Retirement and Portfolio Choices: Evidence from Italian Households

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Abstract

This paper studies how retirement affects household portfolio allocation using rich panel data from the Italian Survey on Household Income and Wealth (SHIW) between 2012 and 2022. Exploiting exogenous variation in pension eligibility rules, we estimate a two-stage least squares with individual and time fixed effects to identify the causal impact of retirement on financial investment behavior. We find that retirement leads to a significant increase in stock holdings: the share of financial wealth invested in stocks rises by 8.2 percentage points, and the probability of participating in the stock market increases by 23 percentage points. This reallocation is mostly driven by publicly traded stocks. We interpret these findings through the lens of precautionary saving: as retirement reduces income risk exposure, the incentive to hold liquid, low-return assets weakens, and people shift toward higher-yielding investments. This effect is particularly pronounced for seniority-eligible individuals - i.e., those with longer, more stable career paths and higher pension benefits - while it is not statistically significant among old-age retirees, who are more likely to have experienced long unemployment spells and remain liquidity-constrained.

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1 Introduction

Retirement is a turning point in a person's life, as it entails not only changes in daily routines but also a substantial reorganization of financial resources. Understanding how investment decisions adjust at retirement is relevant from a policy perspective, since households' wealth reallocation at this stage of the life cycle can influence the demand for assets and, in turn, asset returns (Auclert et al., 2021). This is even more salient in a country like Italy, where the share of retirees relative to the working population is expected to increase in the coming decades (INPS, 2025), making retirement-related portfolio decisions increasingly relevant for aggregate saving.

From a theoretical perspective, retirement represents an anticipated and permanent reduction in income. According to the Permanent Income Hypothesis (Friedman, 1957) and standard portfolio choice theory (Merton, 1971), such predictable changes should not alter either consumption or portfolio allocation. However, retirement also entails a significant decline in income-risk exposure, as individuals no longer face the possibility of job loss or unemployment spells, and pension benefits are generally more stable and less exposed to idiosyncratic shocks than labor earnings. This reduction in income risk exposure is particularly relevant in the presence of incomplete financial markets, which force households to self-insure against labor income shocks. Moreover, recent evidence (Catherine, 2021; Catherine et al., 2024) shows that the skewness of income shocks is cyclical: it becomes more negatively skewed during recessions, with severe downside realizations more likely to occur precisely in periods that typically coincide with poor stock market performance. This correlation, combined with transaction and participation costs, helps explain households' limited participation in the stock market. However, as individuals shift from uncertain labor income to predictable pension benefits, the demand for insurance against labor-income shocks vanishes, potentially triggering a rebalancing toward riskier and therefore higher-yielding investments.

In this paper, we analyze how retirement affects individuals' portfolio choices in Italy. To address the endogeneity of the retirement decision, we implement a two-stage least squares (2SLS) analysis with individual and time fixed effects (TWFEs) in which pension eligibility - determined by the retirement schemes available in Italy between 2012 and 2022 - is used as an instrument for actual retirement. This approach allows us to compare the same individual while working and after retirement, controlling for common time shocks and individual-specific unobserved heterogeneity that could affect portfolio choices over time.

Between 2012 and 2022, Italian workers had access to three main retirement pathways. The first, which we will refer to as *seniority*, allowed individuals to retire after accumulating 42 years of contributions for men and 41 for women. The second option, that we will call *old age*, allows retirement at age 67 with at least 20 years of contributions, for both men and women.

Finally, between 2019 and 2022, individuals could retire with 38 years of contributions and a minimum age of 62 (raised to 64 in 2022); we will refer to this option as *early retirement*.

These eligibility rules will be used to construct our instrumental variable. Specifically, we define an individual as eligible for retirement if, in a given year, she meets the requirements for at least one of the retirement schemes described above. We then use eligibility as an instrument for actual retirement in our 2SLS estimation.

Our identification strategy relies on the fact that eligibility is determined by institutional rules and thus exogenous to individual portfolio decisions, while strongly predicting the probability of retiring, once conditioning on time-invariant unobserved heterogeneity. Indeed, a potential concern is that eligibility rules are partly determined by accumulated years of contributions, which, in turn, reflect individuals' career histories. Since career stability and earnings trajectories may be correlated with portfolio decisions, this could generate endogeneity in our setting. In our 2SLS estimation, we address this issue in two ways: first, we rely on a TWFEs strategy, which allows us to compare the same individual across working and retirement, thereby absorbing time-invariant unobserved heterogeneity related to career choices. Second, in the robustness analysis, we explicitly control for long unemployment spells, which capture the main observable dimension of career instability.

We draw data from the Bank of Italy's *Survey of Household, Income, and Wealth* (SHIW). This is a biannual survey[1] that collects detailed information on the wealth composition of a representative panel of Italian households. The survey also asks respondents to report their years of contribution - i.e., the number of years they have worked under a regular contract - which allows us to construct retirement eligibility as defined above.

Our results show that retirement leads to a rebalancing of household portfolio allocation: retirees allocate a larger share of their financial assets to stocks and are more likely to enter the stock market, suggesting that households are taking on greater financial risk by moving away from safe, liquid assets such as deposits and bonds. Importantly, these results reflect a reallocation of existing financial wealth rather than an increase in overall saving: our specifications control for total household wealth, ensuring that the estimated effects capture changes in portfolio composition rather than wealth accumulation. We find that retirement increases the share of financial assets invested in stocks by 8.2 percentage points. It also raises the probability of stock market participation by 23 percentage points. This effect holds for publicly traded stocks and managed savings funds, but not for private company stocks. Retirement increases the share of financial assets held in publicly traded stocks by 7 percentage points and the likelihood of holding such assets by 23 percentage points. Moreover, the share of stocks plus managed savings - i.e., mutual funds, pension funds, and other professionally managed investment products - increases by 12 points, while the likelihood of holding them increases by

[1] The SHIW is typically conducted every two years, except the 2016 and 2020 waves.

28 percentage points. By contrast, we do not find significant effects on the share of financial assets held in private equity.

Two mechanisms drive the results. The first is the household's need to rely on precautionary savings to ensure against income fluctuations (see, for instance, Kimball, 1990 and Dynan, 1993). As argued by Auclert et al. (2024), the financial instrument better suited for this purpose is a low-return, safe asset with no transaction costs, like bonds or bank accounts. The transaction costs associated with stocks, which are also related to market liquidity (see Foucault et al., 2023), make them a relatively bad insurance instrument. However, when people stop working and their pension benefits are computed, there is no more uncertainty about earnings and the probability of losing their jobs. Therefore, the precautionary motive weakens, and the incentive to get higher financial returns strengthens. This is true, however, only if households are not liquidity-constrained and have sufficient wealth to cope with a poor performance of the financial market, even conditioning on the absence of employment risk induced by retirement.

To validate this first mechanism, we perform a reduced-form analysis in which we regress the outcomes of interest on the different retirement options. We find that the effects are statistically significant only for individuals eligible for *seniority* retirement and, occasionally, for *early retirement*. This pattern can be explained by the fact that "regular" retirees (i.e., *seniority* eligible) have presumably had more stable career paths and received higher severance payments[2]. Then, they are further away from the borrowing constraint and need to rely less on precautionary savings to begin with. By contrast, *old-age* retirees tend to have more fragmented career trajectories and enter retirement with lower levels of liquid wealth and smaller severance payments. Therefore, they are closer to the liquidity constraint and more vulnerable to bad stock market returns. We provide supporting evidence for this, showing that *old-age* retirees are more likely to have experienced long unemployment spells (more than 12 months) and to hold lower levels of liquid wealth, namely real estate, financial assets, and bank deposits.

The second driving mechanism is the correlation between the cyclical skewness of income shocks and stock market returns. Catherine (2021) shows that in times of recession - typically associated with stock market crashes - the distribution of income shocks becomes right-skewed, as bad realizations become more likely. This correlation, together with participation costs, explains why stock market participation remains limited, and why standard life-cycle portfolio choice models fail to match the observed equity profiles of working individuals without assuming unrealistically high levels of risk aversion. Using Swedish data, Catherine et al.

[2] Workers in Italy receive a severance payment upon retirement, which could further relax liquidity constraints. This one-time transfer increases households' cash holdings (see, for instance, Battistin et al., 2009), making them better able to smooth consumption and self-insure against shocks without holding excessive amounts of low-yield liquid assets.

(2024) documents a negative correlation between the cyclical skewness of income shocks and the equity share. When individuals retire, their income is not volatile anymore, and thus not correlated with the stock market performances.

We perform a set of robustness checks to address identification concerns and validate our 2SLS design. We show that the effect is not explained by unobserved differences in career trajectories, wealth accumulation, or age, and that the instrument is not proxying for systematic variation in financial behavior unrelated to retirement. After confirming the instrument's relevance, we introduce a large set of controls that might explain portfolio choices, such as past unemployment spells and other sources of income, including financial and real estate income.

We also perform an event study analysis to verify that portfolio choices follow parallel trends before eligibility, ruling out pre-existing differences in investment behavior. Moreover, we re-estimate the model excluding individuals younger than 55, those with positive liabilities, and those with negative net wealth, to test whether the results are driven by outliers or by individuals close to financial distress. Finally, we restrict the sample to observations closer to the eligibility threshold, both before and after reaching it, to ensure that our estimates are not influenced by individuals far from retirement age.

Across all these tests, although the sample size shrinks considerably - and hence statistical power decreases - the 2SLS coefficients remain very close to the baseline estimates, both in magnitude and statistical significance. This stability reinforces the credibility of our identification strategy and suggests that our findings are not sensitive to alternative specifications or sample definitions.

To explore possible heterogeneity in our results, we run separate 2SLS regressions across different subgroups. We first split the sample at the median of the net wealth distribution. We find that the effect is significant only for individuals above the median, consistent with Fagereng et al. (2018), who show that higher income risk lowers stock market participation among those in the bottom half of the distribution. These results suggest that households with fewer liquidity constraints and greater financial flexibility are more responsive to the reduction in income risk exposure associated with retirement. By contrast, individuals in the lower half of the wealth distribution are more likely to remain close to the borrowing constraint even after retirement and therefore continue to prioritize liquid, safe assets over higher returns. We also find a stronger response among individuals in the North of Italy, for married households, and for women. These groups may enjoy better access to financial markets or additional sources of insurance, such as marital income, which can make them more willing to bear financial risk.

Related Literature. Our paper is connected to different strands of literature and contributes to them along several dimensions. First, it mirrors the literature on the *retirement consumption puzzle* (see Banks et al., 1998). Recent empirical work by Kolsrud et al. (2024) and Olafsson and Pagel (2024) in Scandinavian countries has shown an economically and statistically significant decline in consumption upon retirement. Results like these, observed in Italy as well by Battistin et al. (2009), are at odds with standard economic theory, as consumers are supposed not to alter consumption in response to predicted income variations. Aguiar and Hurst (2005) rationalizes this puzzle, emphasizing the difference between consumption and expenditure, as the former also includes home production and the depreciation of durables (like TVs, laptops, cars, etc.), evidently not as precisely measured as expenditure by survey data. Another explanation for the puzzle is the complementarity between labor and specific consumption items. Commuting costs are a perfect example: as people retire, they no longer need to commute to work, and thus, transportation expenditure decreases. We speak to this literature by shifting the focus from consumption to investment behavior. Moreover, in Appendix D, we provide evidence that the drop in consumption concerns only old-age retirees, who, for the reasons outlined above, are more likely to be liquidity constrained. There is, on the other hand, no convincing evidence of a drop in consumption for seniority and early retirees, who are on average further away from the borrowing constraints and are more likely to behave as Permanent Income Hypothesis (PIH) maximizers.

Second, we contribute to the extensive literature in consumption and household finance on the impact of income risk on consumption and portfolio choice. The papers in this strand, either by estimating structural models or relying on natural experiments, test the implications of the precautionary saving model and the buffer stock model[3]. As mentioned in the very first lines, retirement also represents a reduction in income risk exposure, and therefore, our results might be seen as the reduced-form impact of income risk on portfolio choice. In this regard, our paper is deeply connected to Fagereng et al. (2018), who look at the impact of uninsured wage risk on participation in the stock market in Norway. Using employee-employer matched and tax record data, and applying the methodology of Guiso et al. (2005) to extract the component of wage volatility not insured by the employer, they show that risk reduces stock holdings, and that the effect is greater for households belonging to the bottom of the wealth distribution. Guiso et al. (1996) find, in the 1989 SHIW cross-section, a negative correlation between holdings of risky assets and subjective income variance, elicited through survey questions. Angerer and Lam (2009) show that portfolio choices are mostly affected by permanent income volatility, while they do not respond to transitory income risk. Clark et al. (2022), leveraging on the 2012 labor market reform in Italy, shows that lower employment protection causes households to invest more in safer assets and reduce their exposure to risk assets (e.g., stocks). Silva et al. (2025) show that there is a negative effect of going public (i.e., employers' IPOs) on wage volatility and a positive impact on the holdings of risky assets. We differentiate from these papers in that we focus on the variation in risk exposure due to

[3] See Jappelli and Pistaferri (2017) for a review of the main theoretical and empirical contribution and Jappelli and Pistaferri (2025) for a recent test of the buffer-stock model by Carroll and Samwick (1997) and Deaton (1991).

retirement: in other words, we are comparing the same individuals before and after retirement, isolating the effect of income risk reduction within the life cycle.

Third, we contribute to the literature on households' participation in the stock market and how this changes in response to wealth shocks. It is a well-known fact that the stock market participation among households is low and mostly concentrated among the top quantiles of the wealth distribution (see Fagereng et al. 2017 and Fagereng et al. 2020 in Norway). Van Rooij et al., 2011 point to low financial literacy (measured by "The Big Three" as in Lusardi, 2008) as the main reason in the United States. Moreover, Lusardi et al. (2017) shows that differences in financial literacy are among the main drivers of cross-sectional wealth inequality in the United States. More recently, Catherine (2021) argues that the low participation in the stock market of the bottom of the wealth distribution is due to the cyclicality of the skewness of earnings shocks, which tends to be negative (more mass on the left tail) in bad times (i.e., recessions, usually corresponding to stock market crashes). This mechanism is confirmed by Catherine et al. (2024), who use Swedish data and show that the (left) skewness of earning shocks is negatively correlated with the share of equity holdings. Cioffi (2021) argues that people along the wealth distribution are exposed heterogeneously to shocks in asset returns. Therefore, as they become wealthier, they move away from safe assets and invest first in housing, then in the stock market.

Christelis et al. (2024) estimates the causal effect of wealth shocks on stock holdings by assigning randomly hypothetical lottery wins to the respondents to the Consumer Expectation Survey (CES). They find that the increase in stock market participation, even though statistically significant, especially for lottery gains as high as €50.000, is contained (around 8.4 percentage points). Also, the share of wealth invested in stocks (the intensive margin) increases only slightly (by 1.7 percentage points for a hypothetical wealth shock of €50.000). This result indicates that the assumption of Constant Relative Risk Aversion (CRRA) preferences is a reasonable one for most investors, as heterogeneous stock market participation is mostly explained by risk aversion heterogeneity[4]. We contribute to this literature first by showing that retirement increases stock market participation in Italy and then that the estimated causal effect of retirement on stock market participation remains stable even when controlling for household wealth, suggesting that our results are not driven by mechanical wealth changes, but rather by shifts in risk exposure associated with the transition to retirement.

Deeply connected to our paper are also the works that study the impact of pension reforms in the 1990s implemented in Italy on retirement expectations (see Bottazzi et al., 2006), savings and portfolio composition (see, for instance, Attanasio and Brugiavini, 2003, Bottazzi et al., 2011, and Daminato and Padula, 2024). Unlike these studies, however, we do not look at

[4] In the standard portfolio choice as in Merton (1969), the share of wealth invested in risky assets is not a function of wealth itself. It is a decreasing function of risk aversion and the variance of the asset return.

the impact of pension reforms affecting people who are currently working, but at how stock holdings change in the transition from work to retirement.

Finally, we also speak to the literature that looks at the macro-finance consequences of population aging. Auclert et al. (2021) argues that the aging in the population will increase the wealth-to-income ratio, and thus lower returns on wealth. Our results suggest that a larger fraction of the population will participate in the stock market and increase their holdings on the intensive margin as well. Therefore, stock market returns will decline due to higher demand from retail investors, pushing prices up.

Outline. The paper is structured as follows. Section 2 describes the data, the retirement options we use to build the instrument, and the sample selection. Section 3 depicts the empirical strategy and the baseline results. We also discuss the validity of the instrument, while Section 4 shows the main mechanisms that rationalize our results and some heterogeneity analysis. Finally Section 5 concludes.

2 Data and Retirement Options

Sample Construction and Retirement Options. We draw on the Bank of Italy's Survey of Household Income and Wealth (SHIW), a comprehensive dataset that provides insights into the financial lives of Italian households. SHIW contains detailed information on demographics, income, consumption, and wealth. In particular, respondents are asked to self-report in detail their holdings of stocks (both public and private), bonds, bank accounts, and other forms of financial investments. They are also asked to report their liabilities, as well as the value of the real estate properties they own. Moreover, SHIW also contains information on individuals' years of contribution, i.e., how many years the respondents have worked under a regular contract, which is crucial in order to construct our instrumental variable.

We select the sample following the approach by Jappelli and Pistaferri (2020, 2025). For starters, we only keep household heads[5] who were employed in 2012. We define an individual as retired if she is not working and receives a retirement pension[6]. Then, to ensure we are tracking the same individuals over time, we drop observations with inconsistent demographics. Therefore, we drop households whose head changes sex over time and with impossible ages[7].

[5] Restricting the analysis to heads prevents complications arising from changes in household composition or from the identity of the head switching across survey waves.

[6] Our dataset contains detailed information about the nature of the pension income that can come from several sources, including old-age, seniority, disability, and survivor pensions. In this analysis, we exclude individuals receiving disability or survivor pensions and retain only those receiving old-age or seniority pensions, as these are directly linked to retirement decisions and eligibility.

[7] These cases likely reflect changes in the identity of the household head across waves or reporting errors, rather than actual demographic variation. We exclude them to ensure that the same individual is consistently tracked over time.

For instance, if a person is 30 years old in 2012, she must be 32 in 2014, 34 in 2016, 38 in 2020, and 40 in 2022. To minimize the concerns related to the measurement error of (self-reported) years of contribution, we only keep those individuals for whom the increase in the years of contribution is lower than or equal to the time difference between two consecutive waves. We drop individuals who report fewer years of contribution than the preceding wave. After this sample selection criteria, we are left with a sample size of around 2000 observations, pooled from the waves of 2012, 2014, 2016, 2020, and 2022.

In the period under analysis, people could leave the labor market following three different paths to retirement. According to the first, which we will refer to as *seniority*, workers might retire, regardless of their age, as soon as they accumulate 42 years of contribution if they are men and 41 if they are women. The second path, which we will call *old age*, requires workers, both women and men, to be at least 67 years old and to have 20 years of contribution. Finally, between 2019 and 2021, a third option known as *Quota 100* (Q100) was introduced. According to Q100, people as old as 62 and with 38 years of contribution could decide to retire. In 2022, Q100 was replaced by *Quota 102* (Q102), meaning 64 years of age and 38 years of contribution. We will refer to these two last options together as *early retirement*, as in fact they represented, in general, a milder eligibility criterion, at the cost of lower pension wealth upon retirement.

People could choose which option to use and, typically, their choice is dictated by their careers, as well as their earnings trajectories during their working history. For example, seniority represents the typical option used to retire, and is the one that entails the biggest pension benefit[8]. This is because, if a person has a continuous working life, not characterized by long unemployment spells, she reaches the eligibility criteria for seniority in her early 60s, even earlier if she started working in her teenage years. By contrast, old age entails a much lower pension wealth, and it is typically "chosen" by individuals who have experienced large unemployment spells during their lives. This potentially reflects the fact that irregular career paths often prevent individuals from accumulating the required contribution years for more generous schemes. In the Italian public pension system, pension benefits are commonly calculated based on both the number of contribution years and the worker's past earnings, according to a contribution-based or mixed formula, depending on the year of entry into the labor market. Under the contribution-based regime, which applies to workers who started contributing after 1996, the benefit equals the sum of all contributions paid over the working life, capitalized at an annual rate linked to GDP growth, multiplied by a conversion coefficient that depends on the retirement age. Workers with earlier contribution histories fall under a mixed regime that combines earnings-related and contribution-based components, resulting in higher replacement rates.

[8] According to INPS, 2025, in 2024, roughly 30% of new pensions in Italy were seniority/early retirement pensions, confirming the widespread relevance of this option among workers with continuous careers.

Age and years of contribution are what we need to define eligibility for the three retirement options mentioned above: seniority, old age, and early retirement. In particular, we define:

$$seniority_{it} = \begin{cases} 1 & \text{if} \quad yc_{it} \geq 42 \text{ and } female_i = 0 \\ 1 & \text{if} \quad yc_{it} \geq 41 \text{ and } female_i = 1 \\ 0 & \text{otherwise} \end{cases}$$

$$old\ age_{it} = \begin{cases} 1 & \text{if} \quad age_{it} \geq 67 \text{ and } yc_{it} \geq 20 \\ 0 & \text{otherwise} \end{cases} \tag{1}$$

$$early_{it} = \begin{cases} 1 & \text{if} \quad yc_{it} \geq 38 \text{ and } age_{it} \geq 62 \text{ and } t = 2020 \\ 1 & \text{if} \quad yc_{it} \geq 38 \text{ and } age_{it} \geq 64 \text{ and } t = 2022 \\ 0 & \text{otherwise} \end{cases}$$

where yc_{it} is the years worked by individuals i at time t. Following the eligibility rules defined above, we construct our instrumental variable for actual retirement as follows:

$$eligible_{it} = \begin{cases} 1 & \text{if} \quad seniority_{it} = 1 \\ 1 & \text{if} \quad old\ age_{it} = 1 \\ 1 & \text{if} \quad early_{it} = 1 \\ 0 & \text{otherwise} \end{cases} \tag{2}$$

In this setting, we implement a 2SLS regression where retirement status is instrumented by eligibility as defined above, controlling for both individual time shocks. Our identification strategy relies on the assumption that, conditional on individual and time fixed effects, eligibility for retirement affects portfolio decisions only through actual retirement.

The use of an instrumental variable is motivated by the potential endogeneity of the retirement decision in the portfolio composition. Retirement status may be correlated with unobserved factors that also influence portfolio choices, such as unmeasured expectations about future income, health shocks, or individual preferences toward risk and saving. For instance, risk-tolerant workers might both retire earlier and invest more in stocks, leading to an upward bias in OLS estimates. Using pension eligibility as an instrument isolates the exogenous variation in retirement induced by institutional rules, allowing us to recover the causal effect of retirement on portfolio allocation.

Descriptive Evidence. Figure 1 shows the take-up ratios, i.e., the ratio between the eligible individuals and the actual retirees, for the three retirement options. As we can see, almost 88% of old age-eligible individuals are retired, while the take-up ratio goes down to slightly above 80% for seniority. The share of early eligible individuals who are retired is below 80%.

The main message of Figure 1 is that the majority of people who are eligible for retirement do choose to retire, consistently with Battistin et al. (2009).

To define eligibility, we assume the following assignment rule (or preference order) among the three schemes: (1) seniority, (2) early, and (3) old age. If a person satisfies the requirements for more than one option in a given year, we assign her to the highest-ranking scheme for which she is eligible. This rule is not meant to reflect individual preferences, but rather the institutional structure and observed behavior in the data. In practice, workers tend to prioritize seniority retirement whenever possible, as it provides a more generous pension benefit and does not restrict post-retirement employment, unlike early retirement. By contrast, old-age pensions are typically accessed by individuals who cannot meet the contribution requirements for the other schemes. This institutional background helps explain the observed take-up patterns: the take-up rate for early retirement is lower than for seniority. At the same time, old-age pensions represent a residual option for workers with fragmented careers[9].

Figure 2 displays the relationship between actual retirement status and the distance to retirement eligibility.

The figure shows that there is an overall positive relationship between distance to retirement eligibility and actual retirement. In particular, the share of retirement-eligible individuals who are in retirement is 100% six years later. This pattern confirms the predictive power of eligibility for actual retirement behavior in a way that validates the relevance of our instrument. Figure 2 also speaks to the plausibility of the monotonicity assumption: it is unlikely that anyone in the sample would have retired if they had not been eligible, while not retiring after becoming eligible remains a rare behavior.

In Table 1, we report the descriptive statistics for non-eligible, early retirement-age eligible, seniority-eligible, and old-age eligible.

As the first column shows, 4% of the sub-sample of the non-eligible is retired. This is because, sometimes, people benefit from early retirement options offered in case of mass layoffs or business restructuring. As a robustness check, we also perform the analysis dropping these observations. What we get is a much stronger first stage, but no significant changes in the results. Results are reported in Appendix A.

Seniority-eligible individuals hold more cash on hand (income + financial assets) than old age- and early-eligible, and there are fewer of them who declare they have experienced long unemployment spells (more than 12 consecutive months). Moreover, seniority-eligible individuals hold a higher share of stocks and are more likely to participate in the financial market

[9] As a robustness in Appendix A, we perform the main analysis by dropping this assumption and allowing individuals to be contemporaneously eligible for more options. Results are practically unchanged. The main reason is that there are very few people in the sample eligible for more than one option at the same time.

than other retirement-eligible individuals.

In Appendix B we provide additional descriptive evidence that complements our analysis. In particular, Figure B5 shows the cross-sectional distribution of overall financial wealth (top-left), liabilities (top-right), cash (bottom-left) and stocks (bottom-right). While there is a substantial part of the sample with little overall financial wealth (around 40%), there is also a sizable portion (around 10%) holing €40000 in stocks. Figure B7 and B8 show, on the other hand, that the pooled age profiles of financial wealth and stocks, both on the intensive and the extensive margin. As standard in the literature, these profiles are hump-shaped: they increase until the age of retirement (approximately 60 years old) and then decline. Finally, Figure B9 shows the composition of financial wealth by deciles of the wealth distribution. While the bottom half of the distribution holds primarily cash, the top 20% holds non negligible amounts of bonds, stocks and mutual funds. Moreover, the composition has not changed much over the years.

3 Empirical Strategy and Baseline Results

Our empirical strategy consists of a 2SLS, in which we instrument actual retirement with retirement eligibility defined as in the above section. Our main equation is:

$$y_{it} = \alpha_i + \lambda_t + \beta retired_{it} + \varphi \mathbf{X}_{it} + \varepsilon_{it} \tag{3}$$

In (3), y_{it} is either the share of stocks (listed and unlisted) held in i's portfolio at time t as a share of gross financial wealth, or a dummy equal to 1 if i holds stocks at time t. $\mathbf{X}_{it}$ is a vector of controls including age bins (to control for the life cycle), education, family size, civil status, and, in the most demanding specification, net wealth, i.e., the sum of financial assets, liabilities, and real estate assets. The variable $retired_{it}$ is a dummy equal to 1 if i is retired at time t. α_i and λ_t are individual and time fixed effects. The former are meant to purge the analysis from time-invariant characteristics affecting retirement and stock holdings at the same time. The first example that came to our mind is whether an individual suffered from financial losses in the past that scared her and forced her to postpone retirement. The latter, on the other hand, captures common shocks that affect individuals in a presumable homogeneous way, like, for instance, bad news about the sustainability of the National Social Security Institute. Finally, ε_{it} is the error term clustered at the individual level, to account for serial correlation in unobserved shocks over time for each individual.

Threats to Identification. Estimating (3) by OLS is going to lead to an inconsistent estimate of β because people choose when (and how) to retire, and this choice is likely to be correlated with time-variant unobservable characteristics affecting portfolio decisions as well. One potential source of endogeneity arises from unobservable preferences for work. Individuals who enjoy working or derive non-monetary satisfaction from their jobs are likely to postpone retirement. At the same time, because they work longer, they accumulate higher lifetime wealth, which may translate into a greater ability to invest in riskier assets. Then, the observed association between retirement and portfolio reallocation would partly reflect differences in lifetime earnings driven by unobserved preferences rather than the causal effect of retirement itself.

Another problem is reverse causality: it might be that an individual gets a very high return from the financial market, which convinces her to stop working. Georgarakos et al. (2025), randomly providing individuals with hypothetical lottery gains, show that people would respond by reducing labor supply both on the intensive and the extensive margin. Cesarini et al. (2017),Fagereng et al. (2021), and Golosov et al. (2024), in Sweden, Norway, and the United States, respectively, show that people winning lotteries persistently reduce their gross and net earnings.

To tackle these issues, we instrument actual retirement with eligibility. Pension eligibility is determined exclusively by institutional rules that depend on age and contribution history, and not on individual preferences, expectations, or financial behavior. Conditional on individual and time-fixed effects, these institutional thresholds are exogenous to unobservable factors such as a taste for work or expectations about future income risk, as well as to shocks to financial returns that might directly influence portfolio choices. In other words, eligibility affects portfolio decisions only through its impact on the probability of retiring, satisfying the exclusion restriction. The first stage we are going to estimate is the following:

$$retired_{it} = \alpha_i + \lambda_t + \gamma eligible_{it} + \rho \mathbf{X}_{it} + v_{it} \tag{4}$$

In (4), $eligible_{it}$ is a dummy defined as in the section above. Our coefficient of interest is β, that is, the LATE of retirement on the portfolio, i.e., the effect on the compliers. In this context, the compliers are defined as those individuals who retired *because* they became eligible, so they satisfy the age and years of contribution requirements for at least one of the three retirement options.

Main Results. Table 2 shows the baseline results for all stocks, both on the intensive (first three columns) and the extensive (last three columns) margins. The LATE of retirement on the share of stocks is around 10 percentage points (portfolio shares are multiplied by 100), while the effect on stock holdings is around 22 percentage points. Adding controls makes little difference for the intensive margin, while it makes estimates much more precise for the extensive margin. Finally, the addition of wealth doesn't change practically anything: the coefficient attached to wealth is both imprecisely estimated and economically insignificant (a

€1000 increase in net wealth increases the share of stocks by 0.01 percentage points). This result is consistent with the results by Christelis et al. (2024), suggesting that the driver of households' heterogeneity in portfolio composition is mainly heterogeneity in risk aversion as opposed to differences in wealth levels.

Table 3 and Table 4 decompose the result for public stocks - i.e., stocks traded in the stock market - and private stocks. The effect is present only for the former, both on the intensive and the extensive margin. Specifically, retirement raises the share of public stock holdings by around 7.12 percentage points and increases the probability of owning public stocks by 23 percentage points. The result on the extensive margin gives further credibility to our empirical setting. Indeed, the causal effect on the portfolio share might be contaminated by heterogeneous variation in the prices of these stocks. It could still be, nevertheless, that people decide to enter (exit) the stock market because of its good (bad) performance. However, the presence of time FEs nets out any possible confounder related to the overall time trend. In addition, the overall performance of the stock market is surely not correlated with the variables that define retirement eligibility: age and years of contribution.

Table 5 look at stocks + managed savings. There is a positive effect both on the intensive and on the extensive margin: 11.7 percentage points and 28 percent, respectively.

Assessing the Validity of the Instrument. For the instrument to really estimate the LATE of retirement on stock holding, it has to satisfy two requirements. The first is relevance: we need retirement eligibility to predict actual retirement. The second requirement, the exclusion restriction, is that the instrument affects stock holdings only through its effect on retirement. If the instrument were not relevant, we would expect no strong statistical relationship between eligibility and actual retirement - that is, becoming eligible would not significantly predict the probability of retiring. To test this, it suffices to look at the statistical relationship between eligibility and actual retirement. Then, we estimate the first stage in equation (4) by OLS and report the results in Table 6.

The instrument is strongly correlated with actual retirement: being eligible for retirement makes actual retirement more likely by 50 percentage points, controlling for individual and time FEs, as well as for the same variables we control for in equation (3). The F-stat of the excluded instrument test ranges between 68 and 75, i.e., well above the benchmark recommended by the literature for the relevance of an instrument. In line with Battistin et al. (2009), Figure 2 - left panel - shows that the probability of being retired increases as people get closer to retirement. The share of retired 10 years before eligibility is 0, while it is 1 4 years after retirement. Moreover, increases by 60 percentage points from -2 to 0 years to eligibility, confirming that most people retire as soon as they are eligible. The right panel, showing the event study version of the left panel, conveys the same message. It also certifies that the negative differences at -4 and -2 are not statistically distinguishable from the coefficient at -6, since their confidence intervals overlap.

The first argument we provide is that pension eligibility is built upon variables that are very difficult to manipulate: age and years of contribution. Regarding the latter, the Italian law allows converting the years spent in higher education (e.g., University) and in the compulsory military service as years of contribution, in exchange for a front-loaded *una tantum* payment to the Social Security Institute[10]. In principle, people might select into this option according to unobservable characteristics that also influence investment decisions. If this is the case, the 2SLS coefficient might still yield an inconsistent estimate. We address this concern by including in the analysis only workers whose years of contribution increased by no more than 2 years, that is, the frequency of SHIW[11]. This also allows us to deal with potential measurement error in the years of contribution, a problem also acknowledged by Battistin et al. (2009).

The second concern is the presence of unobservable heterogeneity that affects both eligibility and portfolio choices. It could indeed be the case that individuals retire at different times because of career choices and paths we cannot observe in the available data. We respond in two ways. First, we always include individual fixed effects, which purge the analysis of time-invariant heterogeneity that affects both careers and consumption/investment decisions. In addition, as a further robustness check (see Appendix A), we control for a dummy variable indicating whether the individual experienced an unemployment period of more than 12 months. Results are essentially unchanged.

We then check for pre-trends with respect to eligibility. We want to test whether stock holdings differed systematically before people became eligible for retirement. We therefore estimate the following event study equation both for the intensive and the extensive margin of portfolio choice, where D_{-k} and D_k represent the distance, before and after, to retirement eligibility:

$$y_{it} = \alpha_i + \lambda_t + \sum_{k=2}^{10} \gamma_{-k} D_{-k} + \sum_{k=2}^{6} \gamma_k D_k + \rho \mathbf{X}_{it} + u_{it} \tag{5}$$

Figure 3 shows the estimated coefficients $\hat{\gamma}_{-k}$ and $\hat{\gamma}_k$, alongside 95% confidence intervals.

The figure plots the evolution of the share of stocks held (left panel) and the probability of participating in the stock market (right panel) as a function of the number of years before and after eligibility (ranging from 10 years before to 6 years after becoming eligible for retirement). The p-value of the test of all pre-trend coefficients being jointly equal to 0 is 0.12 for the intensive margin and 1.61 for the extensive margin. In other words, in the pre-eligibility

[10] This option is called in Italian *riscatto della Laurea*. Importantly, during the 2012-2022 period, no major reform affected the cost or the accessibility of the "risccatto della Laurea" scheme, implying that the possibility to convert education years into contributory years did not vary systematically across individuals.

[11] Between 2016 and 2020, we drop observations whose years of contribution either went down or increased by more than 4 years.

period, the OLS coefficients are close to zero and statistically insignificant, suggesting the absence of pre-trends in portfolio allocation. Immediately after eligibility, however, there is a sharp increase: the stock share jumps as well as the stock market participation. Therefore, we cannot reject the null hypothesis of no effect in the years before individuals become eligible for retirement.

As a final test, we look at returns from financial and real estate assets before actual retirement and before eligibility. The concern behind this test is that systematic differences in asset returns, due to particularly good (or bad) investments, might be the true cause of the changes in the portfolio composition. For instance, if individuals who retire happen to experience unusually high returns on their financial assets, this could mechanically inflate their stock holdings, confounding our estimates.

To address this concern, we estimate (4) for returns from real estate (e.g., rents) and returns from financial investments, and report the results in Figure 4. Overall, there is no clear trend before eligibility. In Appendix A, we also control for both types of income, and the results do not change. This exercise helps rule out differential asset returns as a confounding factor and strengthens the interpretation that the observed reallocation toward stocks is a behavioral response to retirement-induced changes in income risk. As a further check, in Appendix A, we perform the main analysis dropping households with negative net wealth, people with financial liabilities, and people younger than 55 years old. Results are practically unchanged in their economic and statistical significance.

Regression Discontinuity Design. In Appendix C, we show the results obtained using different identification strategies. In particular, we estimate, via the Regression Discontinuity Design (RDD) approach, an equation in which we interact the retirement dummy with years distant to eligibility. We allow for both a linear and a quadratic function of the distance to eligibility. Results in Table C1 and Table C3 display the results for the intensive margin using a linear and a quadratic function the distance to eligibility respectively. The estimated coefficients are close to the baseline estimates. Results concerning the extensive margin (Table C2 and Table C4 with linear and quadratic polynomials, respectively) are not statistically different from 0. Then, Figure C1 performs a McCrary test (McCrary 2008) of the distribution of the years of contribution around 38 (the threshold for *early*) and 42 (the threshold for *seniority*). Both tests cannot reject the null that there is no discrete jump in the density around the cutoffs, therefore suggesting that there is no manipulation of the eligibility criteria on the side of the years of contribution. Moreover, Figure C2, shows the estimated coefficients of the TWFE 2SLS, including observations within close retirement eligibility bandwidths: between -4 and 4 years, -6 and 6 years, -8 and 8 years. Results preserve both economic and statistical significance, suggesting that they are not influenced by the behavior of people far away from retirement eligibility.

4 Driving Mechanism and Heterogeneity

Reduced-Form. In this section, we dig deeper into the baseline result and investigate which eligibility category is driving it. To this end, we perform a reduced-form analysis, in which we regress the outcome variable against the three eligibility dummies defined in Section 2. In particular, we estimate by OLS the following equation and report the estimated coefficients in Table 7.

$$y_{it} = \alpha_i + \lambda_t + \theta early_{it} + \delta seniority_{it} + \omega old\,age_{it} + \kappa \mathbf{X}_{it} + v_{it} \tag{6}$$

The three eligibility dummies are mutually exclusive. If an individual qualifies for more than one option in a given year, we assign her to the highest-ranking scheme according to the preference order defined in Section 2, namely seniority, early retirement, and old-age. This ensures that each person-year observation is classified under one, and only one, eligibility rule.

Looking at the intensive margin (Panel A) of Table 7, only the coefficient attached to $seniority_{it}$ is positive and statistically different from zero. In particular, being eligible for seniority retirement is associated with a share of stocks (listed and unlisted) over financial wealth, higher by around 10 percentage points. On the other hand, the coefficient attached to *early*, even though sometimes close to the one of *seniority*, is seldom statistically different from zero. To conclude, the coefficient attached to *old age* is never statistically and economically different from zero.

We interpret this result as follows. Seniority-eligible retirees and, in part, early-eligible retirees have had, on average, a more stable career path. A more stable career path thus translates into a lower realized earning volatility over the life cycle, a higher level of cash-on-hand upon retirement, and then a weaker precautionary saving motive. For this reason, when they retire, they are more willing to invest in stocks to earn higher returns. Additionally, their financial situation upon retirement is more predictable, allowing them to treat retirement as a planned, rather than reactive, transition. This forward-looking behavior likely reinforces their willingness to re-optimize their portfolio allocation, taking advantage of their improved ability to bear financial risk.

On the other hand, old age-eligible individuals have had, on average, a highly unstable career path, perhaps with irregular contracts and/or long unemployment spells. Therefore, upon retirement, they have much lower cash-on-hand levels and still have a strong precautionary motive for saving. As a result, these individuals tend to maintain a more conservative asset allocation, prioritizing liquidity and capital preservation over risky investments.

Table 8 shows the correlation between eligibility for old-age retirement and wealth, conditioning on eligibility for at least one retirement option. The first column shows that being eligible for old-age retirement increases the probability of having experienced long-term unemployment spells (more than 12 months) by 13 percentage points. Moreover, old-age-eligible individuals hold less total wealth, less real estate wealth, fewer financial assets, and hold less money in their bank accounts. These correlations suggest that individuals eligible for old age retirement have a lower level of cash on hand and, therefore, are more sensitive to income fluctuations.

In Appendix C we show that consumption drops, upon retirement, only for old-age retirees. This result is driven by the same mechanism proposed for stock holdings, but in reverse. Old age retirees are, on average, on lower levels of cash on hand and more likely to be liquidity constrained, and thus sensitive to predicted income variations.

Heterogeneity. The baseline results mask noticeable heterogeneity along different dimensions, as shown by Figure A1 to Figure A2. The first of them we look at is wealth. We split the sample into two, according to whether wealth is above or below the median. The effect is statistically significant only for households above the median. This is true both for the intensive and the extensive margin. This result is in line with Fagereng et al. (2018), who show that wealthy people do not reduce their investment in risky assets in response to a higher exposure to uninsured wage risk.

The second dimension we look at is geographical location: North (the richest and most developed Region of Italy) versus Centre-South (relatively underdeveloped). The effect is statistically different from 0 only in Northern Italy. This happens because retirees in the North are, on average, richer and have experienced smoother career paths. Therefore, as the intuition outlined above commands, they should increase their investments in stocks.

In addition, we look at the differential effect of whether the individual is married or not. The rationale for this heterogeneity test is that married couples provide additional insurance against income fluctuations and therefore weaken the precautionary saving motive. In line with this conjecture, we find that the effect is only significant for married couples, while it's insignificant for singles. Finally, we look at how the estimated effects differ between males and females. We find that the effect is stronger for women than for men.

5 Conclusion

In this paper, we analyze how households' portfolios change upon retirement. We address the endogeneity of retirement by instrumenting it with eligibility to three retirement options available in Italy between 2012 and 2022: seniority, early, and old age retirement. We find that the share of stocks over financial assets (i.e., the intensive margin of stock holdings) increases by 8.4 percentage points after retirement, and that the probability of participating in the stock market (i.e., the extensive margin) increases by 23 percentage points. We interpret this result as follows: when people retire, they cease to be exposed to income risk, since their pension is known with certainty and is insured from macroeconomic fluctuations. Moreover, they receive from their employer the severance payment, increasing their liquidity and increasing their ability to smooth consumption in the occurrence of shocks. Therefore, their need for precautionary savings decreases, increasing their financial risk-bearing capacity.

To informally argue on the goodness of exclusion restriction, we show that stock market participation exhibits no pre-trends before retirement. We then control for financial returns, as well as for real estate income. Results are essentially unchanged.

To gauge insights on the driving mechanism and understand who drives the main results, we perform a reduced-form analysis in which we regress outcomes against the single retirement eligibility options. We find that the effect is mostly driven by seniority and early retirees who have had a more stable career path, are on higher levels of cash on hand, and are therefore better-positioned to absorb financial shocks. On the other hand, old-age retirees are more likely to have experienced long unemployment spells, hold less cash and financial assets. For this reason, they still need to self-insure against the borrowing constraints.

This paper offers an important policy message for a country like Italy, where the population of retirees relative to the working population is expected to rise in the forthcoming decades. A more active stock market participation by the public, driven by retirees, will probably mean a more efficient and more dynamic financial market. Our findings highlight the role of retirement design in influencing household financial behavior. As public pension systems evolve, understanding how retirement affects asset allocation is crucial for enhancing individual financial resilience and market stability.

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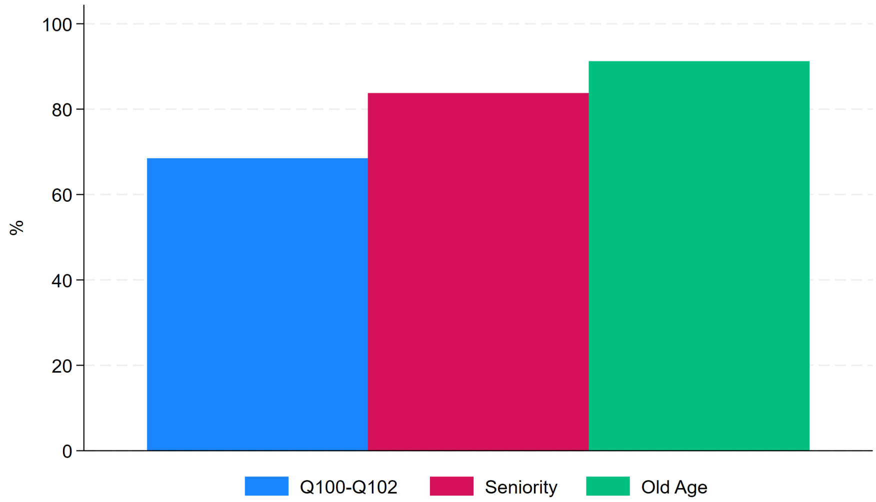
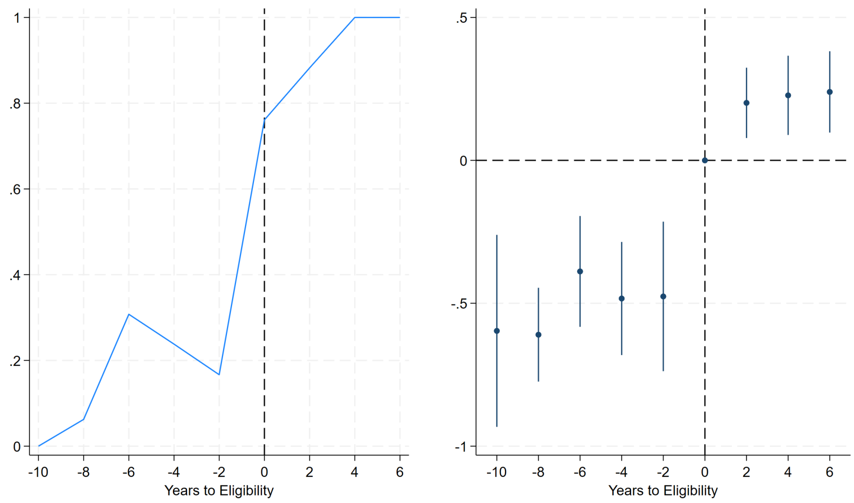
Figures

Figure 1: Retirement Options Take Up



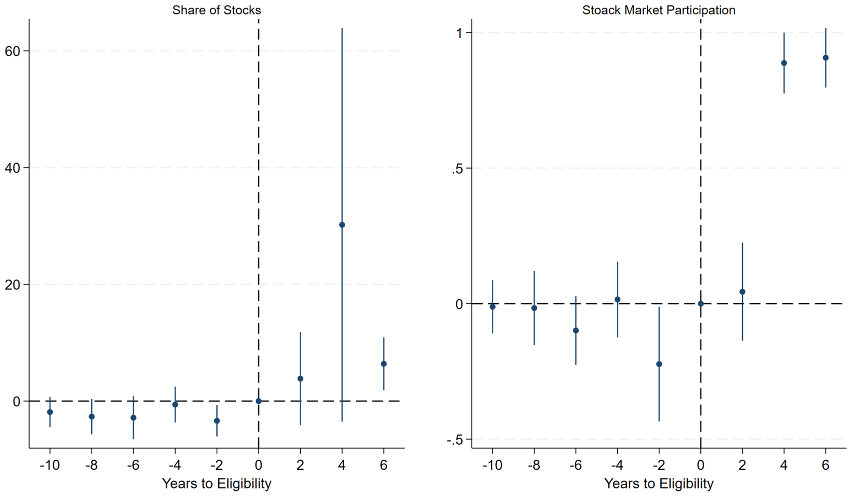
Notes. This figure displays the take-up rates for the three retirement pathways: early retirement (blue bars), seniority-based retirement (red bars), and old-age retirement (green bars). Note that early retirement was available only between 2019 and 2022, corresponding to the Quota 100 and Quota 102 schemes (Q100-Q102).

Figure 2: Actual Retirement vs Eligibility



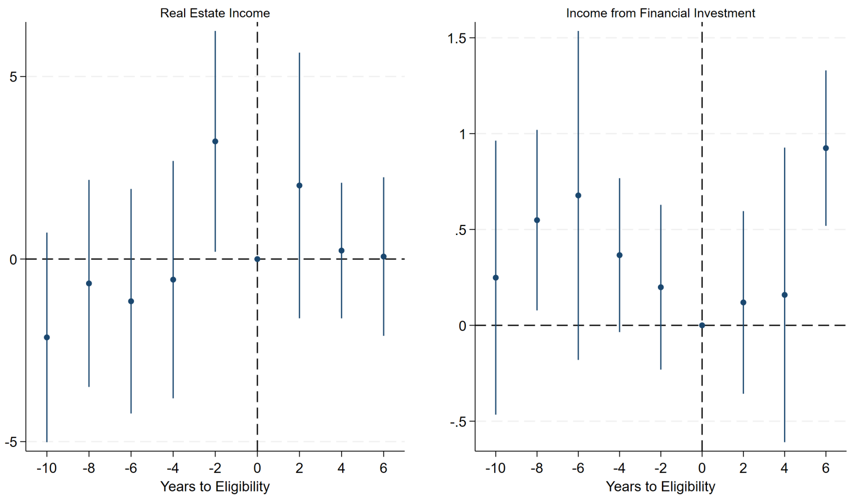
Notes. This left panel of this Figure plots the relationship between actual retirement and the distance to eligibility. The vertical dashed line indicates the retirement threshold (distance = 0). The sample includes individuals within a window of ±10 years around eligibility. The right panel shows the event study version of the left panel.

Figure 3: Pre-Trends in Stock Market Outcomes



Notes. This figure shows the OLS estimated coefficients of equation (4). The left panel plots the evolution of the share of financial wealth held in stocks, while the right panel shows the probability of participating in the stock market. Each point represents the average difference relative to the year of eligibility (year 0), controlling for individual and time fixed effects. The vertical lines represent 95% confidence intervals.

Figure 4: Pre-trends in Real Estate and Financial Income



Notes. This figure shows the OLS estimated coefficients of equation (4). The left panel plots the evolution of the real estate income, while the right panel shows the income from financial investment. Each point represents the average difference relative to the year of eligibility (year 0), controlling for individual and time fixed effects. The vertical lines represent 95% confidence intervals.

Tables

Table 1: Summary Statistics from SHIW data by Eligibility Group

	Not Eligible		Early		Seniority		Old Age	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age	50.52	8.51	64.27	1.36	64.67	3.48	68.62	2.90
Married	0.72	0.45	0.83	0.38	0.62	0.49	0.73	0.45
Family Size	2.95	1.30	2.13	0.73	1.98	0.87	2.10	0.82
Centre	0.21	0.41	0.20	0.41	0.26	0.44	0.27	0.45
North	0.49	0.50	0.53	0.51	0.66	0.48	0.27	0.45
Medium Education	0.77	0.42	0.83	0.38	0.82	0.39	0.63	0.48
High Education	0.20	0.40	0.17	0.38	0.15	0.36	0.25	0.43
Years of Contribution	25.42	10.18	40.10	1.45	42.98	1.15	36.21	5.95
Retired	0.04	0.20	0.73	0.45	0.79	0.41	0.89	0.32
Nondurable Consumption	28.26	13.79	23.64	10.44	28.57	13.30	24.75	12.41
Cash on Hand (€1000)	81.57	149.60	103.05	104.23	109.79	85.88	76.26	80.68
Experienced long unemployment	0.21	0.41	0.03	0.18	0.03	0.18	0.15	0.36
Net Wealth (€1000)	274.68	313.97	315.77	266.32	405.81	375.39	261.17	264.05
Financial Assets (€1000)	39.72	138.13	59.79	89.39	68.79	77.47	40.71	69.00
Share of Stocks (x 100)	1.69	7.96	2.71	10.37	4.70	11.84	0.92	5.55
Participate in the Stock Market	0.08	0.28	0.10	0.31	0.21	0.41	0.04	0.18

Notes. This table reports descriptive statistics for individuals classified by their eligibility for different retirement schemes: not eligible, early retirement, seniority, and old age. Variables include different socio-economic and demographic characteristics, labor market experience, and financial indicators.

Table 2: The Effect of Retirement on Stock Holdings - All stocks

	Intensive Margin			Extensive Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
Retired	5.17***	8.04***	8.04***	0.15*	0.23**	0.23**
	(1.90)	(2.65)	(2.65)	(0.08)	(0.11)	(0.11)
Age 30-39		0.66	0.65		0.00	0.01
		(1.04)	(1.05)		(0.03)	(0.03)
Age 40-49		0.86	0.86		0.06	0.06
		(1.78)	(1.78)		(0.06)	(0.06)
Age 50-60		0.51	0.51		0.06	0.06
		(2.60)	(2.60)		(0.09)	(0.09)
Over 60		-2.61	-2.61		-0.04	-0.04
		(2.89)	(2.89)		(0.10)	(0.10)
Family Size		1.78**	1.78**		0.02	0.02
		(0.84)	(0.84)		(0.02)	(0.02)
Married		-1.81*	-1.80*		-0.03	-0.03
		(1.04)	(1.05)		(0.06)	(0.06)
Medium Education		0.88	0.89		-0.02	-0.03
		(1.24)	(1.26)		(0.05)	(0.05)
High Education		2.64	2.64		0.06	0.06
		(1.98)	(1.99)		(0.09)	(0.09)
Net Wealth (€1000)			-0.00			0.00*
			(0.00)			(0.00)
Observations	1086	1086	1086	1214	1214	1214
F-stat 1st stage	74.54	36.71	36.69	79.88	40.92	40.88

Notes: This Table shows the 2SLS estimates of equation (3). From columns 1 to 3, the dependent variable is the ratio between all the stocks held by household i at time t over financial assets (intensive margin). From columns 4 to 6, the dependent variable is a dummy for stock market participation (extensive margin). *Retired* equals 1 if i is retired 0 otherwise, and is instrumented by *Eligible*, defined as in equation (2). Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 3: The Effect of Retirement on Stock Holdings - Public stocks

	Intensive Margin			Extensive Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
Retired	3.95**	6.66***	6.67***	0.13*	0.22**	0.22**
	(1.89)	(2.55)	(2.54)	(0.08)	(0.10)	(0.10)
Age 30-39		0.95	0.77		0.00	0.00
		(1.12)	(1.08)		(0.03)	(0.03)
Age 40-49		2.45	2.45		0.06	0.06
		(1.93)	(2.12)		(0.06)	(0.06)
Age 50-60		3.29	3.27		0.06	0.06
		(2.83)	(2.98)		(0.08)	(0.08)
Over 60		1.78	1.79		-0.03	-0.03
		(3.15)	(3.29)		(0.09)	(0.09)
Family Size		1.23*	1.24*		0.02	0.02
		(0.73)	(0.72)		(0.02)	(0.02)
Married		2.45	2.73		0.00	-0.00
		(2.65)	(2.93)		(0.06)	(0.06)
Medium Education		0.59	0.77		-0.02	-0.02
		(1.66)	(1.79)		(0.05)	(0.05)
High Education		1.96	2.10		0.06	0.06
		(2.39)	(2.48)		(0.09)	(0.09)
Net Wealth (€1000)			-0.00			0.00
			(0.00)			(0.00)
F-stat 1st stage	74.54	36.71	36.69	79.88	40.92	40.88
Observations	1086	1086	1086	1214	1214	1214

Notes: This Table shows the 2SLS estimates of equation (3). From columns 1 to 3, the dependent variable is the ratio between publicly traded stocks held by household i at time t over financial assets (intensive margin). From columns 4 to 6, the dependent variable is a dummy for stock market participation (extensive margin). *Retired* equals 1 if i is retired 0 otherwise, and is instrumented by *Eligible*, defined as in (2). Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 4: The Effect of Retirement on Stock Holdings - Private stocks

	Intensive Margin			Extensive Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
Retired	1.21	1.39	1.38	0.02	0.01	0.02
	(0.97)	(1.60)	(1.60)	(0.03)	(0.04)	(0.04)
Age 30-39		-0.29	-0.12		0.00	0.01
		(0.78)	(0.72)		(0.01)	(0.01)
Age 40-49		-1.59	-1.59		0.00	0.00
		(1.48)	(1.72)		(0.02)	(0.02)
Age 50-60		-2.78	-2.77		-0.01	-0.00
		(1.90)	(2.13)		(0.02)	(0.02)
Over 60		-4.39**	-4.40*		-0.02	-0.01
		(2.04)	(2.30)		(0.03)	(0.03)
Family Size		0.55	0.54		-0.00	-0.00
		(1.04)	(1.05)		(0.01)	(0.01)
Married		-4.26	-4.54		-0.03	-0.03
		(3.11)	(3.42)		(0.03)	(0.03)
Medium Education		0.29	0.12		-0.00	-0.00
		(0.71)	(0.83)		(0.01)	(0.01)
High Education		0.68	0.54		0.00	0.00
		(0.91)	(1.04)		(0.01)	(0.01)
Net Wealth (€1000)			0.00			0.00
			(0.00)			(0.00)
Observations	1086	1086	1086	1214	1214	1214

Notes: This Table shows the 2SLS estimates of equation (3). From columns 1 to 3, the dependent variable is the ratio between private stocks held by household i at time t over financial assets (intensive margin). From columns 4 to 6, the dependent variable is a dummy for stock market participation (extensive margin). *Retired* equals 1 if i is retired 0 otherwise, and is instrumented by *Eligible*, defined as in (2). Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: Stocks + Managed Savings

	Intensive Margin			Extensive Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
Retired	7.24***	10.70***	10.70***	0.17*	0.25**	0.25**
	(2.60)	(3.70)	(3.70)	(0.10)	(0.12)	(0.12)
Age 30-39		1.06	0.95		0.01	0.01
		(1.33)	(1.37)		(0.04)	(0.04)
Age 40-49		1.60	1.60		0.11	0.11
		(2.25)	(2.28)		(0.08)	(0.08)
Age 50-60		1.65	1.64		0.11	0.11
		(3.25)	(3.26)		(0.10)	(0.10)
Over 60		-2.02	-2.01		0.02	0.02
		(4.01)	(4.02)		(0.11)	(0.11)
Family Size		2.52***	2.52***		0.05**	0.05**
		(0.93)	(0.93)		(0.02)	(0.02)
Married		-4.01**	-3.85**		-0.12	-0.12
		(1.64)	(1.66)		(0.09)	(0.09)
Medium Education		0.81	0.91		-0.02	-0.02
		(1.95)	(2.02)		(0.06)	(0.06)
High Education		-3.10	-3.01		-0.01	-0.02
		(4.43)	(4.48)		(0.06)	(0.06)
Net Wealth (€1000)			-0.00			0.00
			(0.00)			(0.00)
Observations	1086	1086	1086	1214	1214	1214

Notes: This Table shows the 2SLS estimates of equation (2). From columns 1 to 3, the dependent variable is the ratio between the sum of stocks and managed savings held by household i at time t over financial assets (intensive margin). From columns 4 to 6, the dependent variable is a dummy equal to 1 if i owns either stocks or shares of various forms of managed savings (extensive margin). *Retired* is a dummy equal to 1 if i is retired 0 otherwise, and is instrumented by *Eligible*, that is a dummy defined as in (1). Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: First Stage Estimation

	(1)	(2)	(3)
Eligible for Retirement	0.54***	0.42***	0.42***
	(0.06)	(0.07)	(0.07)
Family Size		-0.05***	-0.05***
		(0.02)	(0.02)
Married		0.00	0.00
		(0.04)	(0.04)
Medium Education		0.13	0.13
		(0.14)	(0.14)
High Education		0.11	0.11
		(0.14)	(0.14)
Age 30-39		-0.11***	-0.11***
		(0.03)	(0.03)
Age 40-49		-0.18***	-0.18***
		(0.05)	(0.05)
Age 50-60		-0.27***	-0.27***
		(0.07)	(0.07)
Over 60		-0.07	-0.07
		(0.09)	(0.09)
Net Wealth (€1000)			-0.00
			(0.00)
Observations	1214	1214	1214

Notes. This table reports the first-stage estimates from equation (4), where actual retirement status is regressed on retirement eligibility. Column (1) includes only individual and time fixed effects. Column (2) adds demographic controls. Column (3) further includes net wealth. Standard errors are clustered at the individual level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: Reduced-Form Analysis

	Stocks - Total	Stocks - Listed	Stocks + Managed
Panel A: Intensive Margin			
Seniority Eligible	6.46***	6.21***	7.82***
	(1.86)	(1.94)	(2.48)
Q100 Eligible	4.53	3.54	8.25**
	(3.01)	(2.87)	(3.30)
Old Age Eligible	1.03	0.59	2.11
	(1.00)	(1.00)	(2.04)
Observations	1086	1086	1086
Panel B: Extensive Margin			
Seniority Eligible	0.24***	0.24***	0.22**
	(0.08)	(0.08)	(0.09)
Q100 Eligible	0.09	0.09	0.20**
	(0.10)	(0.10)	(0.10)
Old Age Eligible	0.01	0.00	0.02
	(0.05)	(0.05)	(0.07)
Observations	1214	1214	1214

Notes: This Table shows OLS estimates of equation (6). In Panel A, the dependent variable is the share of stocks over financial assets. In Panel B, the dependent variable is a dummy equal to 1 if i holds stocks at time t. $Senioriy_{it}$, $Early_{it}$, $Old\ Age_{it}$ are dummies defined as in (1). Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Old Age Eligibility and Wealth

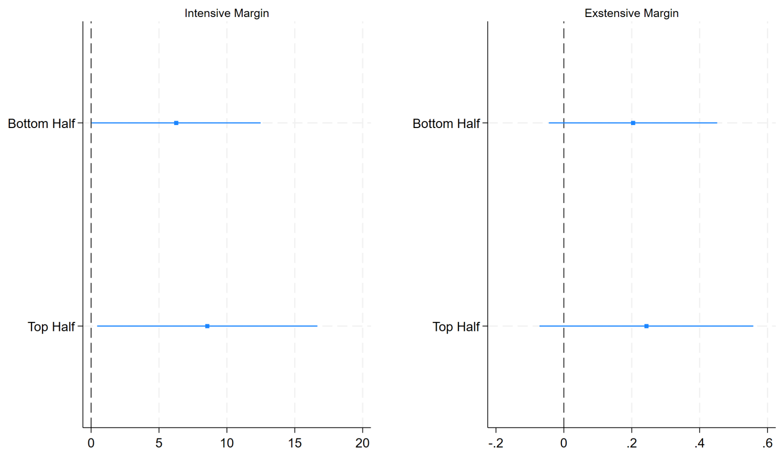
	Long Term Unemployment	Total Wealth	Real Estate	Financial Wealth	Bank Account
Old Age Eligible	0.12***	-114.95***	-93.43**	-25.12**	-8.83**
	(0.04)	(42.50)	(36.93)	(10.49)	(4.43)
Observations	205	205	205	205	205

Notes: This Table shows the correlation, among those who are eligible for retirement, between old age eligibility and, the probability of being in unemployment for more than 12 months (first column), total wealth (second column), real estate wealth (third column), financial wealth and bank account (columns 4 and 5 respectively). Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix A: Additional Figures and Tables

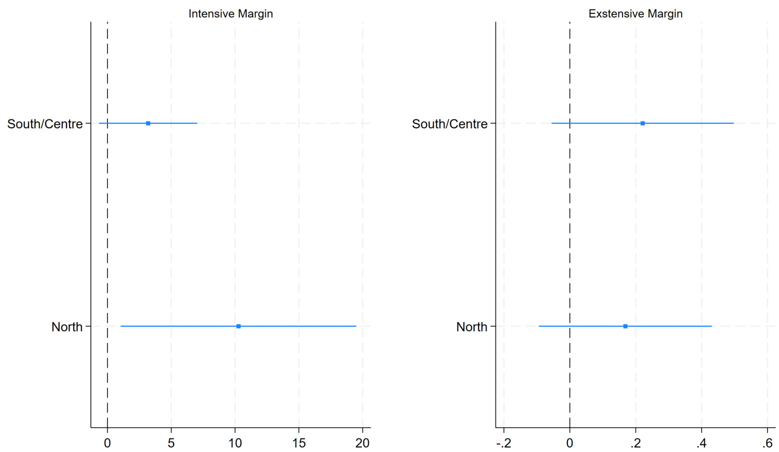
A.1 Heterogeneity Analysis

Figure A1: Heterogeneity by Wealth Halves



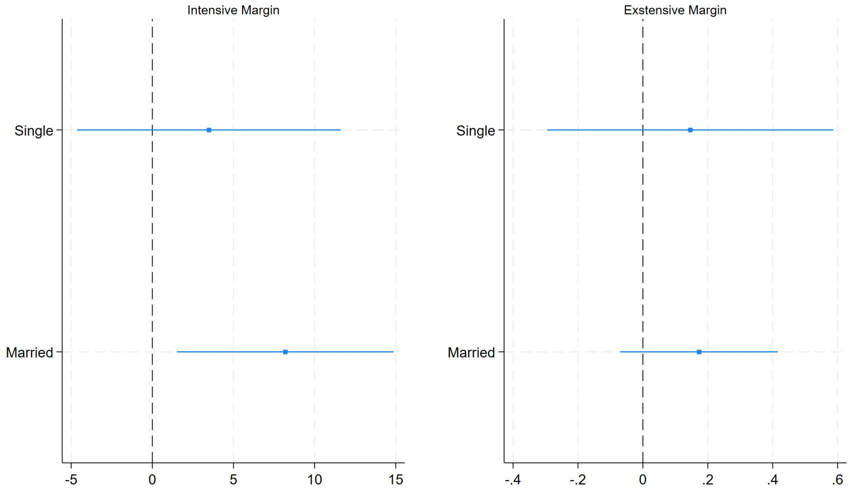
Notes. This figure shows the estimated effect of retirement on stock holdings separately for individuals in the bottom and top halves of the net wealth distribution. The left panel refers to the intensive margin (share of wealth invested in stocks), while the right panel refers to the extensive margin (stock market participation). Each point represents the 2SLS estimate of the retirement effect, with horizontal lines indicating 95% confidence intervals.

Figure A2: Heterogeneity by Geographical Area



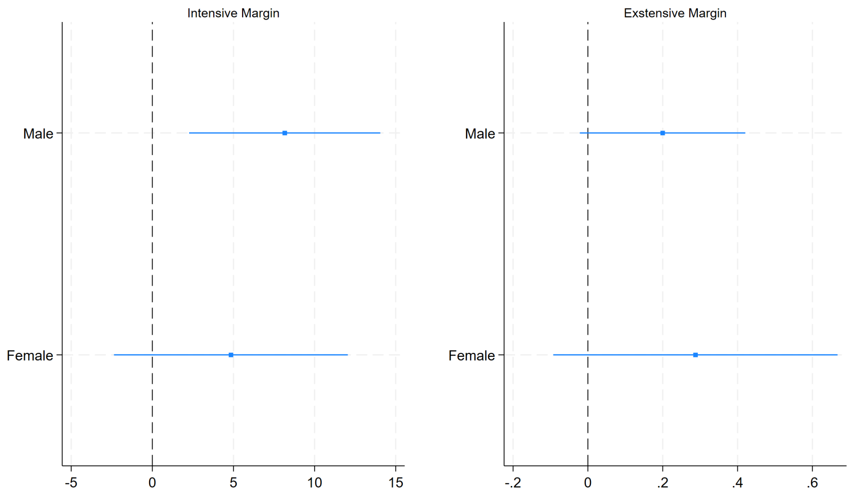
Notes. This figure shows the estimated effect of retirement on stock holdings separately for individuals in the North and South of Italy. The left panel refers to the intensive margin (share of wealth invested in stocks), while the right panel refers to the extensive margin (stock market participation). Each point represents the 2SLS estimate of the retirement effect, with horizontal lines indicating 95% confidence intervals.

Figure A3: Heterogeneity by Marital Status



Notes. This figure shows the estimated effect of retirement on stock holdings separately for singles and married people. The left panel refers to the intensive margin (share of wealth invested in stocks), while the right panel refers to the extensive margin (stock market participation). Each point represents the 2SLS estimate of the retirement effect, with horizontal lines indicating 95% confidence intervals.

Figure A4: Heterogeneity by Gender



Notes. This figure shows the estimated effect of retirement on stock holdings separately for both males and females. The left panel refers to the intensive margin (share of wealth invested in stocks), while the right panel refers to the extensive margin (stock market participation). Each point represents the 2SLS estimate of the retirement effect, with horizontal lines indicating 95% confidence intervals.

A.2 Additional Controls

Table A1: Controlling for Unemployment Spells and other Incomes - Intensive margin

	Stocks-All	Stocks-Listed	Stocks + Managed
Retired	7.81***	7.26***	10.52***
	(2.59)	(2.65)	(3.62)
Years of Unemployment	0.06	-0.04	-0.20
	(0.26)	(0.20)	(0.41)
Return from Financial Investments (€1000)	-0.15	0.74	-0.26
	(0.30)	(0.72)	(0.35)
Real Estate Income (€1000)	0.04	0.02	0.03
	(0.05)	(0.05)	(0.10)
Other Controls	✓	✓	✓
F-stat 1st stage	36.94	36.94	36.94
Observations	1086	1086	1086

Notes. This table reports the 2SLS estimates of the effect of retirement on the share of financial wealth invested in stocks, also controlling for the number of years spent in unemployment, income from financial investments, and real estate assets. Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A2: Controlling for Unemployment Spells and other Incomes - Extensive margin

	Stocks-All	Stocks-Listed	Stocks + Managed
Retired	0.23**	0.22**	0.25**
	(0.11)	(0.10)	(0.13)
Years of Unemployment	-0.00	-0.00	-0.01
	(0.00)	(0.00)	(0.01)
Return from Financial Investments (€1000)	-0.00	0.01	0.00
	(0.01)	(0.01)	(0.01)
Real Estate Income (€1000)	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
Other Controls	✓	✓	✓
F-stat 1st stage	41.20	41.20	41.19
Observations	1214	1214	1214

Notes. This table reports the 2SLS estimates of the effect of retirement on the share of financial wealth invested in stocks, controlling for the number of years spent in unemployment, income from financial investments, and real estate assets. Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure A5: Financial and Real Estate Incomes Before Retirement Eligibility

Notes. This figure plots the average income levels from different sources, i.e., earnings from work, retirement benefits, income from real estate, and income from financial investments, over the distance to retirement eligibility. The x-axis measures years to eligibility (year 0), while the y-axis shows average income levels.

A.3 Excluding households with debts

Table A3: Excluding people with debt - Intensive Margin

	First Stage	Stocks-All	Stocks-Listed	Stocks + Managed
Retired		8.38***	7.89***	7.96*
		(2.90)	(2.85)	(4.10)
Eligible for Retirement	0.43***			
	(0.09)			
Controls	✓	✓	✓	✓
F-stat 1st stage		23.67	23.67	23.67
Observations	611	611	611	611

Notes: This table presents results excluding people holding positive financial liabilities. The first column reports the first stage of a 2SLS regression where retirement status is instrumented with eligibility for retirement. The remaining columns report the second-stage estimates of the effect of retirement on the share of financial wealth invested in stocks, separately for total stocks, publicly listed stocks, and privately held (unlisted) stocks. Standard errors are clustered at the individual level. Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Excluding people with debt - Extensive Margin

	First Stage	Stocks-All	Stocks-Listed	Stocks + Managed
Retired		0.28**	0.30***	0.19
		(0.12)	(0.12)	(0.14)
Eligible for Retirement	0.42***			
	(0.08)			
Controls	✓	✓	✓	✓
F-stat 1st stage		25.33	25.33	25.33
Observations	670	670	670	670

Notes: This table presents results excluding people holding positive financial liabilities. The first column reports the first stage of a 2SLS regression where retirement status is instrumented with eligibility for retirement. The remaining columns report the second-stage estimates of the effect of retirement on the share of financial wealth invested in stocks, separately for total stocks, publicly listed stocks, and privately held (unlisted) stocks. Standard errors are clustered at the individual level. Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

A.4 Excluding households with negative net wealth

Table A5: Excluding Households with negative net wealth - Intensive Margin

	First Stage	Stocks-All	Stocks-Listed	Stocks + Managed
Retired		7.59***	7.25***	10.22***
		(2.60)	(2.70)	(3.62)
Eligible for Retirement	0.42***			
	(0.07)			
Controls	✓	✓	✓	✓
F-stat 1st stage		36.69	36.69	36.69
Observations	1046	1046	1046	1046

Notes: This table presents results excluding people with negative net wealth. The first column reports the first stage of a 2SLS regression where retirement status is instrumented with eligibility for retirement. The remaining columns report the second-stage estimates of the effect of retirement on the share of financial wealth invested in stocks, separately for total stocks, publicly listed stocks, and privately held (unlisted) stocks. Standard errors are clustered at the individual level. Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Excluding Households with negative net wealth - Extensive Margin

	First Stage	Stocks-All	Stocks-Listed	Stocks + Managed
Retired		0.20*	0.23**	0.22*
		(0.11)	(0.10)	(0.12)
Eligible for Retirement	0.42***			
	(0.07)			
Controls	✓	✓	✓	✓
F-stat 1st stage		40.15	40.15	40.15
Observations	1046	1156	1156	1156

Notes: This table presents results excluding people with negative net wealth. The first column reports the first stage of a 2SLS regression where retirement status is instrumented with eligibility for retirement. The remaining columns report the second-stage estimates of the effect of retirement on the share of financial wealth invested in stocks, separately for total stocks, publicly listed stocks, and privately held (unlisted) stocks. Standard errors are clustered at the individual level. Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

A.5 Excluding household heads younger than 55

Table A7: Excluding household heads younger than 55 - Intensive Margin

	First Stage	Stocks-All	Stocks-Listed	Stocks + Managed
Retired		11.05**	9.50**	13.05**
		(4.91)	(4.67)	(6.46)
Eligible for Retirement	0.30***			
	(0.09)			
Controls	✓	✓	✓	✓
F-stat 1st stage		9.85	9.85	9.85
Observations	448	448	448	448

Notes: This table presents results excluding people younger than 55. The first column reports the first stage of a 2SLS regression where retirement status is instrumented with eligibility for retirement. The remaining columns report the second-stage estimates of the effect of retirement on the share of financial wealth invested in stocks, separately for total stocks, publicly listed stocks, and privately held (unlisted) stocks. Standard errors are clustered at the individual level. Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A8: Excluding household heads younger than 55 - Extensive Margin

	First Stage	Stocks-All	Stocks-Listed	Stocks + Managed
Retired		0.44*	0.41*	0.36
		(0.23)	(0.22)	(0.24)
Eligible for Retirement	0.32***			
	(0.09)			
Controls	✓	✓	✓	✓
F-stat 1st stage		10.68	10.68	10.68
Observations	483	483	483	483

Notes: This table presents results excluding people younger than 55. The first column reports the first stage of a 2SLS regression where retirement status is instrumented with eligibility for retirement. The remaining columns report the second-stage estimates of the effect of retirement on the share of financial wealth invested in stocks, separately for total stocks, publicly listed stocks, and privately held (unlisted) stocks. Standard errors are clustered at the individual level. Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

A.6 Excluding non-eligible retired

Table A9: Excluding People in Retirement but Not Eligible - Intensive Margin

	First Stage	Stocks-All	Stocks-Listed	Stocks + Managed
Retired		5.05***	4.46***	6.94***
		(1.67)	(1.65)	(2.06)
Eligible for Retirement	0.80***			
	(0.06)			
Controls	✓	✓	✓	✓
F-stat 1st stage		207.72	207.72	207.72
Observations	1028	1028	1028	1028

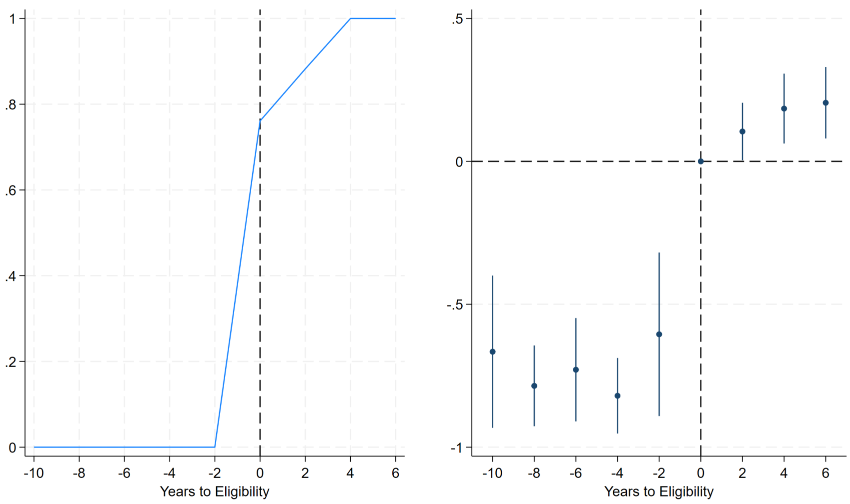
Notes: This table presents results excluding people in retirement but not eligible for any of the considered options. The first column reports the first stage of a 2SLS regression where retirement status is instrumented with eligibility for retirement. The remaining columns report the second-stage estimates of the effect of retirement on the share of financial wealth invested in stocks, separately for total stocks, publicly listed stocks, and privately held (unlisted) stocks. Standard errors are clustered at the individual level. Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A10: Excluding People in Retirement but Not Eligible - Extensive Margin

	First Stage	Stocks-All	Stocks-Listed	Stocks + Managed
Retired		0.14*	0.16**	0.17**
		(0.07)	(0.07)	(0.08)
Eligible for Retirement	0.81***			
	(0.05)			
Controls	✓	✓	✓	✓
F-stat 1st stage		232.34	232.34	232.34
Observations	1152	1152	1152	1152

Notes: This table presents results excluding people in retirement but not eligible for any of the considered options. The first column reports the first stage of a 2SLS regression where retirement status is instrumented with eligibility for retirement. The remaining columns report the second-stage estimates of the effect of retirement on the share of financial wealth invested in stocks, separately for total stocks, publicly listed stocks, and privately held (unlisted) stocks. Standard errors are clustered at the individual level. Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure A6: First Stage Excluding Not Eligible But Retired



Notes: This Figure shows the probability of being retired as a function of distance to eligibility, dropping individuals who are not eligible for any of the schemes but are retired.

Figure A7: Incomes Before Retirement Eligibility Excluding Not Eligible But Retired

A.7 Alternative Eligibility Definition

Table A11: Alternative Specification of the Instrument. Intensive Margin Results

	First Stage	Stocks-All	Stocks-Listed	Stocks + Managed
Retired		7.81***	7.26***	10.52***
		(2.59)	(2.65)	(3.62)
eligible	0.42***			
	(0.07)			
Controls	✓	✓	✓	✓
F-stat 1st stage		36.94	36.94	36.94
Observations	1086	1086	1086	1086

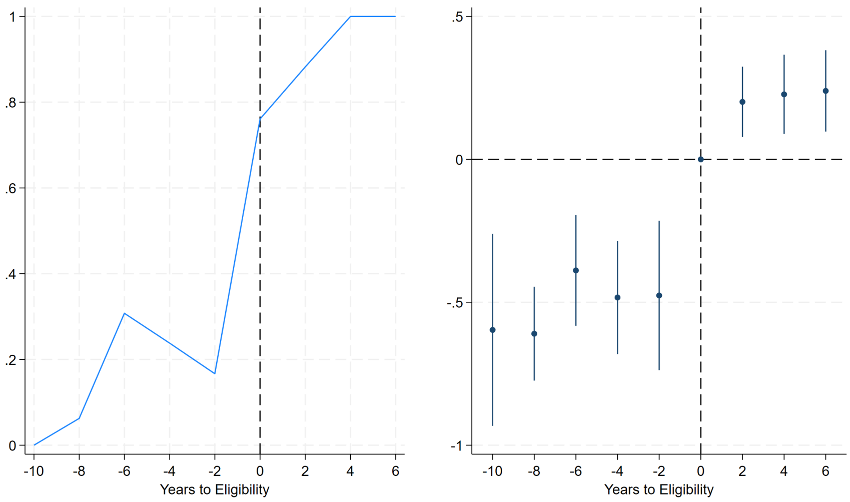
Notes: This table presents results using an alternative specification of the instrumental variable strategy. The first column reports the first stage of a 2SLS regression where retirement status is instrumented with eligibility for retirement. The remaining columns report the second-stage estimates of the effect of retirement on the share of financial wealth invested in stocks, separately for total stocks, publicly listed stocks, and privately held (unlisted) stocks. Standard errors are clustered at the individual level. Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A12: Alternative Specification of the Instrument. Extensive Margin Results

	First Stage	Stocks-All	Stocks-Listed	Stocks + Managed
Retired		0.23**	0.22**	0.25**
		(0.11)	(0.10)	(0.13)
eligible	0.42***			
	(0.07)			
Controls	✓	✓	✓	✓
F-stat 1st stage		41.20	41.20	41.20
Observations	1214	1214	1214	1214

Notes: This table presents results using an alternative specification of the instrumental variable strategy. The two columns report the second-stage estimates of the effect of retirement on the share of financial wealth invested in stocks, separately for total stocks, publicly listed stocks, and privately held (unlisted) stocks. Standard errors are clustered at the individual level. Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

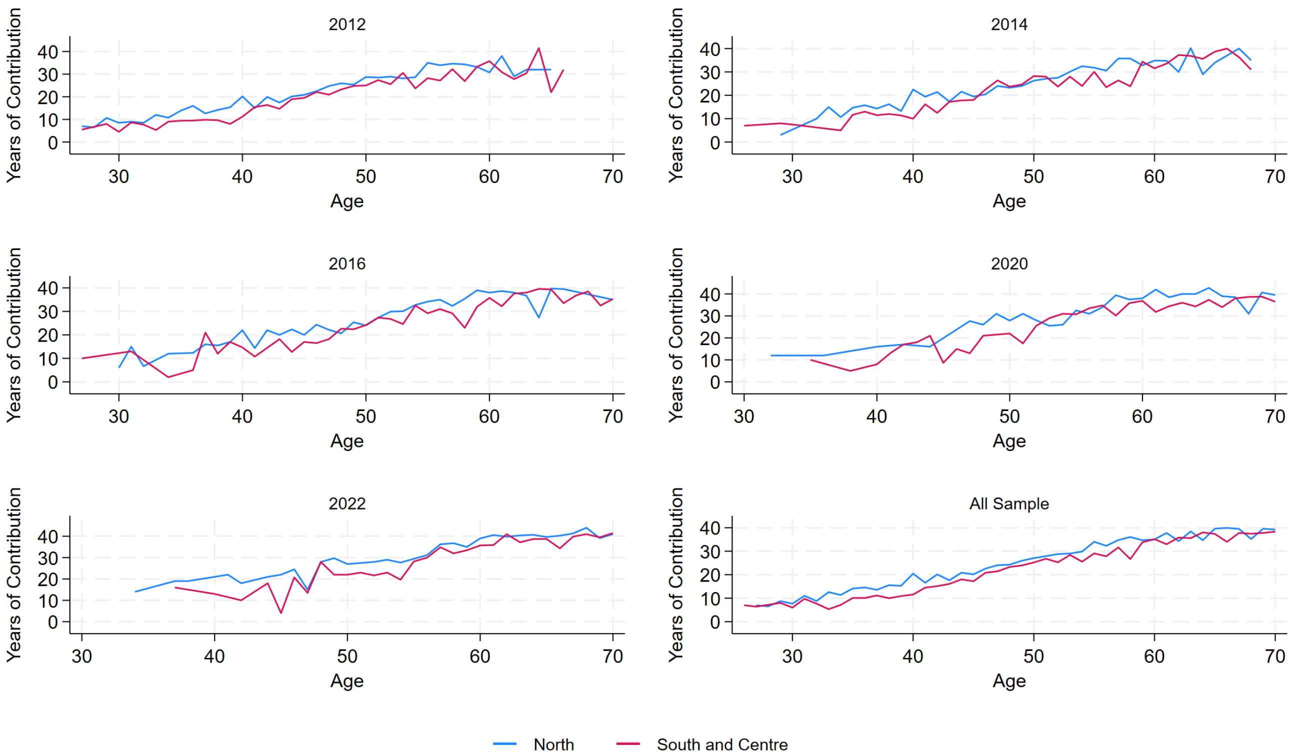
Figure A8: First Stage with Alternative Specification of the Instrument



Notes: This Figure shows the probability of being retired as a function of distance to eligibility, allowing for contemporaneous eligibility.

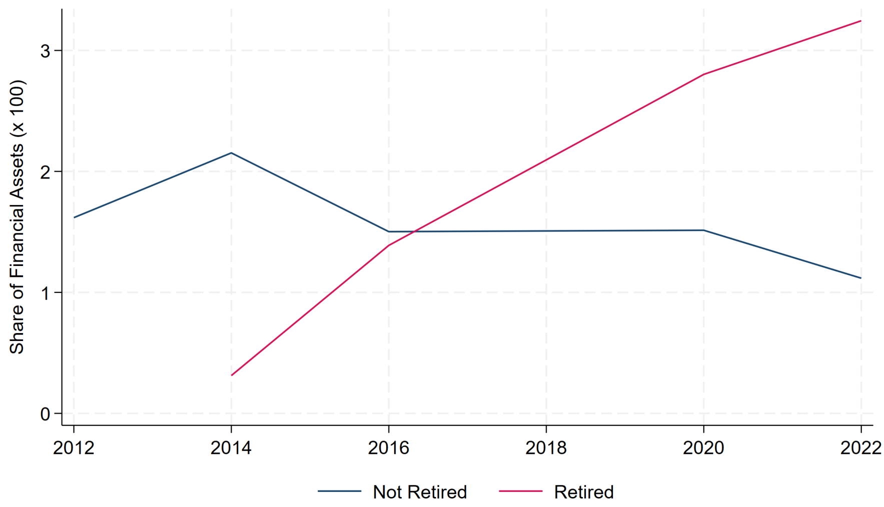
Appendix B: Additional Descriptive Statistics

Figure B1: Years of Contribution in 2020 and 2022 by Region



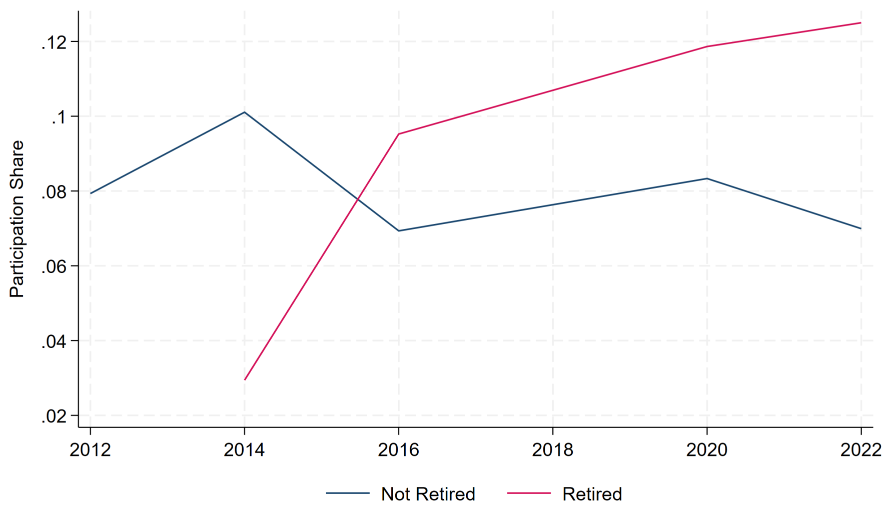
Notes. This figure shows the average years of contribution by age, separately for individuals in the North (blue line) and in the South/Centre (red line) of Italy. The left panel refers to 2020 and the right panel to 2022. The vertical dashed line marks the minimum age requirement for early retirement (62 in 2020, 64 in 2022), while the horizontal dashed line indicates the contribution requirement (38 years).

Figure B2: Mean Stock Holdings as a Share of Financial Assets by Retirement over Time



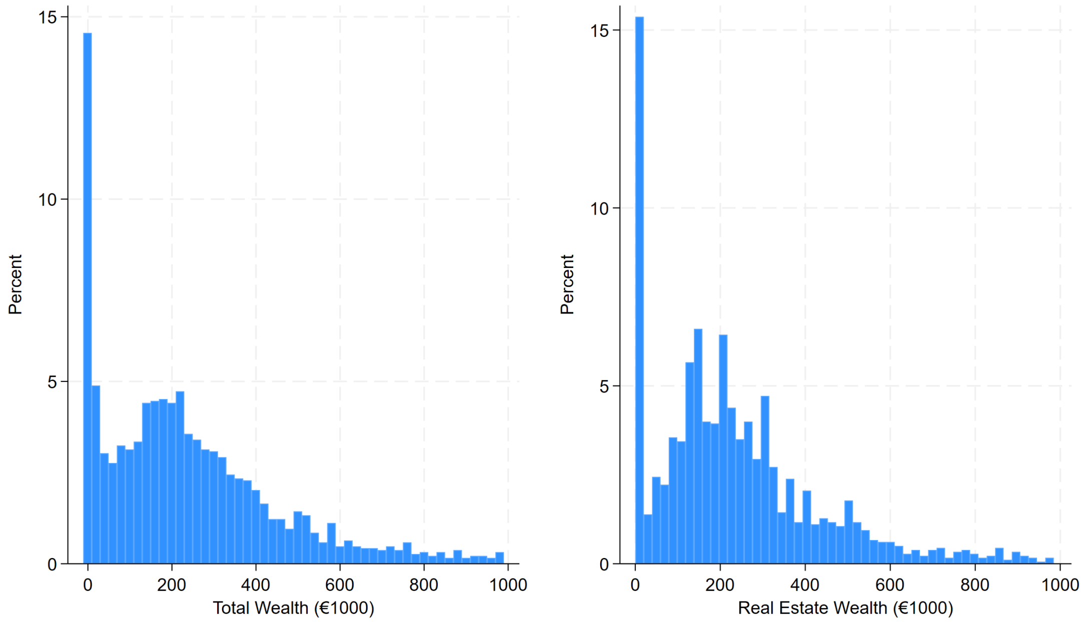
Notes. This figure displays the average share of stock holdings over total financial assets by retirement status between 2012 and 2022. The red line represents retired individuals, while the blue line shows those not yet retired. The year 2018 is missing.

Figure B3: Mean Stock Market Participation by Retirement over Time



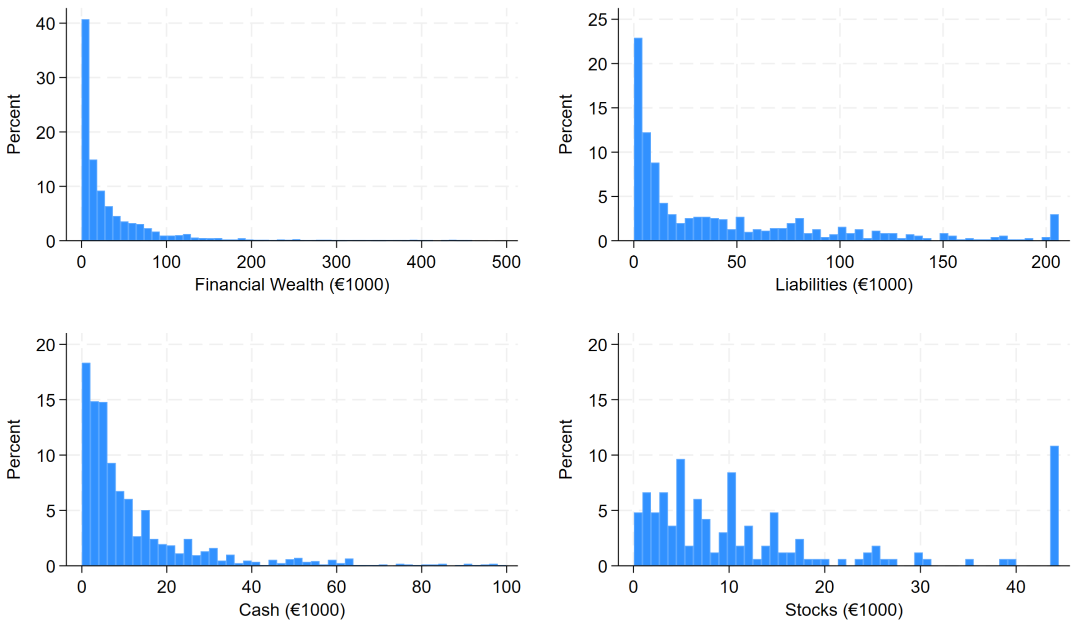
Notes. This figure shows the average stock market participation rate by retirement status between 2012 and 2022. The red line refers to retired individuals, while the blue line represents those not retired. Participation is defined as holding a positive amount of stocks. The year 2018 is missing.

Figure B4: Net Wealth and Real Estate Wealth



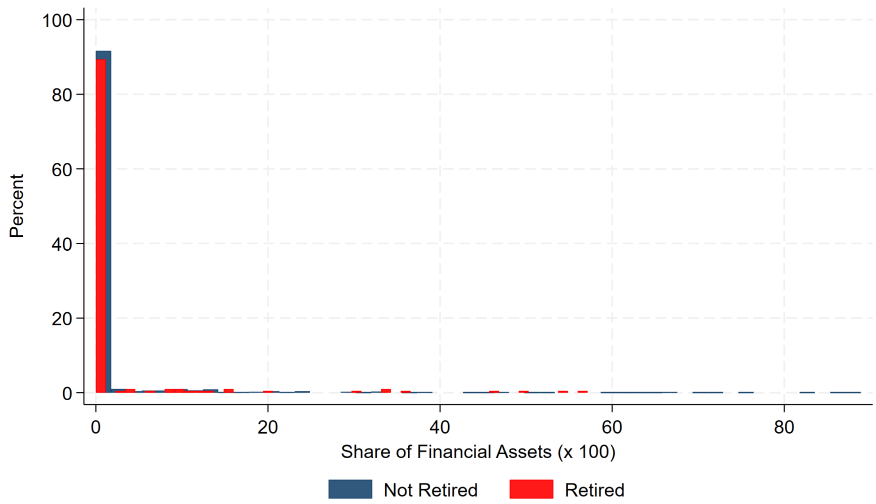
Notes: This Figure shows the pooled distribution of net wealth (left panel) and real estate wealth. Net wealth is the sum of financial wealth, real estate wealth, and financial liabilities.

Figure B5: Financial Wealth



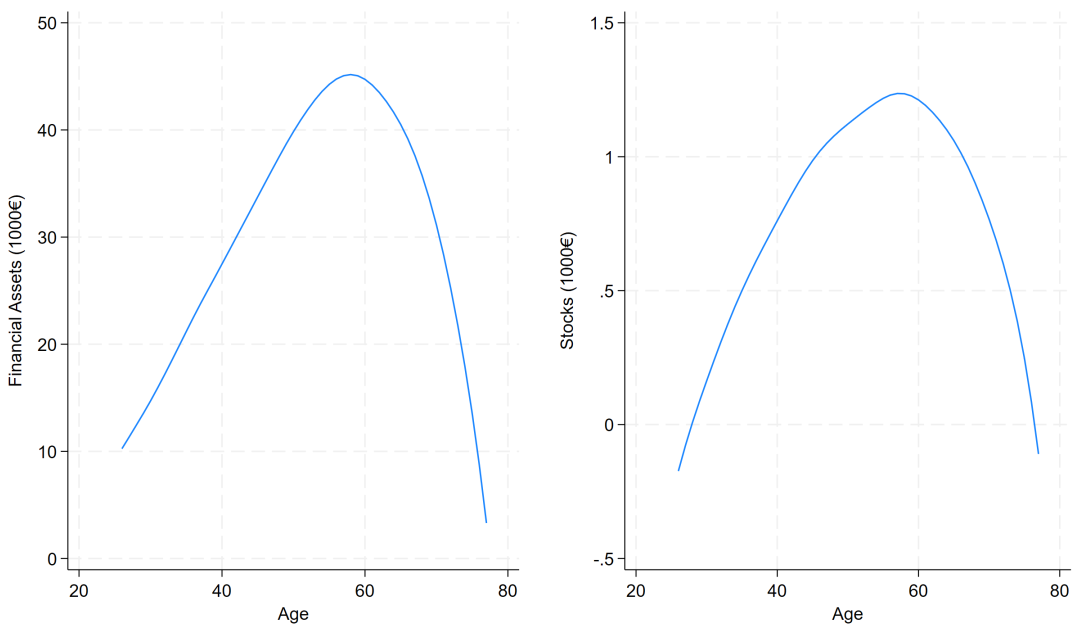
Notes: The upper left panel shows the pooled distribution of financial assets, the upper right panel the distribution of financial liabilities. The bottom left panel shows the distribution of cash, while the bottom right panel shows the distribution of stocks.

Figure B6: Pooled Distribution of Stock Holdings as a Share of Financial Assets by Retirement Status



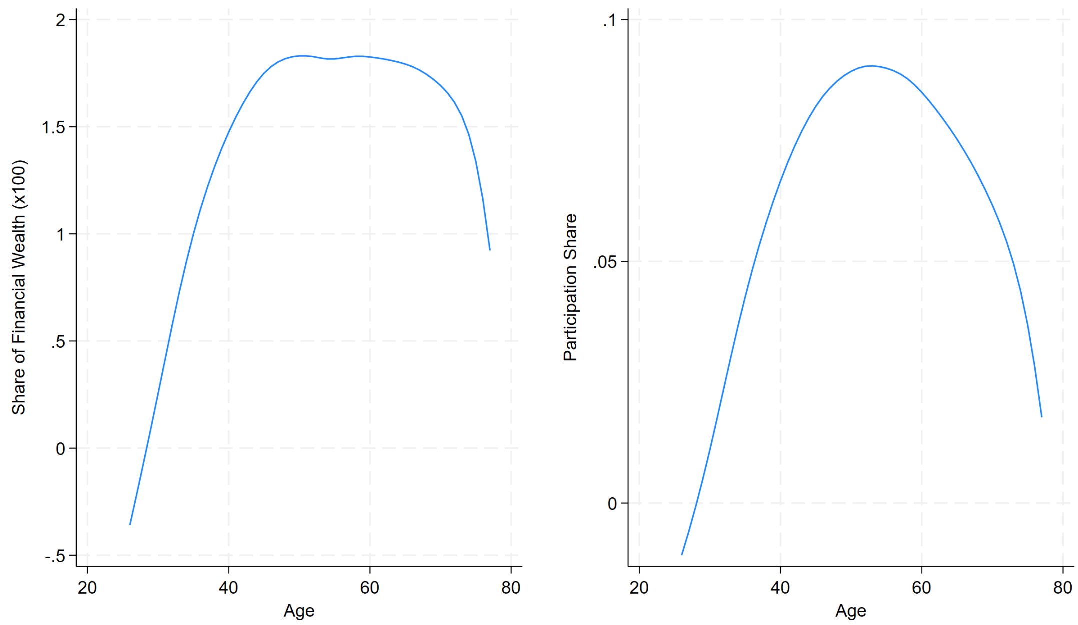
Notes: This figure shows the pooled cross-sectional distribution of stock holdings as a share of total financial assets by retirement status. The red bars represent retired individuals, while the blue bars represent those not retired. The distribution is heavily skewed to the left for both groups, with most individuals holding either no stocks or a very small share of stocks relative to their financial assets.

Figure B7: Life Cycle Profiles of Financial Assets and Stock Holding



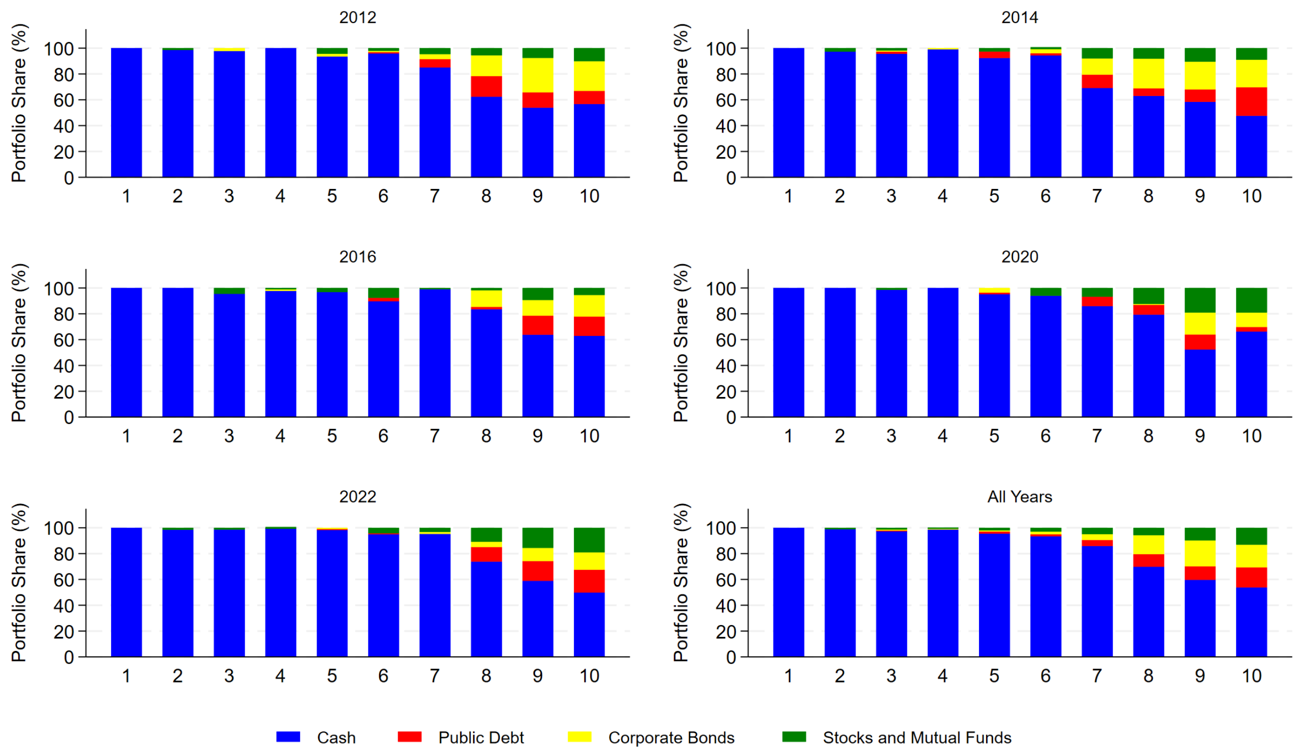
Notes: This Figure shows the life cycle profile of the value of financial assets (left panel) and the value of stocks (right panel)

Figure B8: Life Cycle Profiles of Stock Holding - Shares



Notes: This Figure shows the life cycle profile of the share of stocks over financial assets (left panel) and the stock market participation (right panel)

Figure B9: Composition of the Financial Portfolio



Notes: This Figure shows the average composition of financial wealth in all years, divided by cash (blue), government securities (red), corporate bonds (yellow), and stocks/mutual funds (green)

Appendix C: RDD Results

We estimate the following equations, only considering observation distant -4 and 4 years from retirement eligibility:

$$Y_{it} = \beta retired_{it} + \gamma retired_{it} \times distance_{it} + \theta distance_{it} + \varphi \mathbf{X}_{it} + \epsilon_{it} \tag{C1}$$

$$\begin{aligned} Y_{it} &= \beta retired_{it} + \gamma_1 retired_{it} \times distance_{it} + \theta_1 distance_{it} \\ &+ \gamma_2 retired_{it} \times distance^2_{it} + \theta_2 distance^2_{it} + \varphi \mathbf{X}_{it} + \epsilon_{it} \end{aligned} \tag{C2}$$

Table C1: Linear RDD - Intensive Margin

	Stocks-All		Stocks-Listed		Stocks + Managed	
	(1)	(2)	(3)	(4)	(5)	(6)
Retired	5.04***	4.78***	4.91***	4.69***	5.87**	6.66***
	(1.57)	(1.55)	(1.57)	(1.55)	(2.87)	(2.46)
Years to Eligibility x Retired	1.34***	1.28***	1.33***	1.26***	1.47**	1.06
	(0.45)	(0.44)	(0.45)	(0.45)	(0.57)	(0.83)
Years to Eligibility	-0.18	-0.15	-0.17	-0.14	0.16	0.57
	(0.15)	(0.16)	(0.15)	(0.16)	(0.37)	(0.75)
Controls		✓		✓		✓
Observations	177	177	177	177	177	177

Notes: This Table shows the estimated coefficients of (C1), considering a window of the eligibility between -4 and 4. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C2: RDD Results - Extensive Margin

	Stocks-All		Stocks-Listed		Stocks + Managed	
	(1)	(2)	(3)	(4)	(5)	(6)
Retired	0.13*	0.12*	0.12*	0.12*	0.16**	0.16**
	(0.07)	(0.07)	(0.07)	(0.06)	(0.07)	(0.06)
Years to Eligibility x Retired	0.04**	0.04**	0.04**	0.04*	0.04**	0.04*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Years to Eligibility	-0.00	-0.00	-0.00	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Controls		✓		✓		✓
Observations	182	182	182	182	182	182

Notes: This Table shows the estimated coefficients of (C1), considering a window of the eligibility between -4 and 4. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C3: Quadratic RDD - Intensive Margin

	Stocks-All		Stocks-Listed		Stocks + Managed	
	(1)	(2)	(3)	(4)	(5)	(6)
Retired	4.25***	3.85**	4.09**	3.74**	5.38**	6.58**
	(1.59)	(1.51)	(1.59)	(1.51)	(2.57)	(2.55)
Years to Eligibility x Retired	1.81***	1.71***	1.82***	1.72***	2.43***	2.47***
	(0.56)	(0.60)	(0.56)	(0.60)	(0.51)	(0.71)
Years to Eligibility Squared x Retired	0.14*	0.15*	0.15*	0.15*	0.21***	0.27***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Years to Eligibility	-0.22	-0.12	-0.22	-0.11	-0.30	-0.29
	(0.19)	(0.24)	(0.19)	(0.24)	(0.27)	(0.66)
Years to Eligibility Squared	-0.01	0.00	-0.01	0.00	-0.05	-0.09
	(0.01)	(0.03)	(0.01)	(0.03)	(0.05)	(0.07)
Controls		✓		✓		✓
Observations	177	177	177	177	177	177

Notes: This Table shows the estimated coefficients of (C2), considering a window of the eligibility between -4 and 4. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table C4: Quadratic RDD - Extensive Margin

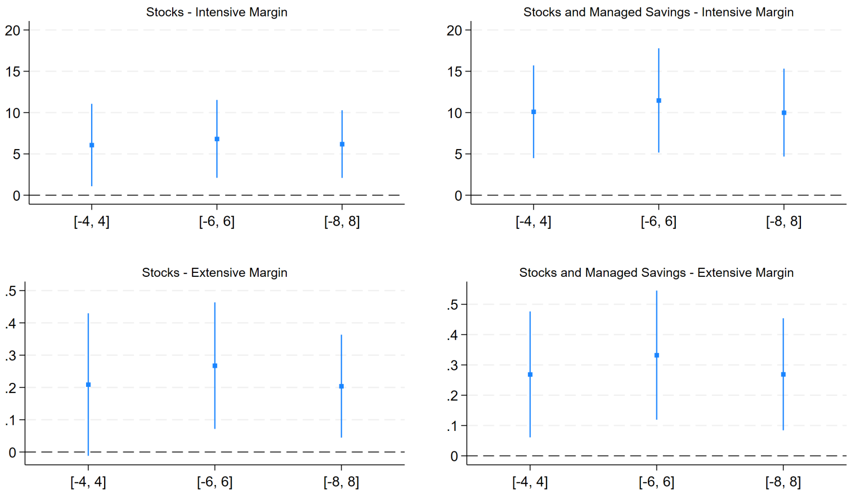
	Stocks-All		Stocks-Listed		Stocks + Managed	
	(1)	(2)	(3)	(4)	(5)	(6)
Retired	0.07	0.06	0.06	0.06	0.10	0.11
	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.07)
Years to Eligibility x Retired	0.08***	0.07***	0.07***	0.07***	0.08***	0.08***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Years to Eligibility Squared x Retired	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Years to Eligibility	-0.00	-0.00	-0.00	0.00	-0.01	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Years to Eligibility Squared	-0.00	0.00	-0.00	0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Controls		✓		✓		✓
Observations	182	182	182	182	182	182

Notes: This Table shows the estimated coefficients of (C2), considering a window of the eligibility between -4 and 4. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure C1: McCary Test around 38 and 42 years of contribution

Notes: This Figure shows the outcome of a McCrary test performed on the distribution of the years of contribution. The left panel shows the test around 42, the threshold for seniority eligibility. The right panel shows the same test for 38, the threshold of Q100.

Figure C2: 2SLS Results using observations in different eligibility bandwidths



Notes: This Figure shows the 2SLS results using only individuals whose distance to retirement eligibility is within the range indicated on the horizontal axis. The first column reports results for the stocks (intensive and extensive margin). The second column reports the results for stocks and managed savings.

Appendix D: (Quasi) Retirement Consumption Puzzle

Battistin et al. (2009), using SHIW data from 1989 to 2004, shows that households reduce consumption when the head retires. A similar pattern was found more recently by Kolsrud et al. (2024) and Olafsson and Pagel (2024) in Sweden and Denmark, respectively. This result is at odds with standard macro theory, since consumers are supposed to smooth consumption and not be affected in their decisions by expected income changes.

In this Appendix, we show two interesting results. First, in line with Battistin et al. (2009), we document a drop in nondurable consumption upon retirement. We perform the same TWFE 2SLS estimation as in the main analysis. However, and this is the second result, this is not properly a *retirement consumption puzzle* because the drop in consumption concerns only the old age eligible, while there is no significant effect for seniority and early eligibility. The mechanism behind this result is analogous to the one proposed in the main analysis on stock holdings: old age retirees are more likely to be liquidity constrained and thus to be sensitive to expected income changes (Jappelli and Pistaferri 2017, Deaton 1991). In other words, seniority retirees and early retirees behave, in this sense, as PIH consumers, who do not change their consumption upon retirement.

Table D1: 2SLS Estimates for Nondurable Consumption

	Nondurable Consumption (€1000)			Log of Consumption (× 100)		
	(1)	(2)	(3)	(4)	(5)	(6)
Retired	-8.38***	-6.58*	-8.38***	-28.89**	-28.89**	-28.67**
	(3.01)	(3.95)	(3.01)	(12.53)	(12.53)	(12.41)
Net Wealth (€1000)						0.04***
						(0.01)
Observations	1214	1214	1214	1214	1214	1214
F-1st Stage	79.88	40.92	79.88	40.92	40.92	40.88
Controls		✓	✓		✓	✓

Notes: This Table shows the 2SLS estimates of equation (3). From columns 1 to 3, the dependent variable is the level of nondurable consumption (in €1000) of household i at time t over financial assets (intensive margin). From columns 4 to 6, the dependent variable is the log multiplied by 100. *Retired* equals 1 if i is retired 0 otherwise, and is instrumented by $Eligible$, defined as in equation (2). Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table D2: Reduced Form for Consumption

	Nondurable Consumption (€1000)			Log of Consumption (× 100)		
	(1)	(2)	(3)	(4)	(5)	(6)
Seniority Eligible	-5.39*	-3.16	-3.79	-17.55**	-10.86	-12.57
	(2.81)	(2.74)	(2.75)	(8.18)	(8.08)	(8.09)
Q100 Eligible	-3.04	-1.14	-1.07	-12.46	-7.25	-7.07
	(2.89)	(3.01)	(2.95)	(10.11)	(10.25)	(10.02)
Old Age Eligible	-4.47**	-3.02	-2.62	-19.40***	-14.37**	-13.27**
	(1.99)	(1.98)	(1.94)	(6.42)	(6.36)	(6.23)
Net Wealth (€1000)			0.01***			0.04***
			(0.00)			(0.01)
Observations	1214	1214	1214	1214	1214	1214
Controls		✓	✓		✓	✓

Notes: This Table shows OLS estimates of equation (6). In Panel A, either the level of nondurable consumption or the log. In Panel B, the dependent variable is a dummy equal to 1 if i holds stocks at time t. $Senioriy_{it}$, $Early_{it}$, $Old\ Age_{it}$ are dummies defined as in (1). Standard errors are clustered at the household level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix E: SHIW Data and Dataset Construction

The Survey of Household Income and Wealth (SHIW) started in the 1960s and collects information on the saving and investment behavior of Italian Households. In recent years, SHIW has asked retirement-specific questions, like the years of contribution, the expected retirement age, and the expected pension benefit, as a share of the last working earnings. In particular, we use the first piece of information, together with age, to define eligibilityforo the three retirement options explained in the main text.

We use the waves of 2012, 2014, 2016, 20,20 and 2022, and keep track of the same household head. This sample selectiis follows the same criterion as Jappelli and Pistaferri (2000, 2020, 2025). Since there is no individual identifier, but just a family identifier, we focus on the household head and make sure that she does not change from one wave to another. We therefore drop households whose head changed sex, report inconsistent ages, and years of contribution over time. For instance, if i is 30 in 2012 and has worked for 5 years, she must be 32 and have worked for a maximum of 7 years in 2014, 34 in 2014, and so on. This procedure yields a sample of around 2000 household-year observations.

SHIW has two types of datasets: historical and historical. The historical dataset is just a unique dataset with all waves and containing variables in aggregated form at the household level. The yearly datasets contain more detailed information, such as years of contribution, in-depth demographics, wealth,h and employment status. We use both the historical and the yearly datasets, merging them for every year using the family unique identifier *nquest*. The table below describes the variables we use and how we derive them.

Table D1: List of Used Variables

Variable	**Units**	**Description and Source Variables**
nquest	number	cross-sectional identifier
year	year	time
age	number of years	
yc	number of years	years of contribution: acontrib
disann	number of years	year of unemployment
dislav	dummy	experienced long term unemployment
female	dummy	gender: sesso == 2
low_ed	dummy	low education: studio < 3
mid_ed	dummy	middle education (high school): studio == 4 or 5
high_ed	dummy	high education (college decree or more): studio > 5
south	dummy	living in the South: area5 == 4 or 5
centre	dummy	living in the Centre: area5 == 3
north	dummy	living in the North: area5 == 1 or 2
family_size	number	household components: ncomp
retired	dummy	retired: qual > 7
cn	€ 1000	nondurable consumption
cd	€ 1000	durable consumption
c	€ 1000	total consumption: cn + cd
lcn	log ×100	log of nondurable consumption: log(*cn*)

Continued on next page

Variable	Units	Description and Source Variables
lc	log $\times 100$	log of total consumption: $\log(c)$
ytp	€1000	family pension earnings
yca	€1000	real estate income
ycf	€1000	financial income
ar	€1000	real estate wealth
af	€1000	total financial wealth
pf	€1000	total liabilities
w	€1000	net wealth: ar + af - pf
$bank\_account$	€1000	amount of cash: ld
$public\_debt$	€1000	government securities, af2
$bonds\_private$	€1000	private bonds (companies and banks): lobb
$assvita$	€1000	amount paid annually for life insurance
$pensint$	€1000	amount paid annually for private pensions
$stocks\_listed$	€1000	stocks traded on the stock market (market value at year-end): lazq
$stocks\_unlisted$	€1000	stocks of private businesses: lazi + lsrl + lper - stocks listed until 2016; lazi2 - stocks listed from 2020
$stocks$	€1000	total stocks: $stocks\_listed + stocks\_unlisted$
$managed\_savings$	€1000	managed savings: lgp
$others$	€1000	other assets: lat
$foreign$	€1000	foreign assets: lte
$share\_bank\_account$	%	share of cash: bank account / af
$share\_public\_debt$	%	share of government securities, public debt / af
$share\_bonds\_private$	%	share of private bonds: bonds private / af
$share\_stocks\_listed$	%	share of listed stocks: stocks listed / af
$share\_stocks\_unlisted$	%	share of stocks of private businesses: stocks unlisted / af
$share\_stocks$	%	share of total stocks: stocks / af
$share\_managed$	%	share of managed savings: managed / af
$share\_others$	%	share of other assets: others/ af
$share\_foreign$	%	share of foreign assets: foreign / af
$p\_bank\_account$	dummy	hods cash: $bank\_account > 0$
p_public_debt	dummy	holds government securities: $public\_debt > 0$
$p\_bonds\_private$	dummy	holds private bonds: $bonds\_private > 0$
p_stocks_listed	dummy	holds listed stocks: $stocks\_listed > 0$
$p\_share\_stocks\_unlisted$	dummy	holds stocks of private businesses: $stocks\_unlisted > 0$
p_share_stocks	dummy	holds total stocks: $stocks > 0$
p_share_others	dummy	holds other assets: $others > 0$
$p\_share\_foreign$	dummy	holds foreign assets: $foreign > 0$