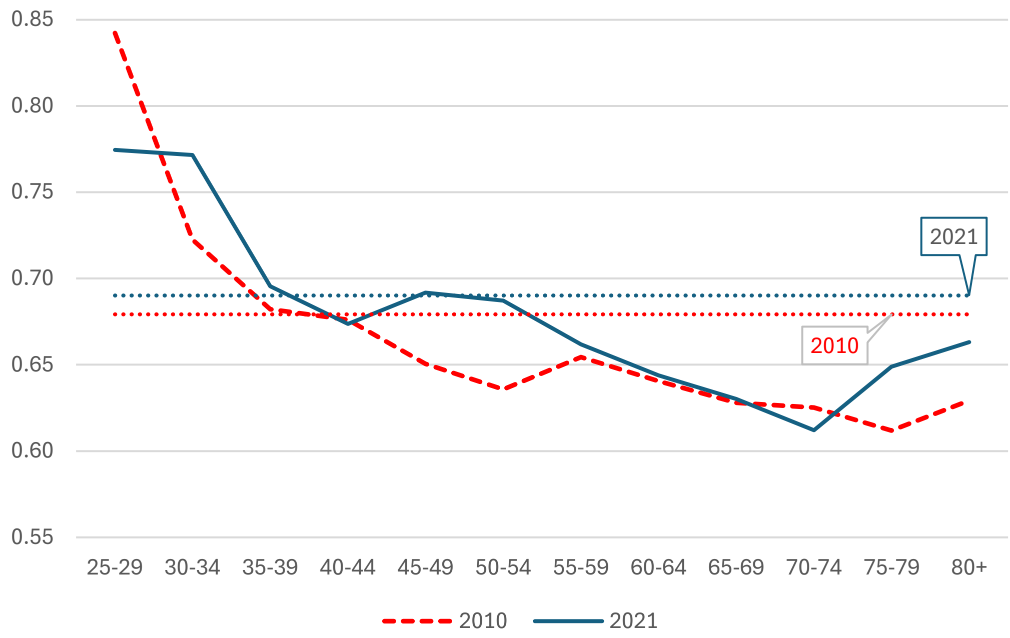
Appendix

Table A1. Descriptive statistics of the EU-15 sample

Variable	2010	2021	2010	2021
	Mean	Mean	Std Dev	Std Dev
Age 65+	0.280	0.315	0.449	0.465
Age 55-64	0.171	0.199	0.377	0.399
Age 45-54	0.199	0.194	0.399	0.395
Age 35-44	0.195	0.160	0.396	0.366
Age <35	0.155	0.132	0.362	0.339
Female	0.354	0.386	0.478	0.487
Married	0.546	0.484	0.498	0.500
Number of household members	2.316	2.215	1.266	1.251
Number of dependent children	0.535	0.487	0.909	0.887
Primary education	0.192	0.136	0.394	0.343
Lower secondary education	0.150	0.145	0.357	0.352
Upper secondary education	0.410	0.404	0.492	0.491
Tertiary education	0.248	0.315	0.432	0.465
Home ownership	0.603	0.611	0.489	0.487
Net wealth (millions of euros)	0.216	0.278	0.627	1.113
Financial assets (millions of euros)	0.041	0.062	0.220	0.705
Real assets (millions of euros)	0.201	0.247	0.550	0.706
Debts (millions of euros)	0.026	0.031	0.073	0.087

Notes: the statistics survey weights calibrated to resemble the distribution of country populations within the pooled sample of European countries

Figure A1: Gini indices of net wealth by age group



Notes: The figure shows Gini indices of net wealth by age groups.

Figure A2: Gini indices of wealth components by age group (2020 and 2021)

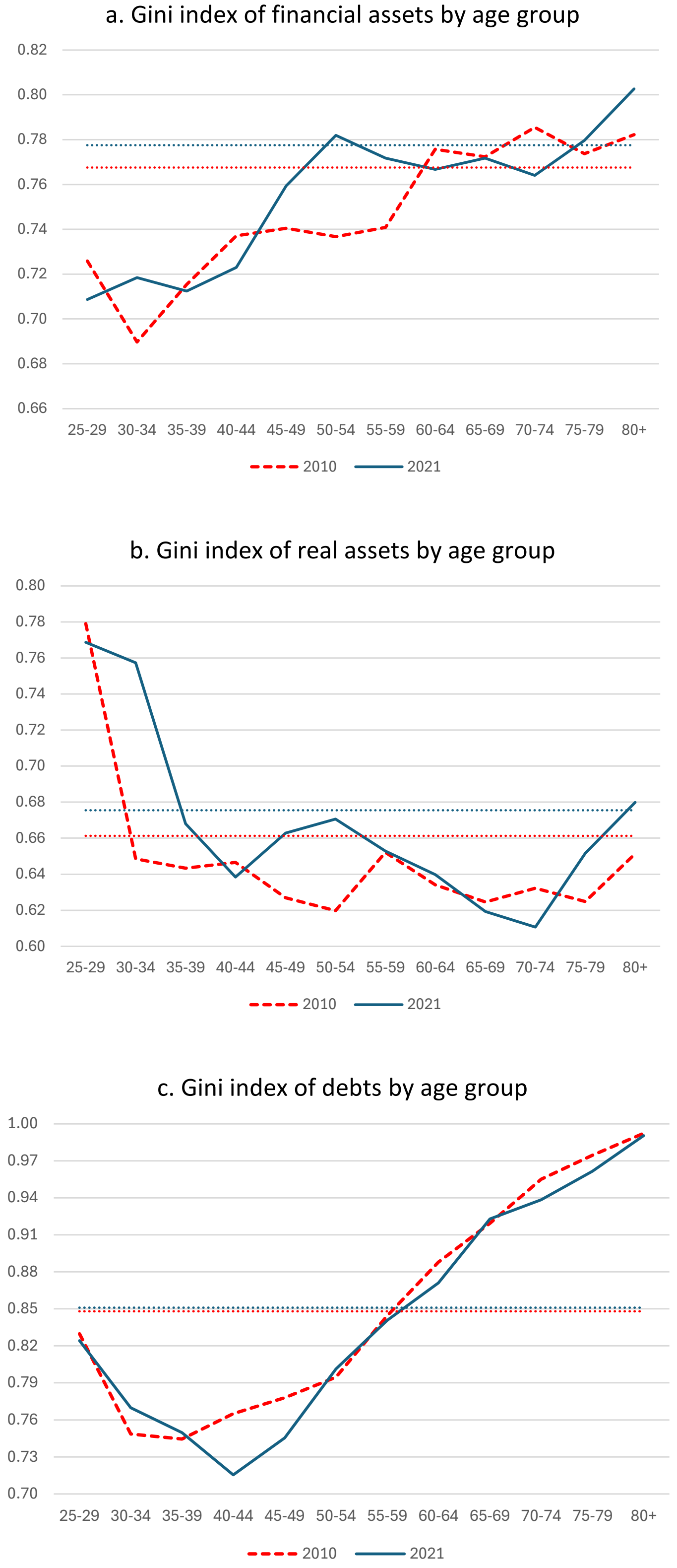
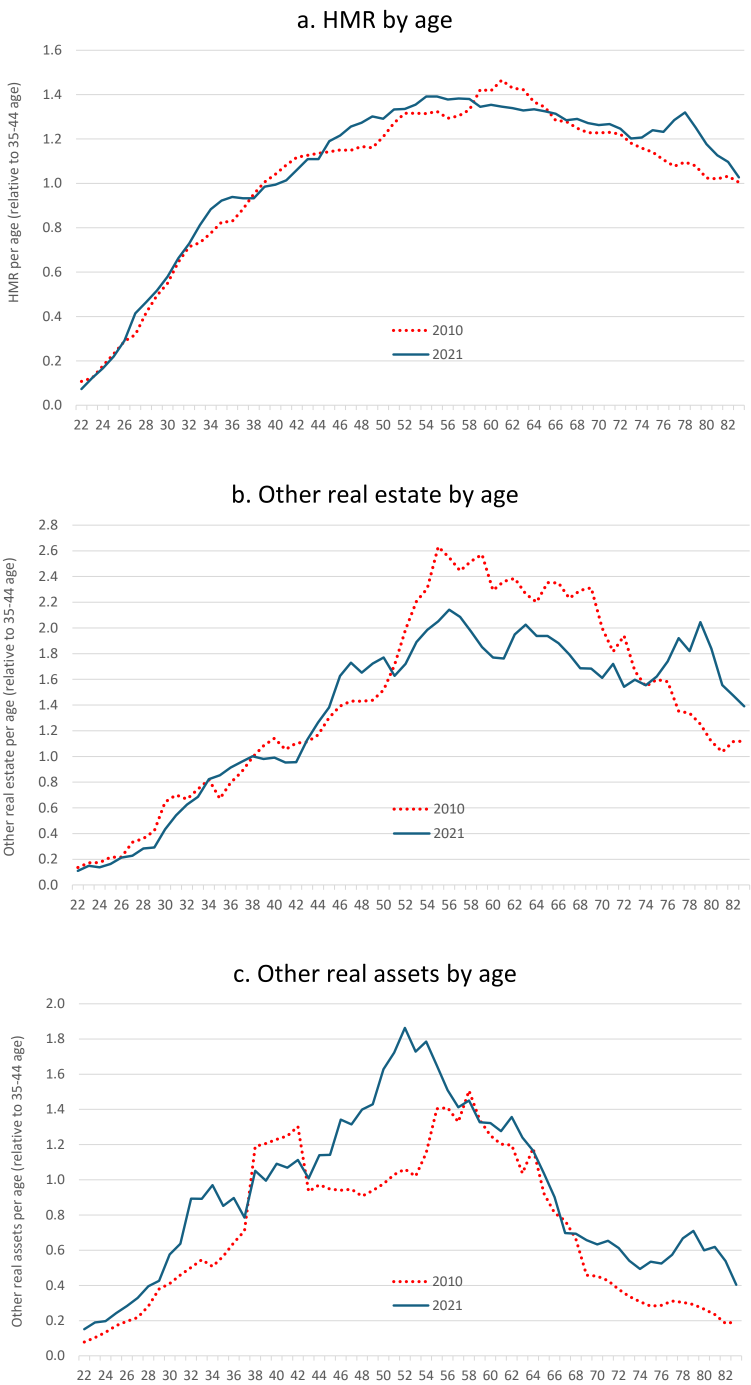
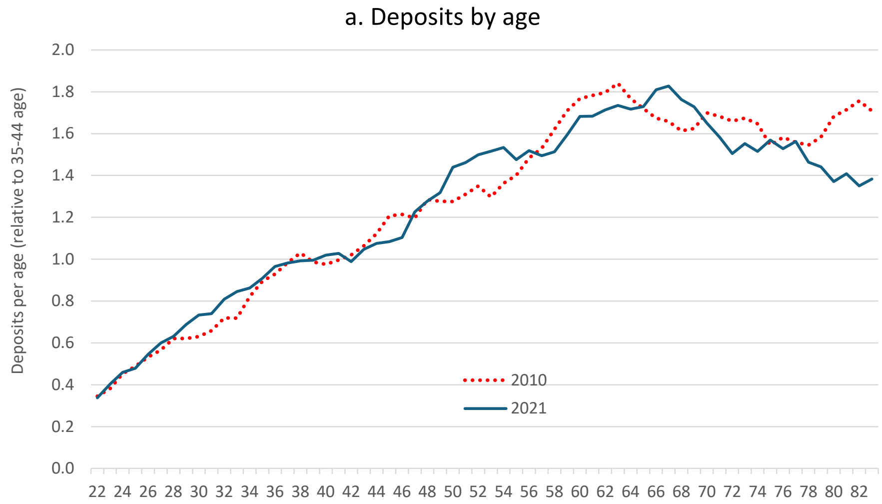


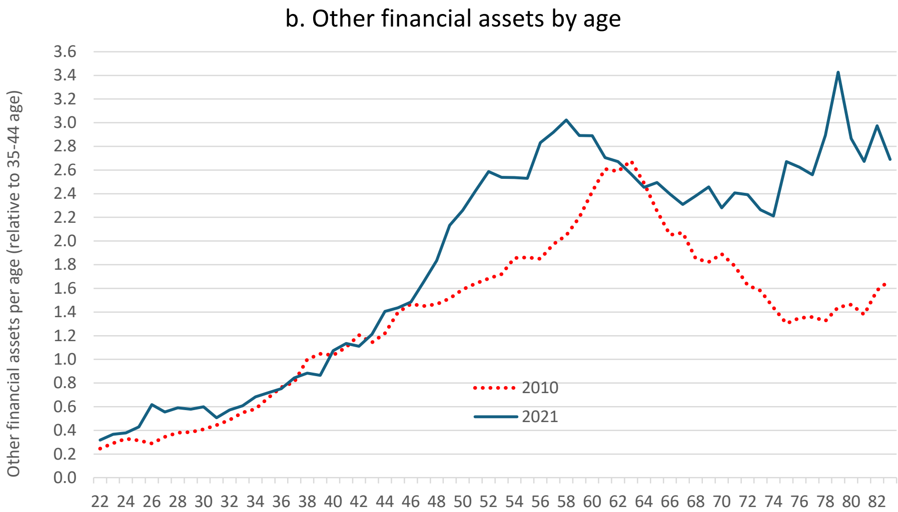
Figure A3: Real asset components by age groups (2010 and 2021)



The figures present age profiles of household's main residence (HMR), other real estate, and other real assets expressed relative to the respective average for individuals aged 35–44. The data series are smoothed using 5-year moving averages.

Figure A4: Financial asset components by age groups (2010 and 2021)





The figures present age profiles of deposits and other financial assets expressed relative to the respective average for individuals aged 35–44. The data series are smoothed using 5-year moving averages.

Table A2: Full Gini-RIF regressions for wealth (at the level of the househol

	Net wealth		Financial assets		Real assets	
	2010	2021	2010	2021	2010	202
Age 65+	-0.003	0.021	0.078**	0.101***	0.074***	0.082
	(0.028)	(0.032)	(0.031)	(0.032)	(0.024)	(0.02
Age 55-64	0.051	0.048	0.075***	0.096**	0.113***	0.095
	(0.034)	(0.035)	(0.015)	(0.038)	(0.027)	(0.02
Age 45-54	-0.023**	0.044	0.018**	0.053***	0.011	0.087
	(0.01)	(0.028)	(0.008)	(0.019)	(0.02)	(0.02
Age <35	0.078***	0.099***	0.06***	0.086***	0.006	0.063
	(0.02)	(0.022)	(0.012)	(0.019)	(0.009)	(0.01
Female	-0.012	-0.005	-0.015	-0.007	-0.014	0.00
	(0.01)	(0.026)	(0.013)	(0.018)	(0.013)	(0.02
Married	-0.031***	-0.007	0.011	-0.008	-0.044***	-0.0
	(0.011)	(0.028)	(0.011)	(0.017)	(0.014)	(0.03
N. of household members	0.019*	-0.007	-0.03***	-0.025***	0.025*	0.00
	(0.011)	(0.007)	(0.007)	(0.008)	(0.013)	(0.00
N. of dependent children	-0.002	0.048***	0.042***	0.07***	-0.016	0.01
	(0.018)	(0.01)	(0.006)	(0.017)	(0.018)	(0.00
Upper secondary educ	0.004	-0.012	-0.025	-0.02	0.005	-0.0
	(0.014)	(0.02)	(0.022)	(0.022)	(0.017)	(0.01
Tertiary education	0.06	0.015	-0.011	-0.023	0.056	0.01
	(0.045)	(0.053)	(0.039)	(0.063)	(0.039)	(0.03
Home ownership	-0.499***	-0.467***	-0.112***	-0.125***	-0.663***	-0.627
	(0.035)	(0.023)	(0.013)	(0.008)	(0.037)	(0.02
Constant	1.337***	1.196***	1.043***	0.976***	1.443***	1.29*
	(0.03)	(0.052)	(0.037)	(0.05)	(0.04)	(0.04
Observations	-0.003	0.021	0.078**	0.101***	0.074***	0.082

Notes: The sample includes all 15 EU countries with available information in HFCS waves of 2010 and 2021. The regressions include country dummies and surve
country populations within the pooled sample of European countries. The dependent variable is the Influence Function (IF) of each adult in the Gini index of the
and divided by the Gini index. The reference group for age dummies is 35-44. The standard errors are robust and clustered by country. Statistically significant le

Table A3: Estimates of Gini-RIF country regressions for the elderly share (age 65+) on we

	Net wealth			Financial assets			Real assets		
	2010	2021	Var.	2010	2021	Var.	2010	2021	Var.
Austria	-0.068	-0.099	↘	0.083*	-0.024	↘	-0.01	-0.036	↘
Belgium	0.058	-0.108	↘	0.106**	0.085*	↘	0.108**	0.022	↘
Cyprus	0.08	0.021	↘	0.146*	-0.057	↘	0.171*	0.118	↘
Germany	-0.045	0.024	↗	0.052	0.115**	↗	0.011	0.029	↗
France	0.019	-0.024	↘	0.101***	0.063***	↘	0.059*	0.083***	↗
Luxembourg	0.12	0.123	↗	0.145*	0.236	↗	0.28**	0.058	↘
Malta	0.213	0.192	↘	-0.067	0.074	↗	0.239	0.255*	↗
Slovenia	-0.008	0.027	↗	0.003	-0.003	↘	0.037	0.065	↗
Finland	-0.124***	-0.126***	↘	0.019	-0.049	↘	0.048*	0.031	↘
Netherlands	-0.276***	-0.179***	↗	0.051	-0.001	↘	0.152***	-0.052	↘
Slovakia	-0.162*	0.048	↗	0.112***	0.027	↘	-0.183**	0.174*	↗
Greece	0.081*	0.023	↘	-0.005	-0.005		0.161***	0.036	↘
Portugal	0.164**	0.207**	↗	0.055	0.124**	↗	0.37***	0.392***	↗
Spain	0.039	0.052	↗	0.046	0.119***	↗	0.19***	0.195***	↗
Italy	0.072	0.131***	↗	0.078**	0.115***	↗	0.102**	0.172***	↗

Notes: The table reports the estimated coefficient for the 65+ age group in Gini-RIF regressions performed separately for each country in 2010 and 2021. Th
dependent variable is the Influence Function (IF) of each household in the Gini index of a wealth component estimated in the first stage and divided by the Gin
for age dummies is 35-44. The standard errors are robust. Statistically significant levels are *p<0.10, **p<0.05 and ***p<0.01.

Table A4: Gini-RIF regressions for wealth (at the level of the individual)

	Net wealth		Financial assets		Real assets	
	2010	2021	2010	2021	2010	202
Age 65+	-0.008	0.023	0.078**	0.095***	0.058**	0.08*
	(0.031)	(0.028)	(0.036)	(0.024)	(0.026)	(0.01
Age 55-64	0.045*	0.041	0.069***	0.077***	0.095***	0.084
	(0.026)	(0.03)	(0.016)	(0.029)	(0.017)	(0.01
Age 45-54	-0.016	0.034	0.018	0.045**	0.012	0.077
	(0.011)	(0.026)	(0.013)	(0.02)	(0.02)	(0.01
Age <35	0.04*	0.078***	0.026***	0.051***	-0.028**	0.05*
	(0.023)	(0.026)	(0.006)	(0.011)	(0.014)	(0.01
Female	-0.01**	-0.008	-0.011***	-0.01**	-0.009*	-0.0
	(0.005)	(0.009)	(0.003)	(0.004)	(0.005)	(0.00
Married	-0.024***	-0.019	-0.012	-0.029*	-0.052***	-0.04
	(0.006)	(0.015)	(0.007)	(0.017)	(0.013)	(0.01
N. of household members	0.024***	0.005	-0.003	-0.005	0.043***	0.028
	(0.009)	(0.012)	(0.008)	(0.009)	(0.011)	(0.01
N. of dependent children	-0.005	0.037**	0.016*	0.05***	-0.035**	-0.0
	(0.016)	(0.017)	(0.008)	(0.016)	(0.015)	(0.01
Upper secondary educ	0.006	-0.031*	-0.027	-0.028	0.01	-0.03
	(0.009)	(0.016)	(0.02)	(0.02)	(0.014)	(0.01
Tertiary education	0.054	-0.001	-0.002	-0.04	0.058	0.01
	(0.039)	(0.045)	(0.031)	(0.047)	(0.039)	(0.03
Home ownership	-0.49***	-0.446***	-0.098***	-0.109***	-0.664***	-0.618
	(0.04)	(0.03)	(0.014)	(0.006)	(0.035)	(0.02
Constant	1.337***	1.209***	0.992***	0.966***	1.457***	1.315
	(0.018)	(0.037)	(0.035)	(0.051)	(0.027)	(0.02
Observations	109967	109314	109967	109314	109967	1093

Notes: The sample includes all 15 EU countries with available information in HFCS waves of 2010 and 2021. The regressions include country dummies and surve
country populations within the pooled sample of European countries. The dependent variable is the Influence Function (IF) of each adult in the Gini index of the
and divided by the Gini index. The wealth variables have been individualized by dividing the household-level value by the number of members aged 25 and over
standard errors are robust and clustered by country. Statistically significant levels are *p<0.10, **p<0.05 and ***p<0.01

Table A5. Estimates of Gini-RIF regressions for disaggregated wealth compor

	HMR		Other real estate		Other real assets		De
	2010	2021	2010	2021	2010	2021	2010
Age 65+	0.015	0.049	0.085***	0.076***	-0.02**	-0.039**	0.017
	(0.029)	(0.03)	(0.023)	(0.012)	(0.009)	(0.016)	(0.023)
Age 55-64	0.042	0.048	0.076***	0.067***	-0.035*	-0.042***	0.054**
	(0.031)	(0.035)	(0.023)	(0.011)	(0.018)	(0.01)	(0.023)
Age 45-54	-0.029	0.054***	0.028**	0.046***	-0.03***	-0.02**	0.031***
	(0.019)	(0.02)	(0.013)	(0.008)	(0.005)	(0.01)	(0.012)
Age <35	-0.037***	0.018	0.005	0.041**	0.019**	0.02***	0.028***
	(0.012)	(0.013)	(0.006)	(0.018)	(0.009)	(0.003)	(0.009)
Female	-0.001	0.018	0.000	0.007	0.001	0.001	-0.017*
	(0.015)	(0.029)	(0.007)	(0.006)	(0.006)	(0.007)	(0.01)
Married	-0.027*	-0.026	-0.051***	-0.015	-0.022***	-0.02	-0.026
	(0.016)	(0.028)	(0.008)	(0.017)	(0.008)	(0.015)	(0.018)
N. of household members	0.008	-0.01	0.017*	-0.002	-0.012***	-0.011***	-0.017
	(0.02)	(0.011)	(0.009)	(0.007)	(0.004)	(0.004)	(0.011)
N. of dependent children	0.012	0.029**	-0.015**	0.017***	0.012**	0.006	0.033**
	(0.036)	(0.013)	(0.008)	(0.006)	(0.006)	(0.004)	(0.015)
Upper secondary education	-0.007	-0.022	-0.004	-0.048***	-0.027***	-0.022***	-0.044**
	(0.013)	(0.017)	(0.027)	(0.013)	(0.005)	(0.009)	(0.02)
Tertiary education	0.002	0.013	0.037	-0.005	-0.052***	-0.075***	-0.063***
	(0.021)	(0.023)	(0.046)	(0.026)	(0.006)	(0.011)	(0.024)
Home ownership	0.002	-0.03***	-1.029***	-0.958***	-0.051***	-0.049***	-0.111***
	(0.03)	(0.009)	(0.027)	(0.023)	(0.007)	(0.007)	(0.013)
Constant	1.142***	0.992***	1.618***	1.587***	1.148***	1.162***	1.089***
	(0.034)	(0.033)	(0.05)	(0.034)	(0.013)	(0.03)	(0.037)
Observations	61964	61488	61964	61488	61964	61488	61964

Notes: The sample includes all 15 EU countries with available information in HFCS waves of 2010 and 2021. The regressions include country dummies and surve country populations within the pooled sample of European countries. The dependent variable is the Influence Function (IF) of each household in the Gini inde and divided by the Gini index. The reference group for age dummies is 35-44. The regressions also include the covariates used before in the analysis but are not re by country. Statistically significant levels are *p<0.10, **p<0.05 and ***p<0.01