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preferences and personality, we find that, while experiencing a depression makes individuals more risk averse, it also increases their financial planning horizon and conscientiousness. These results provide evidence that individuals who experienced economic depressions when young invest less in risky assets but save more, and thus tend to accumulate more wealth in the long-run.

Keywords
Wealth distribution, economic depressions, risk aversion, early investments

JEL Codes
D31, E21, G51

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The long-term effects of experienced macroeconomic shocks on wealth

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December 29, 2022

Abstract

This paper examines the long-term effects of macro-economic shocks – defined as multi-year peak-to-trough GDP declines of at least 10 percent – experienced until young adulthood on the wealth distribution and portfolio allocation of older individuals in Europe. We document that experiencing more economic depression years when young has a positive effect on wealth at older ages. By analysing individual portfolio choices, preferences and personality, we find that, while experiencing a depression makes individuals more risk averse, it also increases their financial planning horizon and conscientiousness. These results provide evidence that individuals who experienced economic depressions when young invest less in risky assets but save more, and thus tend to accumulate more wealth in the long-run.

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1 Introduction

Population ageing implies that an increasing number of households will rely on their wealth holdings to support consumption during retirement, especially in a context in which pension reforms are shifting more responsibility to the individual. As current wealth is the result of accumulation during the entire life of individuals, it is important to uncover the early determinants of saving behaviour. In this paper, we explore one such potential determinant, that is negative macroeconomic shocks experienced until young adulthood. We investigate empirically whether these shocks affect the level and composition of wealth of older Europeans, as well as their saving preferences. We will therefore be able to shed light on the early determinants of current differences in wealth holdings and portfolio composition of individuals across European countries, which seems particularly important in light of the recent sequence of recessions.

We draw on very rich data from the Survey of Health, Ageing and Retirement in Europe (SHARE) on the current financial position and life histories of a representative sample of the 50+ population in twelve countries. We exploit a series of economic depressions that affected the current generations of 50+ Europeans between 1911 and 1946, when the SHARE respondents were aged between 0 and 32. Following the definition of economic depressions given by Barro and Ursúa (2008), we measure macroeconomic shocks as multi-year peak-to-trough GDP declines of at least 10 percent. To understand the effect of economic depressions on the entire distribution of wealth, we use a set of unconditional quantile regressions and we look at both the level and composition of wealth. We also study what youth ages are more sensitive to these shocks.

In order to shed light on the potential mechanisms driving our results, we study the long-term effects of experienced economic depressions on financial risk attitudes by exploring their portfolio composition, in particular stock ownership, the share of wealth held in risky financial asset, and savings for long-term investments. Moreover, we study how macroeconomic shocks affect the timing of investments by exploiting data on the age at the first investment in stocks and the purchase of a house. Finally, even though we cannot directly measure the effect of the shocks on saving behaviour, we can exploit information collected in SHARE on some individual attributes that contribute to

explaining individuals' saving behaviour, namely respondents' planning horizon and their "big five" personal traits. Indeed, according to the psychological literature, individuals' beliefs are formed until the so-called "impressionable years" of early adulthood, and remain quite stable afterwards (Costa et al., 1980; Alwin, 2019; Costa Jr and McCrae, 1994). We also explore the role of numeracy and relationship stability, as marriage can be viewed as a mechanism for insuring against income risk (Chiappori and Reny, 2006) and might therefore affect savings.

Our identification comes from variation in experienced years of economic depressions across countries and cohort of births. We are able to identify the effect of experienced macroeconomic shocks on wealth and preferences by introducing a rich set of fixed effects to control for potentially confounding unobservables. Specifically, country fixed effects are introduced to control for unobserved shocks related to living in a particular country as well as fixed country-level characteristics, birth year fixed effects remove any aggregate cohort effects and survey year fixed effects control for national macroeconomic conditions in the year the outcome is measured. Results are also robust to the introduction of age dummies, that control for variations in wealth holdings and preferences related to the life cycle. On top of these fixed effects, we add a rich set of control variables to control for the labour market status and demographic characteristics of the household.

In unconditional median regressions, we find that older individuals who experienced more depression episodes during their youth have higher total wealth, which is explained both by higher real wealth and higher financial wealth in absolute terms. In relative terms, though, the effect of macroeconomic shocks on financial wealth is much larger than on real wealth.

We note that such economic shocks can affect individuals directly through personal experiences in the labour market, but also indirectly through experiences affecting their parents or network.[1] It is therefore important to also separately analyse macroeconomic shocks experienced at different ages. We find that the positive effects on real wealth are driven by the early years until age 17, while the positive effect on financial wealth are explained by both early ages and the "impressionable years" of young adulthood, even though the effect is larger for the latter.

[1] See, for instance, Angelini et al. (2018).

Experiences of economic depression episodes are associated with a lower probability to invest in risky assets, a lower share of wealth held in financial assets, and a higher probability to have savings for long-term investments, such as individual retirement accounts and life-insurance policies. When analysing early investment decisions, we find that young individuals hit by a depression invest more in housing and less in stocks. Finally, we find that experienced depression episodes are positively correlated with planning horizon and conscientiousness, two individual attributes that have been found to be positively associated with saving behaviour and economic outcomes (Rabinovich and Webley, 2007; Fisher and Montalto, 2010; Duckworth and Weir, 2010).

These results all point to the fact that young individuals hit by a depression are less likely to make risky investments and have a more foresighted saving behaviour. Moreover, we find evidence of this behaviour already when individuals make their first investment decisions. In principle, this could contribute to reducing financial wealth in the long run, as investing in the stock market provides an opportunity to take advantage of the equity premium and to benefit from risk diversification (van Rooij et al., 2012). On the contrary, our results indicate that the more foresighted saving behaviour of individuals more than compensated the negative consequences of experienced macroeconomic shocks and led to higher accumulated wealth. This result is in line with, and complements, recent findings by (Malmendier and Shen, 2022), who show that individuals who experienced personal unemployment or episodes of high unemployment spend less and tend to accumulate more wealth.

We contribute to the literature in mainly three ways. First, to the best of our knowledge we are the first to study the long-term effects of macroeconomic shocks experienced until young adulthood on wealth when older. A growing literature documents the effects of adverse early life circumstances on various outcomes later in life,[2] and on income in particular (Oreopoulos et al., 2012; Schwandt and Von Wachter, 2019; Stuart, 2022). Another growing strand of the literature documents that macroeconomic shocks "scar" individuals even in the long-term (Malmendier and Nagel, 2011; Giuliano and Spilimbergo, 2014). None of these studies analyse the effect of economic depressions experienced early in life on wealth, a broader concept than income that can be thought of as a long-run

[2] See Heckman and Mosso (2014) and Almond et al. (2018) for a review.

indicator of well-being, fundamental to providing income security at older ages and better suited to measure inequality. Closest to our study is Malmendier and Shen (2022), who relate individuals' personal and macro measures of unemployment experience to consumption and wealth. However, they weigh past experiences of unemployment by giving a larger weight to the most recent ones, and study wealth only up to 12 years in the future.

Second, we study the effect of experienced macroeconomic shocks on savings decisions by looking at how these shocks affect portfolio composition, investment in risky assets and other behavioural outcomes related to saving behaviour. While the relationship between labour market shocks and risk preferences might go both ways, surprisingly the literature until now has concentrated only on the effect of risk-aversion on unemployment.[3] We are able to show that past economic experiences affect risk attitudes and saving behaviour – as proxied by planning horizon and the big five personal traits – in the very long-term.

Third, our retrospective data allow us to study not only the long-term effects of macroeconomic shocks, but also the timing of the first housing and financial investment. We can show that experienced macroeconomic shocks do not only influence risk aversion in the long run, but they also affect early decisions to invest in risky assets.

The paper proceeds as follows. Section 2 provides the theoretical background and lays out the main hypotheses on the long-term relationship between macroeconomic shocks, wealth and financial risk attitudes. Section 3 describes the micro- and macro-economic data we use, and Section 4 describes our measure of experienced macroeconomic shocks. Section 5 discusses the empirical model. Section 6 reports the main results of the paper, and in Section 7 we discuss the potential mechanisms behind our results. Section 8 concludes.

2 Background and previous literature

Experienced macroeconomic shocks might have direct effects on wealth, as well as indirect effects working through changes in individuals' preferences. The direct effect arises from the repercussions

[3]Two exceptions are Guiso and Paiella (2008) and Hetschko and Preuss (2020).

of shocks on own or parental lifetime earning capacity. Starting from the seminal work of Jacobson et al. (1993), several other studies have found that displacement due to business closure during depressions determines sizable earnings losses, which may also persist several years after reemployment (Von Wachter and Bender, 2006). Stuart (2022) finds that the 1980-1982 recession in the United States led to sizable long-run reductions in education and income for those who were children or young adults at the time of the recession. Other studies document how labour market conditions or idiosyncratic luck at the time a worker is hired affect the entire career trajectory and income.[4]

For a given saving rate, one could thus expect a negative effect of experienced economic depressions on wealth. However, there are several reasons why individuals' saving rate might change in response to such a shock. Indeed, the literature has found that uncertainty about future income is associated with higher savings (Sandmo, 1970; Skinner, 1988; Carroll, 1994). This relationship is usually imputed to the presence of precautionary savings motives, whereby individuals self-insure in face of future income uncertainty and the lack of completeness of insurance markets. In their seminal work, Malmendier and Nagel (2011) introduced the notion of experience effects, drawing from evidence in the psychological literature that – differently from what assumed by standard economic models – personal experiences matter more in the formation of beliefs than the analysis of all available historical data. In this vein, Malmendier and Shen (2022) find that both personal and local episodes of high unemployment lead to higher pessimism about future financial situation, lower spending years later and, importantly, larger wealth accumulation.

The literature has also identified several channels through which economic depressions might influence individuals' risk preferences, which in turn might affect portfolio choices. First, if absolute risk aversion is decreasing, the reduction in wealth following a macroeconomic shock will lead to higher risk aversion and lower investments in risky assets. Moreover, individuals hit by macroeconomic shocks might be subject to binding liquidity constraints in the future, making them unable to diversify their portfolio risk, and thus leading to a higher degree of aversion towards portfolio risk (Gollier, 2002).

[4]See for instance Kahn (2010); Schmieder and Von Wachter (2010); Schwandt and Von Wachter (2019); Oreopoulos et al. (2012).

Another factor that is often ignored is the presence of background risk. Indeed, most risks borne by households are uninsurable risks affecting their human capital (Gollier, 2002). Households that are subject to larger uncertainty about their future labour incomes should display reduced demand for stocks and should rebalance their portfolio towards risk-free assets. As a consequence, individuals facing high exogenous labour income risk - which is normally uninsurable - will be more risk averse and will thus avoid exposure to portfolio risk by holding less or no risky assets (Guiso and Paiella, 2008). If this is the case, one should be able to observe an effect of macroeconomic shocks on the timing of financial investments, as individuals facing liquidity constraints and higher income uncertainty might choose to postpone risky investments. Finally, evidence has been found of a fear-induced effect of negative macroeconomic shocks. Guiso et al. (2018) find that, following the 2008 financial crisis, Italian investors' risk aversion increased and they divested more stock. They provide evidence of a mechanism based on emotion-based changes in the utility function driven by fear.[5]

Overall, all the above-mentioned mechanisms might be in place when someone is hit by an economic depression, but the empirical evidence on the long-term effects of such an event on wealth is scarce, while it is richer when it comes to other outcomes.[6] Moreover, the relationship between unemployment and risk preferences might go both ways, but surprisingly the literature until now has concentrated only on the effect of risk-aversion on unemployment (see for instance Feinberg (1977)). One exception is Guiso and Paiella (2008), who use GDP growth at the provincial level to construct a measure of the variability of GDP by province.[7] Like our measure of macroeconomic shocks, such a measure of background risk has the advantage that it is likely to be truly exogenous to individuals' risk attitude, differently from subjective measures of future income uncertainty. By also using proxies of borrowing constraints, they find that individuals who are more likely to face income uncertainty or to become liquidity constrained exhibit a higher degree of absolute risk aversion.

[5]The authors do not find instead much evidence of any of the usual potential mechanisms that could explain this: reduction in wealth, changes in expected future income, or changes in the expected distribution of future investments (expected return or volatility). The fear mechanism might explain why even people who did not lose any money in the financial crisis became more risk averse. To the extent that the fear-induced effect on risk-aversion is driven by the salience of the event, even irrespective of whether the individual was directly affected, economic depressions are good candidates for such a mechanism.

[6]For instance, the literature has shown that individuals who experienced a depression when young believe that success in life depends more on luck than effort, support more government redistribution, and tend to vote for left-wing parties, and that the effect is long-lasting (Giuliano and Spilimbergo, 2014). Also, individual's well-being of both employed and unemployed individuals has been shown to be affected by the unemployment of others (Clark et al., 2010).

[7]The variability of GDP is calculated as the variance of the residuals in a regression of log-GDP on a time trend.

Hetschko and Preuss (2020) find causal evidence of increased risk aversion upon involuntary job loss in a panel of German workers, and present some evidence that the effect is due to lower future income expectations and more uncertainty about future incomes. Overall, these results are consistent with the theories stating that the presence of uninsurable risks affects attitudes towards risk.

3 Data and descriptives

3.1 Microeconomic data

Data on wealth and other individual characteristics come from the Survey of Health, Ageing and Retirement in Europe (SHARE). SHARE is a longitudinal, cross-national European survey. It includes micro data on health, socioeconomic status, and social and family networks of a representative sample of individuals (and spouses) aged 50 and above. Interviews are conducted approximately every two years. Questions are asked in the native language and follow a generic questionnaire such that they are comparable across countries. Data collection began in 2004 with 12 countries included in the first wave, and by the seventh wave of 2017 all European Union countries, plus Switzerland and Israel, were included in the sample. The third and seventh waves of SHARE, also known as SHARELIFE, are different from the regular panel waves as they focus on retrospective questions about the respondents' childhood and their employment, fertility, marital and health histories.

Our analysis of current wealth will be based on five regular waves of SHARE, broadly covering the years from 2004 to 2015. Our analysis of early investments instead will be based on SHARELIFE data, spanning all years from the birth of each respondent until the interview year.[8] We include twelve countries in the analysis, the selection of which is solely based on the availability of GDP data going back to the earliest birth year of the respondents in each country.[9]

As wealth variables are defined at the household level, our sample consists of the heads of the households who were born in the country of interview and are aged between 50 and 90. We

[8] SHARELIFE interviews in wave three of SHARE were conducted in years 2008 and 2009, while SHARELIFE interviews in wave seven were conducted in 2017.

[9] The included countries are Austria, Belgium, Denmark, France, Germany, Greece, Italy, the Netherlands, Portugal, Spain, Sweden and Switzerland.

exclude from the sample households whose head or head's spouse migrated and who have therefore experienced different macroeconomic conditions. The head of the household is defined as the household's financial respondent.

Financial and accommodation questions in SHARELIFE, instead, are asked at the individual level and to both household members. Therefore, when we analyze early saving decisions, our sample will consist of individuals (as opposed to households) who are born in the country of interview and are between 50 and 90 years old.

3.1.1 Outcome variables

SHARE contains information on a number of wealth items at the household level, the sum of which amounts to the overall (net) real and financial wealth of households. Specifically, households' real assets are given by the sum of the value of the main residence net of the mortgage on the main residence, the value of the real estate, the value of own businesses and the value of cars. Households' financial assets are given by the sum of the value of bank accounts, bonds, stocks and mutual funds, plus savings for long-term investments and net of financial liabilities. In turn, savings for long-term investments are given by the amounts in individual retirement accounts, the value of contractual savings for housing and the face value of whole life policies. We use imputed wealth data to address the fact that the missingness pattern of monetary values is most likely non-random, which means that estimates obtained using only complete observations would produce biased results (Little and Rubin, 2019).

We consider three financial risk taking outcomes, that we use as proxies of risk aversion. First, we construct a dichotomous variable taking value one if the household holds any stock (see for instance Malmendier and Nagel (2011)). Second, we calculate the share of wealth held in risky financial assets. This is defined as total investments in bonds, stocks and mutual funds divided by total net wealth.[10] Third, we construct a dichotomous variable equal to one if the household holds any savings for long-term investments, which include individual retirement accounts, contractual savings and life

[10] We cannot include only investments in stocks in the numerator because SHARE does not provide imputed values for this variable alone.

insurance policies.

3.1.2 Other variables

When considering the potential mechanisms behind our results, we will study the effects of macroeconomic shocks on a number of individuals' attributes and preferences. SHARE asks respondents what time period is most important to them when planning their savings and spending. There are five possible answers, going from "next few months" to "longer than 10 years".[11] We use this variable to measure individuals' planning horizon. Second, SHARE includes a test of numeracy consisting of a few questions involving simple arithmetical calculations based on real-life situations. Respondents who correctly answer the first question are asked a more difficult one, while those who make a mistake are asked an easier one, and the resulting total score ranges from 0 to 4. This will be our measure of individuals' numeracy. Finally, we will look at the "big five" personality traits, namely, openness, conscientiousness, extraversion, agreeableness, and neuroticism. SHARE collects information on the 10-item Big-Five inventory, where each trait is measured on the basis of two or three questions asking respondents to rate how much they agree with a statement on a five point Likert scale (Rammstedt and John, 2007).[12] Each personality trait is then measured by simply summing up the scores of the respective items, so that a higher value reflects a higher presence of the trait.

In the analysis we will include controls for households and individual characteristics, namely gender, education, employment status, total household income, marital status, number of children. In the robustness checks, we will also include a set of control variables as proxies of early childhood conditions. These come from both the regular waves and SHARELIFE interviews.[13]

A significant advantage for our analysis is that SHARELIFE, the retrospective questionnaire

[11] Specifically, the question reads "In planning your saving and spending, which of the following time periods is most important to you?" Potential answers are: Next few months, Next year, Next few years, Next 5-10 years, Longer than 10 years. Planning horizon has been asked only starting from wave 5 of SHARE, and it is asked only at the first respondents' interview.

[12] This five-factor model of personality is the most widely used and has been subject to several empirical validations (John et al., 1999).

[13] The early childhood condition variables include the number of rooms in the house where respondent was living at age 10 divided by the number of people living in the house, the number of books present in the house at 10, school performance at ten compared to the other children in the class, in mathematics and language respectively, and health at ten. School performance at ten is ranked from 1 ("much better") to 5 ("much worse").

of SHARE, includes questions about a number of investments that respondents may have made during their life, namely: stocks or shares, mutual funds or managed investment accounts, individual retirement account and life insurance policy. If respondents ever invested in any of these products, they are further asked the year they invested for the first time. Moreover, the accommodation section of SHARELIFE includes questions about the different places respondents have lived in during their life, and whether they, or their parents, were the owner of the residence. We complement this with information on the year in which respondents started to live on their own or established their own household to infer the age when they first acquired their own home.

3.1.3 Descriptive statistics

In Table 1 we show descriptive statistics of the main control variables we use in the analysis. The average age in the sample is 67, and 43% of the financial respondents are males. Almost 60% of individuals in the sample are married, they have on average two children, and 52% are retired.

In terms of financial variables, only 10% of households own any stocks, while almost three out of four households own a house. 31% of households own any savings for long-term investments, and the share of total wealth invested in risky assets is on average 4%. In Table 2 we show the mean and the 25th, 50th and 75th percentiles of the main wealth outcome variables. As normally the case, the means are above the medians due to the skewed distribution of wealth. All monetary values are expressed in German 2015 Euro.

3.2 Macroeconomic data

Historical data on GDP come from the Maddison database on Historical Statistics of the World Economy, which provides the widest coverage of data on GDP per capita across countries and over time currently available (Bolt and van Zanden (2020)). As such, it is the best source of data for our analysis. The Maddison project aims at standardising historical national accounts to provide data on long-term economic growth comparable across countries. Figure A.1 shows the evolution of

per-capita GDP (in logarithm), by country, since 1900. The GDP series is expressed in 2011 US dollars.

4 Measures of experienced macroeconomic shocks

Our measure of macroeconomic shocks is based on Barro and Ursúa (2008), who define depressions as multi-year peak-to-trough GDP declines of at least 10 percent. Following this definition, we define a measure of experienced depressions based on the number of years between a peak and a trough encompassing a GDP decline of at least 10% that have been experienced by each individual.

Local minima and maxima, or in other words potential trough and peaks, are identified over a two-period window. This means that log-GDP in each year is compared to that in the two preceding and two following years. Then, in order to be defined as peak or trough, candidate points have to satisfy a minimum phase length of 2 years and a minimum cycle length of 4 years, where phases are expansions and contractions and cycles are the periods between two peaks or two troughs. The values assigned to windows, phases and cycles are arbitrary. Robustness checks show that the definition of economic depressions is not sensitive to small changes in these assumptions.[14]

Using this definition, we find that depression episodes last 3.8 years on average (with a median of 3 years). This is comparable to periods of recessions in general, where recessions are defined in the same way but with no restrictions on the size of the GDP drop. Periods of growth, on the contrary, are much longer (and thus common) than recession periods, with a median of 15 years and a mean of 20 years. Moreover, only around 56% of total recession years are part of an economic depression episode. This highlights the exceptional nature of economic depression episodes.

Figure 1 shows, for each country, the number of experienced depression years - calculated using the definition above - by cohort of birth. The decreasing number of shocks across cohorts can of course be in part explained by the fact that younger cohorts are observed only until a younger age. Nevertheless, substantial variation can be observed across the same birth cohorts in different countries and across different birth cohorts. Overall, this measure leads to a number of experienced

[14] Available upon request. Barro and Ursúa (2008) do not explicitly make any assumption regarding minimum duration of phases and cycles and regarding the search window for peaks and troughs.

depression years ranging from 0 to 21.

Finally, we are interested in determining whether experiencing depressions in different periods of an individual's early life holds a different weight in wealth accumulation. For this purpose, we construct two separate count variables of depression years experienced before and after individuals turned 18 years old. [15] This choice stems from two observations. First, macroeconomic shocks can be expected to affect individuals in their childhood and young adulthood through different channels. For instance, they could be directly affected through job loss, or indirectly through parental job loss.[16] Moreover, Stuart (2022) finds evidence that recessions reduce children's and adolescents' human capital. Second, this choice is informed by the psychological literature and previous evidence in the economic literature that individuals' beliefs are formed in the years of early adulthood. For instance, (Giuliano and Spilimbergo, 2014) find that macroeconomic shocks experienced between the ages of 18 and 25 years shape preferences for redistribution. Depression years by age are displayed in Figure 2.

As first descriptive evidence, we plot in Figure 3 the cumulative sum of experienced depression years against net total wealth held in old-age, for five-year birth cohort bins. Each dot in the figure represents a specific country and birth cohort bin, and each line represents the linear fit by five-year cohort of birth. Overall, we observe a positive relationship between depressions and wealth. This unconditional evidence, however, does not easily allow separating the effect of interest from country, age and cohort effects. Controlling for age in particular might be important, if older individuals decumulate their wealth by dissaving. For this reason, we report in Figure 4 the relationship between experienced depression years and residual wealth, after controlling for country, year of birth, survey year and age dummies. This figure shows that, even after controlling for this set of controls, the unconditional positive relationship we documented above persists.

Finally, we want to show that our exogenous shock measure is also relevant, meaning that it can explain individuals' labour market experiences. For this purpose, we exploit SHARELIFE data and calculate the simple correlation between being unemployed and living through a depression year

[15] The economic depression episodes considered affect individuals in the sample at most until age 32.

[16] Several studies document the long-run effects of parental job displacement, see for instance Oreopoulos et al. (2008) and Hilger (2016).

for individuals of age 16 to 35. We find that individuals are 2.3 times more likely to be unemployed during a depression year.[17]

5 Empirical strategy

Our basic empirical specification is the following:

$$Y_{itbc} = \alpha + \beta M_{tbc} + \theta X_{itbc} + \delta_c + \gamma_b + \mu_t + \epsilon_{itbc} \tag{1}$$

where Y_{itbc} is the outcome variable at time t for household i living in country c, whose head was born in year b. We study several outcomes, including total net wealth, real wealth and financial wealth. Since the distribution of wealth is skewed, we use Recentered Influence Function (RIF) unconditional quantile regressions (Firpo et al., 2009) to recover treatment effects on the median and other quantiles of the wealth distribution. The advantage of unconditional quantile regression is that it marginalizes the effect over the distributions of other covariates in the model, thus providing more interpretable results than with conditional quantile regression (Borah and Basu, 2013). Furthermore, we will analyse stock ownership and risk aversion, using logit models as they are coded as binary variables.

M_{tbc} is the variable of interest, which measures macroeconomic shocks experienced between birth and young adulthood by cohort b, interviewed in year t and resident in country c. M_{tbc} will be a count variable of experienced depression years or a count variable of experienced depression episodes, depending on the measure used.

In order to identify the effect of experienced macroeconomic shocks on wealth at older ages, we add fixed effects to control for potentially confounding unobservables. First, δ_c is a vector of country fixed effects that controls for unobserved shocks related to living in a particular country as well as fixed country-level characteristics. Second, γ_b is a vector of birth year fixed effects that remove any aggregate cohort effects. Third, μ_t is a vector of survey year fixed effects that control for national

[17] Living through a depression year increases the probability of being unemployed by 3 percentage points, and the average unemployment probability in the sample is 2.3%.

macroeconomic conditions in the year the outcome is measured. Because we can include as many country, age, cohort and time dummies as possible until the point they are not perfectly collinear,[18] we also run robustness analyses including ρ_a, a vector of age fixed effects that control for variations in wealth holdings and preferences related to the life cycle. As our results are virtually unaffected by the inclusion of age fixed effects, we prefer the more parsimonious specification. Finally, X_{itbc} is a vector of individual and household characteristics, including education, retirement status, total household income, marital status, number of children.

In order to analyse what periods of life are more sensitive to economic shocks, we run a second model that separately accounts for shocks experienced at different stages of one's life:

$$Y_{itbc} = \alpha + \beta_1 M^y_{tbc} + \beta_2 M^m_{tbc} + \theta X_{itbc} + \delta_c + \gamma_b + \mu_t + \epsilon_{itbc} \tag{2}$$

where M^y_{tbc} and M^m_{tbc} are count variables of the depression years experienced at ages 0-17 and 18-32, respectively. In all models, we use clustered standard errors by country and year of birth, corresponding to the level of variation of macroeconomic shocks.

6 The effect of macroeconomic shocks on wealth

Results based on equations (1) and (2) are shown in Table 3, where the outcome variables are total net wealth and its real and financial components. We can observe a positive effect of experienced depression years on total net wealth (Column 1), real wealth (Column 3) and financial wealth (Column 5). The interpretation of the coefficient of interest in Column (1) is that experiencing one additional year of economic depression increases total median wealth by almost 2,500 €, which corresponds to 1.4% of median total wealth. Financial wealth increases by 345 €, an effect of 4.5%. This effect is sizable, especially considering that depression episodes last almost four years on average. The effect on real wealth (Column 3) is smaller in relative terms (1,256 €, or 0.7% of median real wealth) and significant only at the 10% level.

[18] See for instance Malmendier and Nagel (2011).

Results in Columns (4) and (5) show that the positive effect on real wealth is driven by depression years experienced before 18, while depression years experienced after individuals turn 18 seem the most important in explaining financial wealth accumulation, even though the coefficient is significant also for earlier ages. The effect of each depression year experienced after age 18 on financial wealth is large and amounts to 15% of the median.

To investigate the heterogeneous effects of experienced depressions across the wealth distribution, we estimate unconditional quantile treatment effects obtained by RIF regressions (Firpo et al., 2009) for different quantiles of wealth. Table 4 reports the unconditional quantile treatment effects of experienced depression episodes. As regards total net wealth, we observe a small negative and statistically insignificant effect at the lowest decile, which turns positive and becomes larger as we move up the distribution. We observe a similar pattern, but characterised by smaller coefficients, for real wealth. Interestingly, the effect of depression years on financial wealth is negative and statistically significant at the lowest decile, and becomes increasingly larger moving up the distribution. The negative effect on financially poorer households might be explained by the presence of liquidity constraints that limit saving opportunities for these households. Conversely, wealthier individuals might be subject to less uncertainty about their future labour income and less likely to be liquidity constrained in the future, meaning that their capacity to diversify portfolio risk is less affected. This in turn will lead to higher returns, given that riskier investment have historically over-performed other investments.[19] Indeed, we find that the relative effect of depressions on stock ownership is larger, in relative terms, for poorer households. [20]

The effect of depression years on wealth, especially when experienced at younger ages, might be mediated by childhood conditions. Therefore, in Table A.2 we run a robustness analysis where we include a set of variables accounting for individuals' childhood conditions. We find that they all have a significant effect on wealth later in life in the expected direction. Health and performance in mathematics and language at age ten are measured on an inverse scale (the higher the value,

[19] This is in line with Fagereng et al. (2018), who have found that labour income risk is irrelevant for portfolio choices of individuals at the top of the wealth distribution, while it leads individuals with lower wealth to re-balance their portfolio away from risky assets.

[20] Unreported results, available upon request.

the lower health or performance), therefore we observe that, as expected, health and performance in mathematics at ten are positively correlated with wealth later in life. Results are less clear for language performance at ten, which seems negatively correlated to real wealth in the long-term, even though the effect is much smaller than that of performance in mathematics. The size of the house at age ten (conditional on the number of people living in the house) and the number of books available in the accommodation at age ten are positively related to wealth in the long-term.

The coefficients of depression years seem to be only marginally affected by the introduction of early childhood conditions. In particular, conditional on given childhood conditions, experienced depression years have an independent effect on financial wealth later in life. This makes sense, given that the "impressionable years" seem to be the most important ones in explaining the effect of depressions on financial wealth. The coefficient on real wealth is instead smaller in magnitude and not significant. In this case, the effect of depressions on real wealth seems to be in part absorbed by childhood conditions, through the effect that economic crises have on the childhood socioeconomic status. This is consistent with the result in Table 3, showing that childhood years are the most important ones in explaining the effect of depressions on wealth.

As a further robustness, we add to our specification age fixed effects, in order to control for variations in wealth holdings and preferences related to the life cycle. Results in Table A.1 show that all coefficients are robust to this inclusion. In Table A.3 we report results when excluding total household income, which could be endogenous in our model. All models appear robust to the exclusion of income. Finally, in Table A.4 we show that results are robust – and if anything larger – when controlling for the average experienced lifetime GDP growth, which might be impacted by depression episodes and at the same time independently affect wealth.

7 Potential mechanisms

In this section, we try to shed light on some potential mechanisms that might mediate the effect of macroeconomic shocks on wealth that we found in the previous section. Even though we cannot

directly measure the effect of the shocks on saving behaviour, the literature agrees on the fact that uncertainty about future income is associated with higher savings (Sandmo, 1970; Skinner, 1988; Carroll, 1994) and increased risk aversion (Gollier, 2002). Therefore, in the following we look at risk attitude and at two individuals' attributes that often contribute to explaining individuals' saving behaviour, namely numeracy and planning horizon. We also study the effect of experienced economic depressions on relationship stability, given that marriage can be viewed as a mechanism for insuring against income risk (Chiappori and Reny, 2006; Shore, 2010). Finally, we analyse the effect of depressions on the big five personality traits.

We would like to stress that we are not able to disentangle the total effect on wealth into a direct and an indirect effect. First, with the exception of early savings decisions, information on these potential mechanisms is only available at the time of the SHARE interview. Second, the causal channel between macroeconomic shocks, wealth and these individuals' attributes is non-trivial. In particular, the experience of macroeconomic shocks could directly influence individuals' preferences, personality and numerical abilities, which in turn would mediate the effect of the shocks on savings, but it could also indirectly affect them through changes in (own or inherited parental) wealth . Nevertheless, we believe our findings are still indicative of the relevance of these potential mechanisms.

7.1 Preferences and behavioural outcomes

We start with risk attitudes. To this end, we analyse stock ownership and the share of total wealth invested in risky assets. Average marginal effects from logit regressions are shown in Columns (1) and (2) of Table 5. Each depression year is associated with a 0.5 percentage point lower probability to hold any stocks.[21] This corresponds to a 3.5% effect.[22] To ease the interpretation of these effects, we display in Figure 5 the predicted probability of stock ownership for individuals who experienced zero, five or ten years of depressions. Moving from zero to ten experienced depression years reduces the probability of stock ownership from slightly less than 16% to around 11%. Results from Column

[21] Stock ownership is a dummy equal to one if an individual holds a strictly positive amount in stocks, and equal to zero otherwise. Because SHARE provides an imputed variable of the amount held in bonds, stocks and mutual funds together, but not in stocks alone, we cannot define stock ownership using an imputed value. This explains the lower sample size in Table 5.

[22] The unweighted share of stock ownership in the sample is 15%.

(2) show that both childhood and young adulthood ages are important in explaining this effect, even though the marginal effect is almost two times larger for depressions experienced after turning 18.

In columns (3) and (4) of Table 5 we show the effect of economic depressions on the share of wealth held in risky financial assets. This is defined as total investments in bonds, stocks and mutual funds divided by total net wealth.[23] Experienced depressions years influence portfolio composition by negatively affecting the share of wealth that individuals hold in financial assets. Each depression year reduces the share invested in risky assets by 9%. Again, this result holds for depressions experienced at any age, but the effect is significantly larger for those experienced after age 17.

Finally, as far as portfolio choices are concerned, we show in Columns (5) of Table 5 that each depression year significantly increases ownership of savings for long-term investments by 2.7% . As for previous results, Column (6) shows that the marginal effect is considerably larger for depressions experienced after age 17.

While these results might imply reduced opportunity of benefiting from the equity premium and portfolio diversification, they are consistent with higher uncertainty about future income and with the literature on experience effects.

We now turn to explore how economic depressions affect individuals' planning horizon, defined as the time period that is most important to them when planning their savings and spending. probably unsurprisingly, planning horizon has been found to be positively related to saving behaviour. For instance, Fisher and Montalto (2010) find that the saving horizon has a significant effect on the likelihood of saving and the likelihood of being a regular saver. Rabinovich and Webley (2007) find that a longer time horizon helps explain the successful implementation of saving intentions.

Results of the ordered probit model are shown in Columns (1) and (2) of Table 6, and they point to a positive effect of experienced depression years on the planning horizon.[24] To ease the interpretation of the effect of depression years experienced at different ages, we show in Figure 6 the predicted probability of the five outcomes of Column (1) at zero, five and ten experienced depression years.

[23] We cannot include only investments in stocks in the numerator because SHARE does not provide imputed values for this variable alone.

[24] Planning horizon has been asked only starting from wave 5 of SHARE, and it is asked only at the first respondents' interview, which explains the smaller sample size.

These results clearly show a reduction in the probability of having a planning horizon of just few months or next year as the number of experienced depression years increases, and a corresponding increase of longer planning horizons.

We now turn to numeracy, as the literature has found a positive relationship between financial literacy or cognitive abilities and both wealth and stock market participation.[25] Table 6 shows the results of an ordered probit model of the numeracy test score on experienced depression years in Columns (3) and (4). In this case, we cannot detect any significant effect.

Given that marriage can be viewed as a mechanism for insuring against income risk (Chiappori and Reny, 2006), and given our findings on the relationship between experienced macroeconomic shocks and risk aversion, we ask whether experiencing macroeconomic shocks is related to relationship stability. For this analysis, we exclude from the sample individuals who never married.[26] Average marginal effects from logit regressions are shown in Columns (5) and (6) of Table 6. We find some evidence, however small, that the larger the number of experienced economic depression years, the higher the probability to be married as opposed to be divorced. In particular, each experienced depression year is associated to a 0.2 percentage points higher probability to be still married. This corresponds to an effect of 0.24% for each depression year. These results are consistent with the presence of background risk and increased uncertainty about future income.[27]

Finally, we turn to personality traits. In Table 7, we show the result of OLS regressions of each personality trait score on experienced depression years. We find evidence of a positive and statistically significant effect of economic depressions on conscientiousness. The effect is significant for depressions experienced at any age, even though the coefficient is considerably larger for those experienced after turning 18. The psychological literature characterizes conscientiousness as the propensity to be self-controlled and to delay gratification, to be task and goal directed, organized,

[25] For instance, van Rooij et al. (2012) find a strong positive association between financial literacy and net worth, which might be partly explained by the higher likelihood to invest in the stock market and the higher propensity to retirement planning of more financially knowledgeable individuals. Christelis et al. (2010), using SHARE data, find that the propensity to invest in stocks is strongly associated with cognitive abilities, including numeracy. Banks et al. (2010) find a positive association between numeracy and outcomes such as wealth and retirement income.

[26] SHARE marital status variable includes the following categories: Married, living with spouse; Registered partnership; Married, not living with spouse; Never married; Divorced; Widowed. We also exclude from the analysis the 1.2% of married individuals not living with the spouse.

[27] Indeed, a positive relationship between risk tolerance and the probability of divorce has been found in the literature (Light and Ahn, 2010).

efficient, precise and deliberate (John et al., 1999). Indeed, conscientiousness has been found to be positively associated with saving behaviour and economic outcomes (Duckworth and Weir, 2010).

7.2 Macroeconomic shocks and early savings decisions

In our previous analyses, we have studied how experienced macroeconomic shocks can explain savings in the long run, when individuals are older than 50. We now ask whether experienced macroeconomic shocks affect initial investment and home-ownership decisions. Indeed, these choices might be sticky, so that earlier experiences might affect wealth and its composition later in life through the initial investment decision. This would be another indication that macroeconomic shocks do not only directly affect the size of wealth through, for instance, lower returns, but also through saving behaviour. Therefore, we now zoom into the timing of first investment decisions to provide evidence on whether experienced macroeconomic shocks explain the hazard of these decisions.

This is possible because SHARE data includes a retrospective survey called SHARELIFE, collected in wave 3 and wave 7, that focuses on respondents' life histories. SHARELIFE is unique in that it gathers detailed information about what happened in important areas of respondents' lives from their birth until the date of the interview. This includes information about partners and children, housing history, employment history and health. Importantly, it collects information on savings decisions made by individuals.

More specifically, all respondents are asked about a number of investments they may have made during their life, including stocks. If they have made any such investment, they are further asked in what year they invested for the first time in that specific investment type. Moreover, individuals are asked about their whole housing history. For each accommodation where they have lived for more than six months, they are further asked whether they lived there as an owner, a member of a cooperative, a tenant, or rent free. We complement this information with information on when individuals started to live on their own or established their own household to infer if and when they first became home owners.

The information contained in SHARELIFE allows us to construct a retrospective panel with yearly

information on individuals' employment status, marital status, number of children, as well as time constant characteristics such as childhood conditions. We merge to this dataset an indicator of experienced macroeconomic shocks, which varies by year and country, and we create a cumulative measure of the total number of depression years experienced by each individual at each point in their lifetime.

In Table 8 we show the effect of experienced depression years on the hazard of home and stock ownership. In all models, we control for household and individual characteristics, as well as for early childhood conditions. Standard errors are clustered at the household level. We also include year of birth dummies, to control for any aggregate cohort effect.

Interestingly, we find a positive and significant effect of experienced depression years on the hazard of house ownership (Column 1). This means that each experienced depression year increases the probability of becoming home-owner by almost 3%. In terms of stock ownership, we find in Column 2 that experienced depression years reduce the hazard of stock ownership by 1.5%.

These results highlight two important facts. First, living through an economic depression induces a shift in portfolio choices away from risky investments. Second, macroeconomic experiences affect early savings decisions, which in turn can impact the trajectory of lifetime investments, ultimately leading to significantly different saving decisions in the long-run. This might be especially true for the investment in a house, which is likely to be more sticky than other types of investment. This is consistent with results in the previous section that economic depressions experienced when young have a statistically significant positive effect on real wealth when older, and a negative effect on stock ownership.

8 Conclusions

In this paper, we have studied the long-term effects of macroeconomic shocks experienced in childhood and young adulthood on wealth and portfolio choices of older individuals. Following Barro and Ursúa (2008), we have defined macroeconomic shocks as multi-year peak-to-trough GDP declines

of at least 10 percent. We have drawn on very rich data on the current financial position and life histories of a representative sample of the 50+ population in twelve countries. To understand the effect of depressions on the entire distribution of wealth, we have used a set of unconditional quantile regressions. Furthermore, to better understand the potential channels through which macroeconomic shocks shape long-term wealth, we have looked at risky investments, the timing of the first investment decisions, and proxies of saving behaviour.

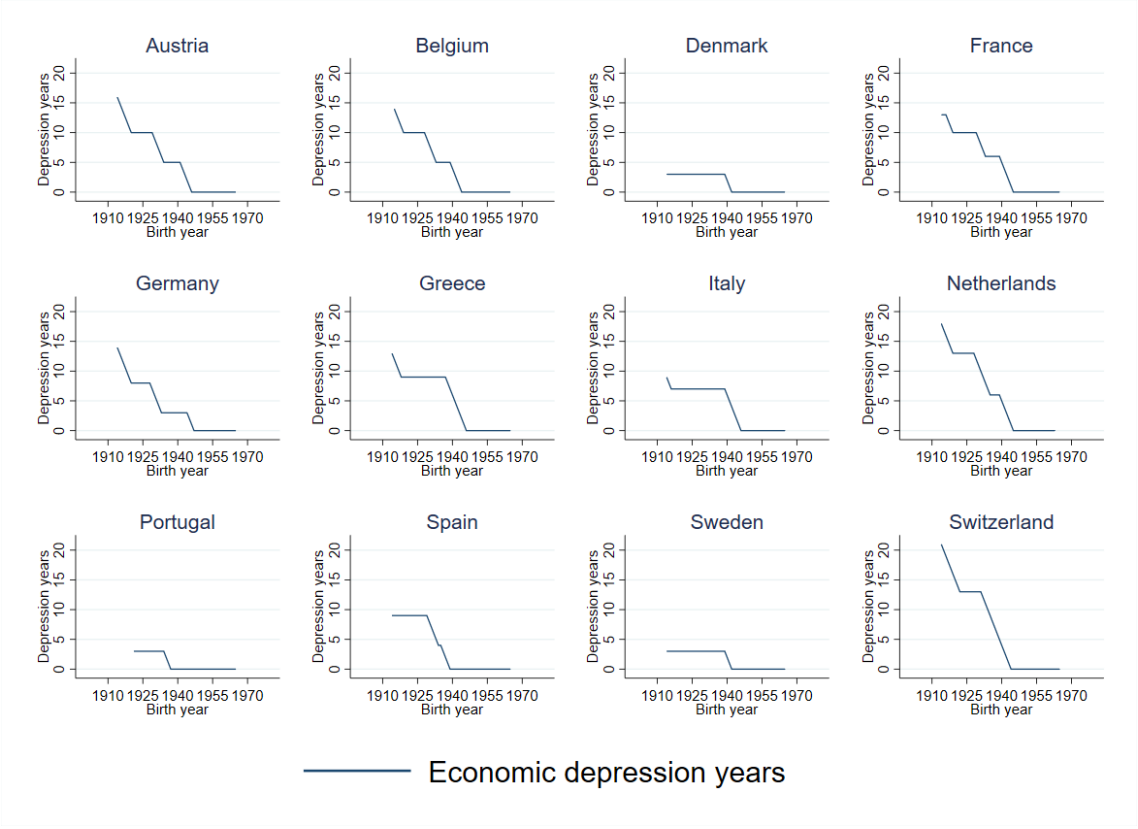
Our findings show that individuals who experienced more economic depression episodes when young have higher total wealth in the long-term. This effect is driven by both higher real wealth and higher financial wealth, even though the results on real wealth are sensitive to the introduction of early childhood conditions. These individuals also display a lower probability to invest in risky assets and a higher probability to invest in savings for the long-term.

Moreover, the positive effect of experienced macroeconomic shocks on a number of individuals' attributes that have been found to positively affect saving behaviour – namely, planning horizon and conscientiousness – hints at a more foresighted saving behaviour. Consistently with our findings on risk aversion and with the risk-pooling features of marriage, we also find that individuals who experienced more years of economic depression are also less likely to be divorced. Although we are not able to provide causal estimates about the link between each of these potential mechanisms and wealth, our findings are still indicative of their relevance.

Finally, when analysing early investment decisions, we find that experienced depression years positively predict the hazard of an individual's first home-ownership, and negatively predict the hazard of the first investment in stocks, pointing to a shift in portfolio choices away from risky investments. Our results also show that these early choices appear to be sticky and to shape wealth in the long-term.

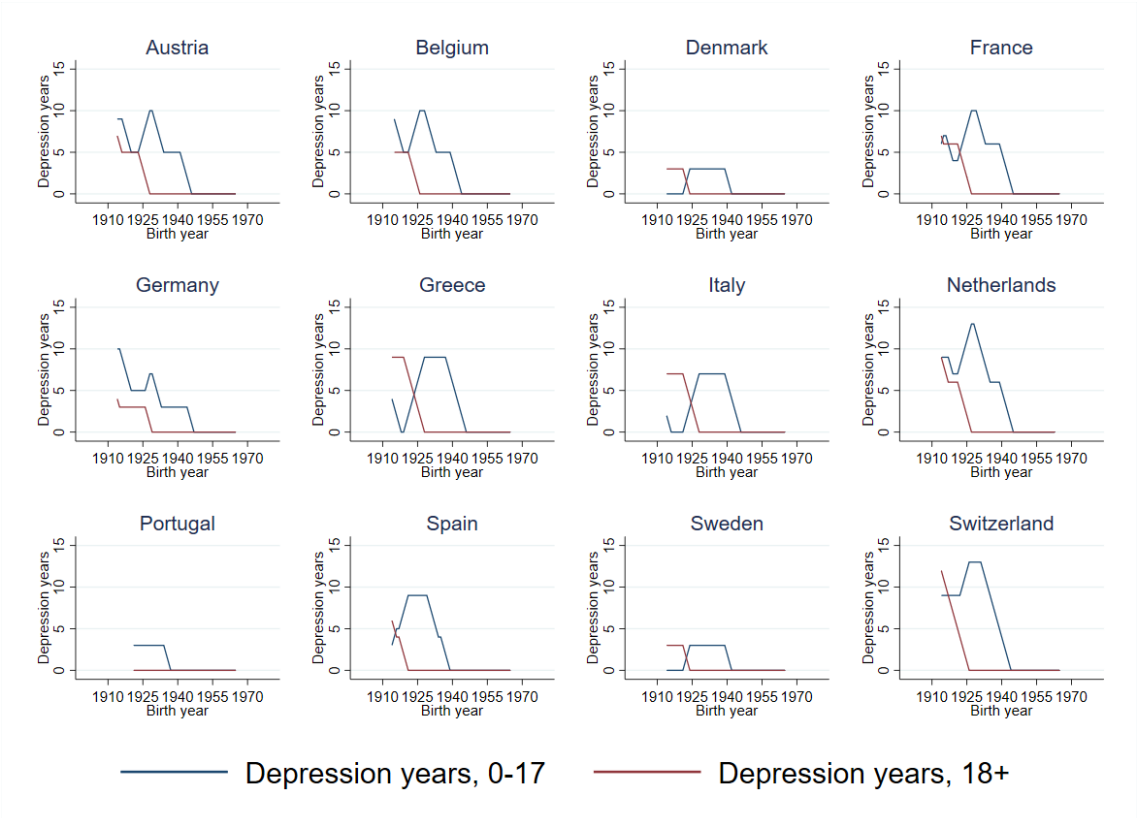
Our results may help shed some light on the different wealth and portfolio composition of different generations of Europeans. Moreover, studying the effect of negative macroeconomic shocks experienced at different stages of life on wealth accumulation is particularly important in light of the recent sequence of recessions.

Figure 1: Experienced depression years



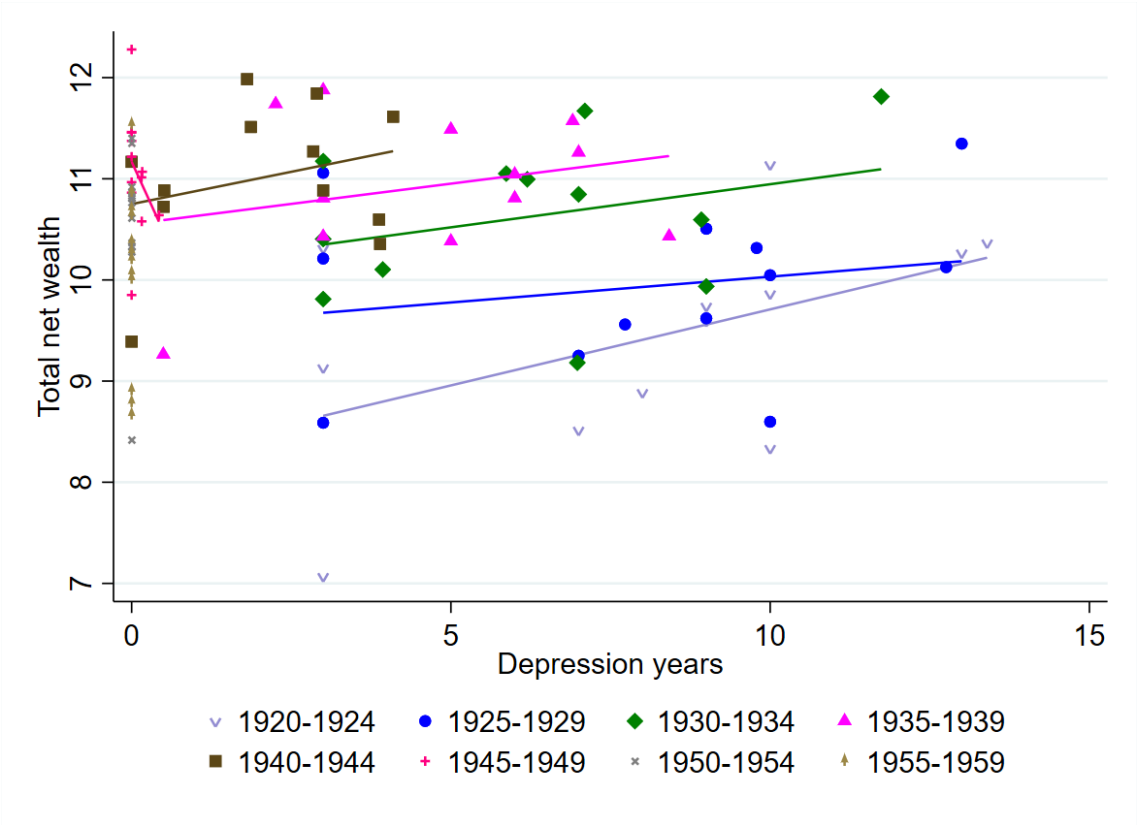
Notes: this graph displays the average number of experienced depression years of households in the sample, by country of interview.

Figure 2: Experienced depression years, by age



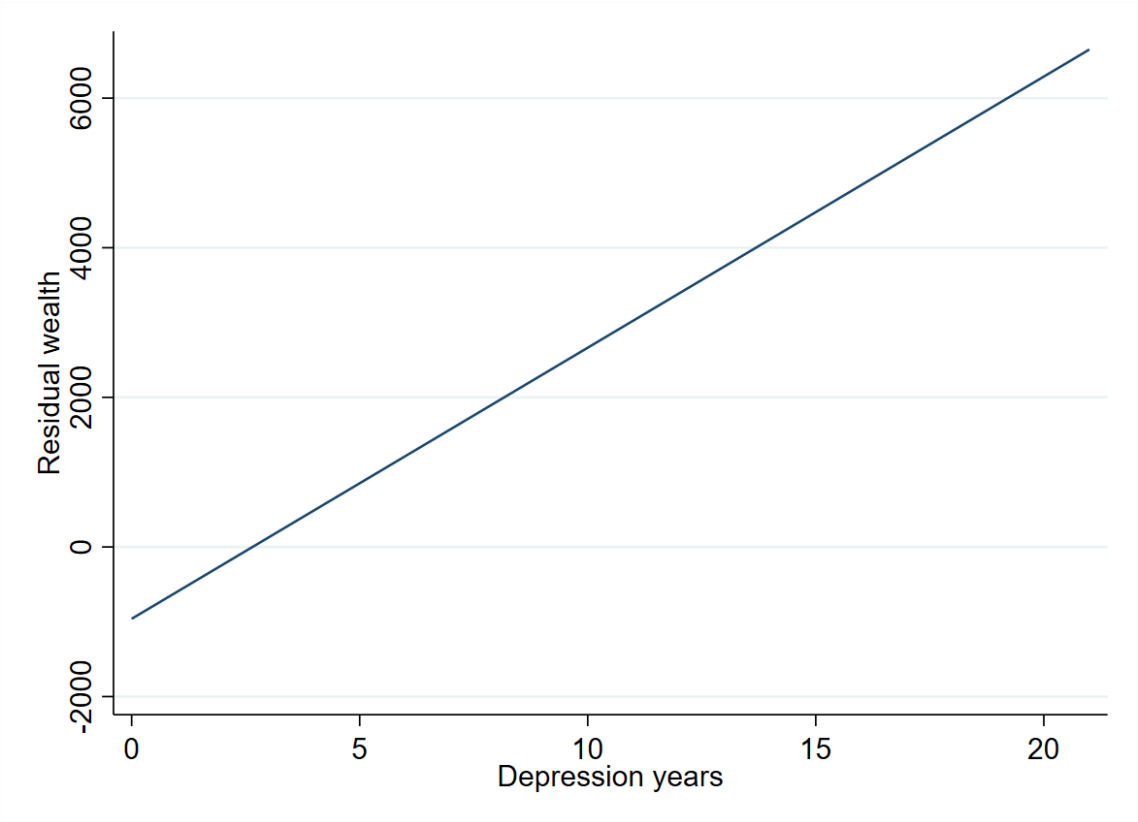
Notes: this graph displays the average number of experienced depression years of households in the sample, by country of interview and age at the event.

Figure 3: Net total wealth, by cohort of birth



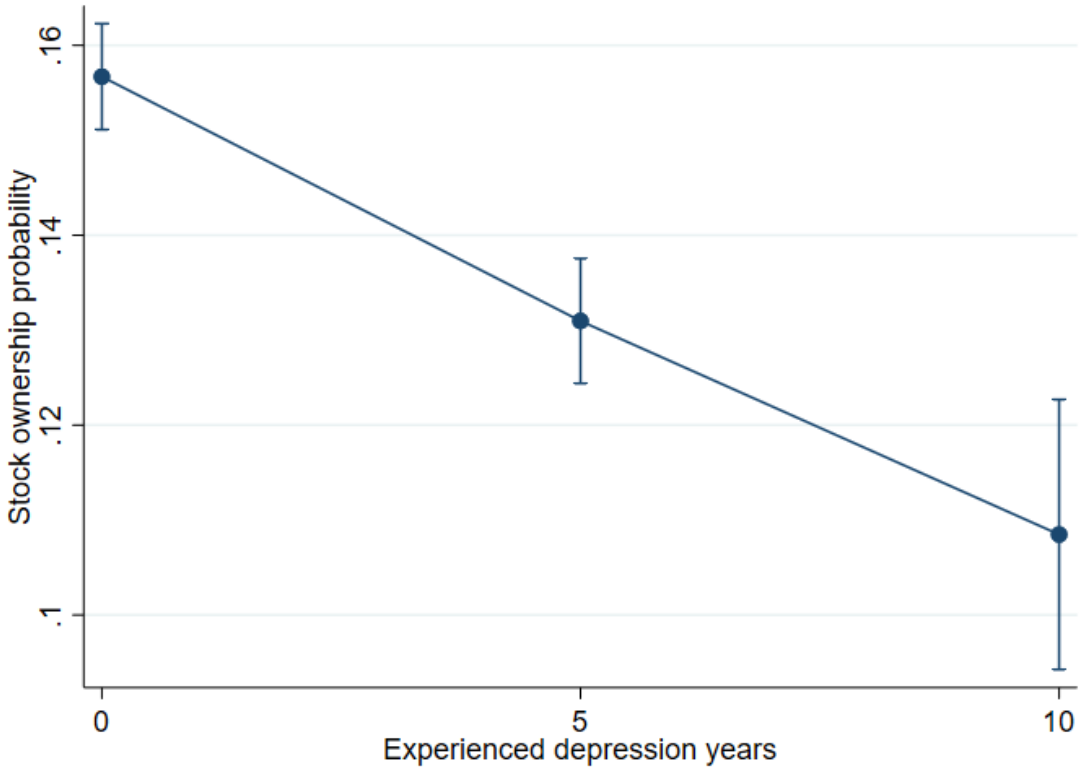
Notes: this graph plots net total wealth (IHS transformed) against the number of experienced depression years held in old-age against the number of experienced depression years, by cohort of birth. Each dot in the figure represents a specific country and birth cohort bin.

Figure 4: Residual total wealth and depression years



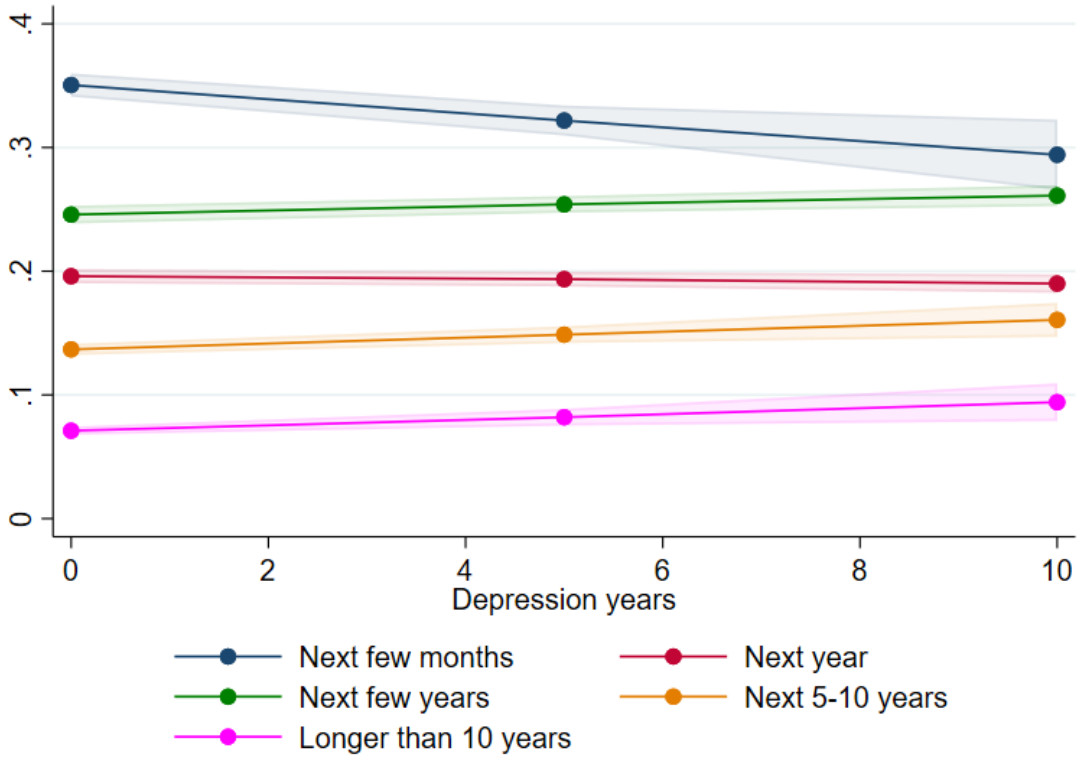
Notes: this graph plots predicted residual net total wealth after controlling for country, year of birth, age and survey year dummies, against the number of experienced depression years.

Figure 5: Predicted probabilities of stock ownership



Notes: this figure displays predicted probabilities of stock ownership, using a logit model and specification (1), with 95% confidence intervals.

Figure 6: Predicted probabilities of planning horizon



Notes: this figure displays predicted probabilities for the five outcomes of an ordered probit model of planning horizon, using specification (2), with 95% confidence intervals.

Table 1: Descriptive statistics

VARIABLES	Mean	St. Dev.	Min	Max	N
Male financial respondent	0.43	0.50	0	1	100,048
Age	67.01	10.74	50	90	100,048
Year of birth	1,943	11.34	1,914	1,965	100,048
Married	0.59	0.49	0	1	100,048
Number of children	2.03	1.44	0	19	100,048
Years of education	10.16	4.64	0	25	100,048
Retired	0.52	0.50	0	1	100,048
Home ownership	0.73	0.44	0	1	100,048
Savings for long-term investments	0.31	0.46	0	1	100,048
Stock ownership	0.1	0.30	0	1	97,292
Share of risky assets	0.04	0.25	-11.11	16	98,433
Planning horizon	2.29	1.22	1	5	39,167

Notes: This table shows the mean, standard deviation, maximum and minimum values, and number of observations for a selection of variables, computed on a sample that includes twelve European countries (Austria, Belgium, Denmark, France, Germany, Greece, Italy, the Netherlands, Portugal, Spain, Sweden and Switzerland), over the period 2004-2015. Weighted averages.

Table 2: Descriptive statistics of monetary values

VARIABLES	Mean	p25	p50	p75	N
Total household income	32,336.22	12,842.79	22,112.53	38,412.40	100,048
Total net wealth	268,343.52	54,790.15	179,750.15	339,019.36	100,048
Total real wealth	229,867.70	19,793.48	157,135.88	293,116.83	100,048
Total financial wealth	38,475.81	219.70	7,658.15	37,949.03	100,048

Notes: Monetary values are expressed in German 2015 Euro. Weighted averages.

Table 3: Macroeconomic shocks and net wealth. Median regressions.

VARIABLES	(1) Total Net Wealth	(2) Total Net Wealth	(3) Real Wealth	(4) Real Wealth	(5) Financial Wealth	(6) Financial Wealth
Depression years	2,478***		1,256*		345.2***	
	(742.5)		(643.1)		(111.5)	
Depression years, age 0-17		2,493***		1,312**		313.8***
		(759.7)		(657.4)		(112.5)
Depression years, age 18-32		2,116		-139.1		1,117***
		(2,259)		(1,940)		(329.7)
Observations	100,103	100,103	100,103	100,103	100,103	100,103
R-squared	0.172	0.172	0.165	0.165	0.212	0.212
COUNTRY FE	Yes	Yes	Yes	Yes	Yes	Yes
BIRTH YEAR FE	Yes	Yes	Yes	Yes	Yes	Yes
YEAR FE	Yes	Yes	Yes	Yes	Yes	Yes
CONTROLS	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The table reports the effects experienced depression years on median wealth, estimated via Recentered Influence Function (RIF) unconditional quantile regressions. Standard errors clustered by country and year of birth in parentheses. The regression includes marital status, number of children, education level, retirement status and total household income as control variables. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 4: Unconditional quantile treatment effect of depression years on wealth

VARIABLES	(1) q10	(2) q25	(3) q50	(4) q75	(5) q90
Total net wealth	-112.0	1,100	2,478***	4,633***	6,639**
	(266.1)	(880.8)	(742.5)	(1,250)	(2,693)
Real wealth	4.469	744.1	1,256*	1,943**	2,236
	(25.75)	(619.2)	(643.1)	(961.2)	(2,147)
Financial wealth	-63.64***	-20.74	345.2***	2,119***	4,801***
	(22.77)	(34.25)	(111.5)	(441.5)	(1,270)
Observations	100,103	100,103	100,103	100,103	100,103
Country FE	Yes	Yes	Yes	Yes	Yes
Birth year FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

Notes: The table reports the unconditional quantile treatment effects of experienced depression episodes on wealth. Unconditional quantile treatment effects are estimated via Recentered Influence Function (RIF) regressions. Standard errors clustered by country and year of birth in parentheses. The regression includes marital status, number of children, education level, retirement status and total household income as control variables. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5: Macroeconomic shocks and portfolio composition

VARIABLES	(1) Stock ownership	(2) Stock ownership	(3) Share of risky assets	(4) Share of risky assets	(5) Savings for LTI	(6) Savings for LTI
Depression years	-0.00506***		-0.00406***		0.00910***	
	(0.00113)		(0.00151)		(0.00237)	
Depression years, age 0-17		-0.00475***		-0.00394***		0.00809***
		(0.00119)		(0.00150)		(0.00255)
Depression years, age 18-32		-0.00938**		-0.00694***		0.0245***
		(0.00397)		(0.00262)		(0.00822)
Observations	97,327	97,327	98,488	98,488	100,087	100,087
COUNTRY FE	Yes	Yes	Yes	Yes	Yes	Yes
BIRTH YEAR FE	Yes	Yes	Yes	Yes	Yes	Yes
YEAR FE	Yes	Yes	Yes	Yes	Yes	Yes
CONTROLS	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The table reports average marginal effects from a logit model (columns 1, 2, 5, 6) and coefficients from an OLS regression (columns 3 and 4). Standard errors clustered by country and year of birth in parentheses. The regression includes marital status, number of children, education level, retirement status and total household income as control variables. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 6: Mechanisms

VARIABLES	(1) Planning horizon	(2)	(3) Numeracy	(4)	(5) Married	(6)
Depression years	0.0167***		0.00502		0.00211*	
	(0.00587)		(0.00352)		(0.00128)	
Depression years, age 0-17		0.0166***		0.00563		0.00200
		(0.00587)		(0.00366)		(0.00135)
Depression years, age 18-32		0.0213		-0.00613		0.00405
		(0.0322)		(0.0133)		(0.00454)
Observations	39,185	39,185	77,875	77,875	136,209	136,209
COUNTRY FE	Yes	Yes	Yes	Yes	Yes	Yes
BIRTH YEAR FE	Yes	Yes	Yes	Yes	Yes	Yes
YEAR FE	Yes	Yes	Yes	Yes	Yes	Yes
CONTROLS	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The table reports coefficients from an ordered probit model (columns 1 to 4) and coefficients from an OLS regression (columns 5 and 6). Standard errors clustered by country and year of birth in parentheses. The regression includes marital status, number of children, education level, retirement status and total household income as control variables. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 7: Macroeconomic shocks and the big-5

VARIABLES	(1) Extraversion	(2)	(3) Agreeableness	(4)	(5) Conscientiousness	(6)	(7) Neuroticism	(8)	(9) Openness	(10)
Depression years	0.00413		0.00171		0.0135***		-0.000556		-0.00174	
	(0.00525)		(0.00410)		(0.00435)		(0.00547)		(0.00499)	
Depression years, age 0-17		0.00428		0.00150		0.0130***		-0.000369		-0.00194
		(0.00527)		(0.00412)		(0.00437)		(0.00545)		(0.00496)
Depression years, age 18-32		-0.0136		0.0285		0.0640**		-0.0245		0.0227
		(0.0277)		(0.0275)		(0.0251)		(0.0305)		(0.0315)
Observations	82,398	82,398	82,431	82,431	82,395	82,395	82,452	82,452	82,221	82,221
COUNTRY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BIRTH YEAR FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YEAR FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CONTROLS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The table reports coefficients from OLS regressions. Standard errors clustered by country and year of birth in parentheses. The regression includes marital status, number of children, education level, retirement status and total household income as control variables. *** p<0.01, ** p<0.05, * p<0.1

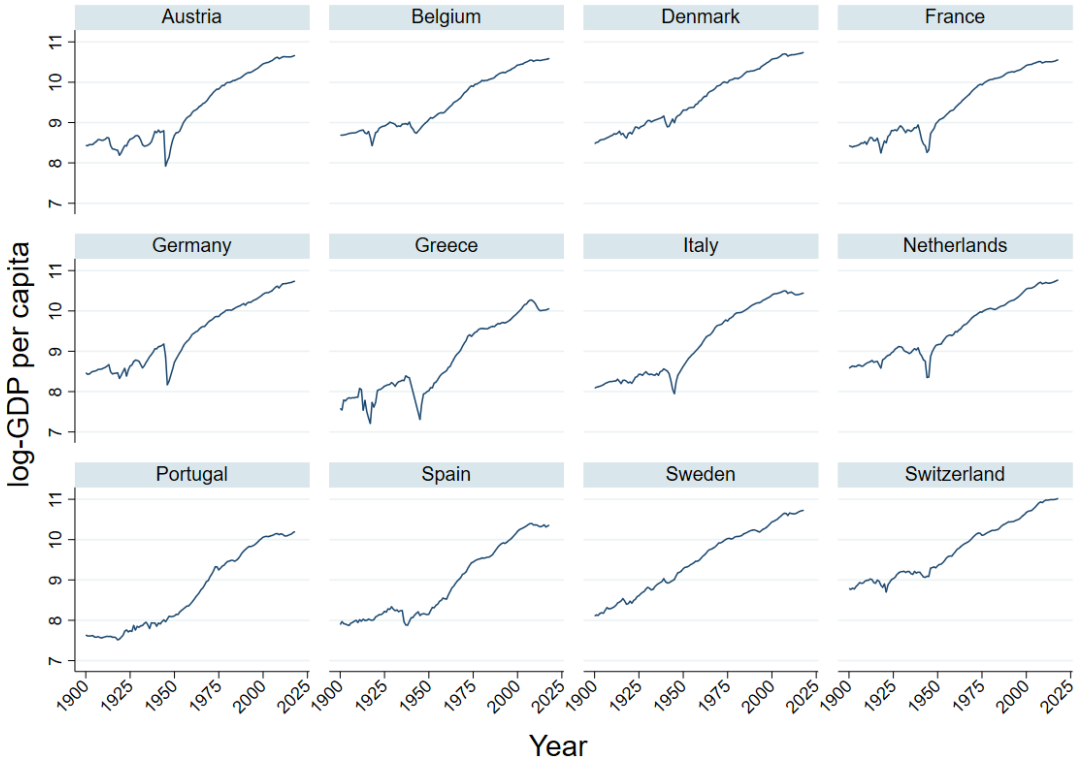
Table 8: Cox PH model of time to home and stock ownership

VARIABLES	(1) Home ownership	(2) Stock ownership
Depression years	1.032***	0.985*
	(0.00640)	(0.00926)
Married	2.381***	1.180***
	(0.0526)	(0.0338)
Number of children	0.998	0.938***
	(0.00761)	(0.00915)
Employee or self-employed	1.490***	1.756***
	(0.0274)	(0.0604)
Retirement spell	1.404***	1.600***
	(0.0649)	(0.0856)
House size at 10	1.065***	1.167***
	(0.0174)	(0.0254)
Number of books at 10	1.046***	1.155***
	(0.00670)	(0.0105)
Performance in math at 10	0.940***	0.814***
	(0.00776)	(0.0102)
Performance in language at 10	0.991	0.959***
	(0.00855)	(0.0122)
Health at 10	0.960***	0.972***
	(0.00677)	(0.0102)
Observations	700,164	1,831,357
COUNTRY FE	Yes	Yes
BIRTH YEAR FE	Yes	Yes
Individuals	32,349	41,881

Notes: This table shows Cox Proportional Hazard models of time to first home ownership and first stock ownership. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

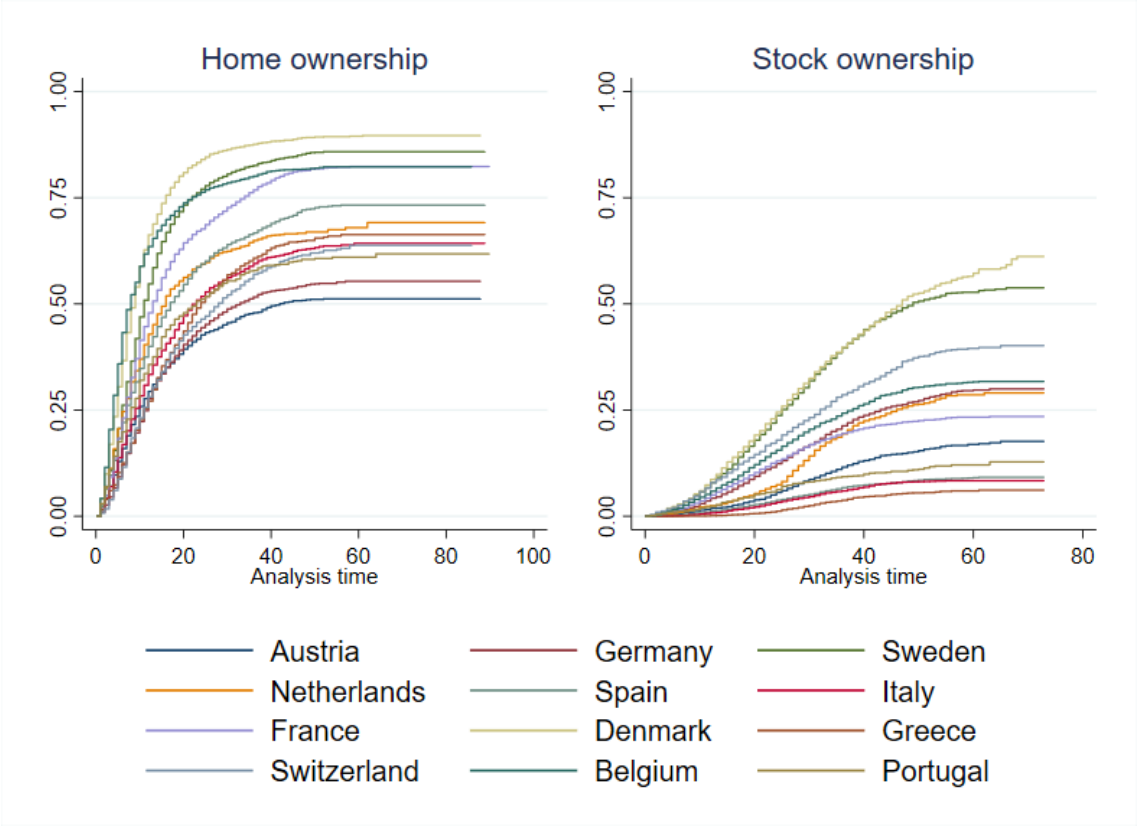
A Appendix

Figure A.1: GDP per capita by country



Notes: this figure displays the evolution of log-GDP per capita in years 1900 to 2015, by country .

Figure A.2: Failure curves



Notes: this figure displays failure curves of time to first house ownership and first stock ownership by country.

Table A.1: Robustness to age fixed effects. Median regressions.

VARIABLES	(1) Total Net Wealth	(2) Real Wealth	(3) Financial Wealth
Depression years	2,317***	1,128*	329.3***
	(728.6)	(631.0)	(111.7)
Observations	100,098	100,098	100,098
R-squared	0.176	0.169	0.214
COUNTRY FE	Yes	Yes	Yes
BIRTH YEAR FE	Yes	Yes	Yes
YEAR FE	Yes	Yes	Yes
AGE FE	Yes	Yes	Yes
CONTROLS	Yes	Yes	Yes

Notes: The table reports the effect of experienced depression episodes on median wealth, estimated via Recentered Influence Function (RIF) unconditional quantile regressions. Standard errors clustered by country and year of birth in parentheses. The regression includes marital status, number of children, education level, retirement status and total household income as control variables. *** p<0.01, ** p<0.05, * p<0.1

Table A.2: Childhood conditions controls. Median regressions.

VARIABLES	(1) Total Net Wealth	(2) Real Wealth	(3) Financial Wealth
Depression years	2,120**	614.3	353.5**
	(832.8)	(719.1)	(156.0)
House size at 10	34,721***	28,417***	3,506***
	(3,081)	(2,767)	(489.0)
Number of books at 10	9,765***	7,111***	1,239***
	(1,159)	(1,042)	(174.7)
Performance in math at 10	-17,522***	-13,625***	-2,698***
	(1,489)	(1,307)	(238.8)
Performance in language at 10	3,686**	2,757**	231.1
	(1,568)	(1,325)	(248.5)
Health at 10	-8,664***	-6,273***	-1,285***
	(1,029)	(909.7)	(179.8)
Observations	83,899	83,899	83,899
R-squared	0.179	0.171	0.215
COUNTRY FE	YES	YES	YES
BIRTH YEAR FE	YES	YES	YES
YEAR FE	YES	YES	YES
CONTROLS	YES	YES	YES

Notes: The table reports the effect of experienced depression episodes on median wealth, estimated via Recentered Influence Function (RIF) unconditional quantile regressions. Standard errors clustered by country and year of birth in parentheses. The regression includes marital status, number of children, education level, retirement status and total household income as control variables. *** p<0.01, ** p<0.05, * p<0.1

Table A.3: Robustness to HH income exclusion. Median regressions.

VARIABLES	(1) Total Net Wealth	(2) Real Wealth	(3) Financial Wealth
Depression years	3,143***	1,752***	475.3***
	(752.9)	(642.1)	(115.3)
Observations	100,103	100,103	100,103
R-squared	0.163	0.159	0.198
COUNTRY FE	YES	YES	YES
BIRTH YEAR FE	YES	YES	YES
YEAR FE	YES	YES	YES
CONTROLS	YES	YES	YES

Notes: The table reports the effects of experienced depression episodes on median wealth, estimated via Recentered Influence Function (RIF) unconditional quantile regressions. Standard errors clustered by country and year of birth in parentheses. The regression includes marital status, number of children, education level and retirement status as control variables. *** p<0.01, ** p<0.05, * p<0.1

Table A.4: Robustness to average experienced GDP growth. Median regressions.

VARIABLES	(1) Total Net Wealth	(2) Real Wealth	(3) Financial Wealth
Depression years	2,622***	1,481**	485.0***
	(757.5)	(657.4)	(117.1)
Average experienced GDP growth	3,010	4,722	2,924***
	(4,841)	(4,263)	(693.3)
Observations	100,103	100,103	100,103
R-squared	0.172	0.165	0.212
COUNTRY FE	Yes	Yes	Yes
BIRTH YEAR FE	Yes	Yes	Yes
YEAR FE	Yes	Yes	Yes
CONTROLS	Yes	Yes	Yes

Notes: The table reports the effects of experienced depression episodes on median wealth, estimated via Recentered Influence Function (RIF) unconditional quantile regressions. Standard errors clustered by country and year of birth in parentheses. The regression includes marital status, number of children, education level, retirement status and total household income as control variables. *** p<0.01, ** p<0.05, * p<0.1

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