Taking Individual Financial Responsibility

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abstract

Personal responsibility towards financial decision-making is being advocated on a global basis. Individuals and households are encouraged to take a more active approach to personal finance. In this paper, we examine behavioral factors, which lead households towards savings and financial planning across a panel of 1,330 Dutch households. In line with the available literature, we find that an individual's propensity to save decreases with age and is higher among the financial literate. Moreover, we find that saving behavior varies across generations, and is significantly dominant among baby boomers. This generation effect, however, weakens once we account for more individual specifics. Our results offer evidence for parental influence, and for the effects of the psychometrics of numeracy, self-efficacy, locus of control and future orientation. A good understanding of these personal attitudes helps to explain why some take financial responsibility while others do not.

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1. Introduction

During the past decade, governments around the globe have started advocating a new and responsible approach to personal finance, to encourage households to be more in charge of their own financial wellbeing. The 2008 global financial crisis and the recession that followed hit families hard, and have shifted government policies away from promoting cheap financing, more often used for increased consumer spending towards enhancing consumer awareness of individuals' long term financial needs and resources. This shift increases the importance of households' ability to take financial responsibility and to save up for their future needs.

In this paper, we empirically investigate a wide series of household backgrounds that can account for the cross sectional variation in individual savings behavior. We like to understand why some of us save for later, while others tend to spend their income rather right away. Theoretical life cycle models predict that consumers smooth consumption over their lifetime, assuming that consumers are forward looking and make plans for their future. But whether households are actually able and ready to manage their long-term financing responsibly is doubtful. Campbell (2006) pointed out that it is often difficult for consumers to exhibit carefully reasoned and informed economic decisions. Lusardi and Mitchell (2007) show that 45 per cent of baby-boomers in the age bracket 51-56 have done little or no retirement planning at all, and as a result they enter their golden years with low levels of wealth.

Empirically, we have learned that saving rates increase substantially with income. Dynan et al. (2004) reported savings rates below 10 percent for the lowest U.S. income quintile, numbers that increase with income to over 20 percent for the fifth quintile. Typically, three sources have been identified for these differences in saving rates across income groups. Hubbard et al (1995) identified differing budget constraints as the reason why lower-income households save less – lower income groups have less incentives to save as they are more likely to depend on welfare programs in future bad states of the world. Bernheim (1998) provided early evidence that financial literacy is correlated with the level of education and income. In other words,

differing budget constraints and differing levels of financial literacy are very likely to explain part of the variation of saving rates over income. Recently, Binswanger (2010) added a third source of savings heterogeneity among household – the loss aversion invoked by the insurance goal of savings. This loss aversion differs greatly across and within income groups and can lead bounded-rational household to over- and under-safe, depending on their personal dominance of the insurance goal of saving.

We extend the current analyses on financial decision making by exploring a wider set of explanatory factors that help to explain household saving and investment behavior in the cross section and that can help to enhance financial responsibility levels in the future. We construct survey questions with which we measure various socio-economic backgrounds and beliefs for a set of 1,330 Dutch households. Our analysis focuses on explaining why some of these households save or invest, while other don not. We start explaining this difference by looking at a set of well described household characteristics – demographics, income, skills and education, including financial literacy. We then extend this analysis by incorporating factors that capture a respondent's youth and financial upbringing to assess the effectiveness of homemade financial education. Finally, we involve a wide set of psychometrics to incorporate the personal variations in, numeracy, self-efficacy, locus of control, and future orientation. Our extended survey puts us in the unique position to simultaneously analyze and weight the effects of household demographics, skills, upbringing, and attitude into the current research in this area.

Our results show that willingness to save (to sacrifice present wellbeing for future results) is stronger among younger households with high levels of financial literacy. We also detect significant traces of generation clustering, as saving for later is more popular among the post war baby-boom generation, then among those who were born and raised before and after them. This generation effect may well be explained by the work of Malmendier (2011) who documented similar findings regarding depression babies and their risk appetite later in life. In the Dutch settings of our sample the post war period has been associated with the toughest economic circumstances and appears to be still visible in the cross sectional variation of the saving behavior in 2011. We also find evidence for (grand)parental influence in our data. Being born into rich families increases the odds of saving money later in life. But perhaps more interesting is the finding that shows that parental stimulating and the experience with side jobs during youth leave permanent traces in saving behavior later in life. One can teach children the value of money in a way that affects decision making in adult life. Our results also offer evidence that saving behavior is influenced by a wide side of behavior psychometrics. Respondents that are financially interest, keep tight household administration, have a strong

locus of control and have a positive economic outlook are all more prone to postpone the immediate consumption for the sake of future needs. We also test whether the same results can account for stock market activity, as financial savings are not the only means for household financial planning. Stock market activity is more common among the younger households that have higher incomes, higher financial literacy and are more willing to take risks. But also when it comes to stock market activity, we show that parental influence and individual psychometrics matter.

The remainder of this paper is organized as follows: the next section offer a brief review of relevant literature on financial saving behavior and positions our paper within this rich body of literature. Section three presents our data and provides descriptive statistics and details regarding the setup of the survey analysis. In section four we report and discuss the results of our empirical analysis, while section five closes of with a summary of our main findings and their implications.

2. Household Financial Planning

Whether or not households save money is a choice that was first addressed in the economics literature when Ramsey (1928) and Fischer (1930) introduced their infinite and finite life-cycle models. These frameworks offered a new standard for economists to think about the intertemporal allocation of time, effort and money. In its most general formulation, this life-cycle framework asserts that agents make sequential decisions to achieve a coherent goal using all the information that is available to them. Along these lines, households ought to have active savings management that helps them to smooth out their consumption over their lifespan. Over the years this life-cycle model has been extended and enriched, allowing for potentially important features such as habits, imperfection in capital markets, disagreements between husbands and wives about how much to save, limited computational powers, and discounting of the future that changes over time[1]. An expanding body of mostly normative literature has evolved in this field, which explains how households should behave to obtain optimal savings behavior and portfolio choice over the life cycle.

In his seminal work on household finance, Campbell (2006) compared what we know about what households actually do with our body of academic knowledge about what households should do. He argues that although many households find adequate solutions to the complex

[1] See Browning and Crossley (2001) and Carbone and Duffy (2014) for a full discussion on the life-cycle model of consumption and saving.

investment problems they face, some households make serious investment mistakes. These mistakes are made more often by poorer and less educated households, supporting the recent call for financial education and stricter consumer regulations.[2] The lack of financial literacy among some consumers was first documented by Bernheim (1995, 1998). Hilgert et al (2003) report that most Americans fail to understand basic financial concepts, particularly those related to bonds, stocks, and mutual funds. Lusardi and Mitchell's (2006) module on planning and financial literacy of the 2004 Health and Retirement Study (HRS) show that many older individuals cannot do simple interest-rate calculations, and do not understand inflation. Using a financial literacy construct based on a small set of numerical exercises, they conclude that financial literacy is very low among women, those with low educations and Afro-Americans and Hispanics. As a result, these financial illiterates fail to plan and save for their retirement, and thereby run the risk of falling short later in life.

Aside from this literature on financial literacy, an older and broader literature has focused on why people's expressed intentions to save are often not realized in their daily decisions [see Katona (1975)]. One factor that has been identified as an important determinant of individual failures to save is the ability to delay gratification and exercise self-control. Although economist like to assume that the homo economics is capable of postponing short-term gratification for the sake of long-term need, early work by Strotz (1957) and Ainslie (1975) has proven differently. Moreover, in more recent work by Webley and Nyhus (2006) empirical proof is reported that these time preferences can be partly transferred from one generation to the next. Financial education and financial upbringing may well be two routes to similar destination – taking personal financial responsibility later in life.

In this paper, we contribute to the available literature by empirically testing a wide set factors to unravel why saving and investing are popular among some, and not among others. We start our analysis with a baseline model specification that includes the conventional demographics (gender, age, and household composition), income, and risk adversity, skills and education. We then extend this model in two steps. First, we add a series of variables that reflect youth and upbringing. Malmendier and Nagel (2011) showed the era in which one is born is important for financial decisions later in life, we test this for a sample that has had a unique Dutch history. In line with Webley and Nyhus (2006), we examine the extent to which parental influence is significant when it comes to savings behavior later in life. The second step in our model extension involves the incorporating of a wide set of psychometrics to capture a households' attitude. We design and include measures for Rotter's (1954) *locus of control*,

[2] See Collins (2013) for a thorough discussion of the effects of financial education on knowledge and behavior.

for Trommsdorffs' (1983) *future orientation*, for Bandura's (1977) *self-efficacy*, and for Schwartz's et al. (1997) *numeracy*. Measures used to identify specific elements of personal attitude and beliefs, that we like to relate to savings behavior. This allows us to assess whether the inclination to save financially is function of circumstances, whether it can be triggered by upbringing and training, or whether it is a mere reflection of personal attitude[3]. Or perhaps, a cunning combination of all the above.

3. Data

We use data from the 2011 Dutch National Bank Household Survey (DHS). DHS is a long-standing, annual household survey that includes extensive information about demographic and economic household characteristics, focusing on wealth and savings data. The data set is representative of the Dutch population, and it contains over 2,000 households.[4]

The DHS is built up in several sections. Section A inquires about the financial background of the respondent (*i.e.,* income, savings, spending behavior, *etc.*). Section B focuses on whether households rely on external advice for their financial matters. Section C deals with the pension plan of the household, while section D asks questions with respect to housing and mortgage details. In addition to using data from the core of the DHS, we also use data from additional, self-designed survey modules on financial literacy and saving behavior, added to the survey in April 2011. This final section of the survey is designed to assess ability of households to properly make financial decisions and to trade off long-term benefits with short-term investments. In total, the survey consists of 62 questions, and requires 18 minutes to complete, on average. Survey participants are interviewed via the Internet.[5] A total of 1,721 out of 2,028 households completed the financial literacy module -- a response rate of 84.9 percent (in line with the response rate for the main survey).

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[3] We are not the first that use the opportunities of a survey panel to measure psychometrics to analyze household financial decision making. Van Rooij and Teppa (2014) have used the same DHS panel to link the locus of control to explain the variation across household's default choices.

[4] See Nyhus (1996) for a detailed description of this survey and an assessment of the quality of the data. CentERdata, a survey research institute at Tilburg University that specializes in Internet surveys, manages the panel. For more information about the survey agency, see http://www.uvt.nl/centerdata/en.

[5] Although the Internet connection rate in the Netherlands is among the highest in Europe (80 percent of Dutch households are connected to the internet at their home), households need not have an Internet connection to participate in the survey. Recruitment and selection of households is first done by phone with a randomly selected sample of households. Households without an Internet connection are provided with a connection or with a set-top box for their television (for those who do not have access to a personal computer). This method of data collection presents several advantages. For example, data collected using Internet surveys suffer less from reporting biases than data collected via telephone interviews (see Chang and Krosnick, 2003).

The two key questions that are at the pinnacle of our analysis are the questions that ask our respondents about their view on their willingness to save and the stock market activity. We define respondents as 'savers' when the indicate that they are willing to sacrifice their well-being in the present to achieve certain results in the future, and we split the sample in 'investors' versus non-investors based on their reply to the question whether or not they have invested with mutual funds, stock or bonds. Our analysis is designed to explain why respondents vary on both accounts – whether they are willing to save for later, and whether or not they are active in stock markets.

- Insert table 1| summary statistics around here -

In table 1, we present the summary statistics for the key variables in our analysis. These statistics show that 55.8 percent of our respondents are male, and that the average respondent is 57 years of age, lives in a household of 2.3 persons, and earns 1,845 Euros net of tax every month. Besides the age structure, these characteristics are representative for the averages of the Dutch society at large. DHS respondents are older than the average person in the Netherlands, since the panel was constructed in the early '80s and has gradually aged ever since. Another striking feature of our Dutch sample is the opportunity to analyze the across sectional variation across generations. More specifically, we like to follow up on the work of Malmendier (2011) who shows that personal experiences of economic fluctuations early in life shape individuals' willingness to take risk. Malmendier (2011) shows for a sample of U.S. households that the generation of "Depressions babies" that have experienced low stock market returns throughout their lives report are more pessimistic about future stock returns, and therefore are less likely to invest in the stock markets. We exploit the Dutch settings of our sample, which involves a different economic history that has been mostly affected by the Second World War (1940-1945) and a successive era of economic hardship in the years of recovery. Hence, we split our sample across generations that were born pre-war, post-war baby-boomers that still faced economic hardship during youth, and the younger generations that followed and never experienced the aftermath of the dramatic events. Finally, relating to our set of baseline variables, we also report the percentages of household that scored high on the set of six financial literacy questions that we adopted from Lusardi and Mitchell (2007). Only 15.8 percent of our Dutch respondents score five or six out of six, indicating that high financial literacy is not common in our sample.

Besides these standard demographics and household background, we also report summary statistics on five clusters of additional factors relating to the respondents' upbringing, numeracy, self-efficacy, locus of control and future orientation. In line with Webley and Nyhus (2006), we like explore the link between parental influence and financial decision making later in life. Hence, we asked our respondents question relating to the wealth of the family that they were born into, whether there (grand)parents handed them pocket money, and whether or not they have done paper rounds to earn money early in life. All these question are inspired by the available literature that shows that endowment and upbringing are important factors for explaining economic behavior [see Webley and Nyhus (2006)]. Table 1 shows that 26.0 percent of our respondents were born into families that were well off, 53.5 percent of them received pocket money at the age of 12, and 21.6 percent were raised by parents that explicitly saved for their education, and thereby served as examples of saving for later in life.

Besides these variables that capture youth and parental influence, we also included a set of questions that proxy some psychometrics that have been addressed in related literature, and that we would like to include in our examination of the cross sectional variation on financial decision making. First, we asked our respondents about their level of education, whether they are good at mathematics, and whether they keep up with the financial news. These questions were asked to capture the numeracy and financial interest of our respondents. Table 1 shows that 39.8 percent of our respondents has a college education, 27.1 percent claims to be good at math, and only 11.3 percent keeps track of the financial news. Later in our regression analysis, we will explore whether these attributes are triggers for saving or investing for later. We then asked three questions that relate to self-efficacy and self-control. 74.5 percent of our respondents manage the administration within their household, and 60.2 claims to keep this administration tight, and another … percent expressed the ability to keep track of their expenses. Perhaps the two most noteworthy variables of table 1 are the internal locus of financial control and the chance construct score. Both measure the belief of respondents of how much their actions affect their own financial wellbeing versus their belief that their future is determined more by faith than by themselves. These measure capture the extent to which individuals are willing to take on the responsibility of financial decisions by their own accord. The reported averages for the sample as a whole line up with comparable statistics and scores in other studies. In our analysis the variation in these two metrics is more relevant, and will explicitly tested in the regression in the subsequent section. Finally, we also include a set of four questions that relate to the future orientation of our respondents. Here we ask our respondents how they consider their time horizons, immediate spending needs and the

economic outlook. Almost a third of our 2011 respondents expressed a positive economic outlook, and we will include these expectations and views in our analysis of saving and investing behavior.

4. Empirical Analysis

We start our analysis of the cross sectional variation in financial activity and responsibility, with the estimation of a baseline model that includes the variables that have been tested before in the financial planning literature. In table 2, we report the results of both a simple OLS and logit specification for the analysis of willingness to save. The 'savers' in this (and following) regressions are the respondents that indicated to be willing to sacrifice present well-being to achieve future results. We relate this willingness to a wide set of household variables that capture demographics, income and financial literacy.

- Insert table 2| baseline saving regressions -

The results in table 2 show that the willingness to save decreases with age, is stronger among the financial literate and peaks among the baby-boomers in our sample. The age and generation effect are not mutually exclusive here. We find on an individual basis the willingness to save for later decreases with age. This is a non-linear relationship which flattens out at sixty years and gradually turn positive thereafter. Obvious explanation lie in the fact that young respondents have the longest horizons and therefore the most obvious needs to materialize future results. At the same time, we can explain this change in age trend around the age of sixty, by the generational effects that we record separately. Here we document a significant peak for the generation that was born between 1945 and 1960. Compared to the respondents born after 1975 these baby boomers are 23.4% more likely to save for later, although there time horizons are shorter. The most plausible explanation for this finding lies in the work of Malmendier (2011) and relates to the economic hardship that occurred in the Netherlands just after the Second World War. During this period when the baby boomers were born and raised, the Dutch economy suffered greatly from the harmful effects of the war. Food and shelter have long been far from obvious, which results in vast levels of poverty across the country. Being raised in the times of needs can leaf marks on how future earnings are being spend or in this

case, saved. This Dutch post-war generation is known for its modesty and ability to appreciate the smaller things in life. Sacrificing present wellbeing is not hard for them.

The positive and significant effect of financial literacy indicates that those who understand financial matters most are also more likely to take action for future needs. This does not come as a surprise, as this confirms earlier finding of Lusardi and Mitchell (2007) who found a similar relationship between financial literacy and active pension planning. The signs of all other variables in this baseline model all correspond with intuition and the literature, but in all cases they also lack statistical significance. In the next step of our analysis, we extend this baseline model to verify whether other backgrounds and factors can enhance our understanding, and whether alternative explanation strengthen or weaken our baseline relationships.

The first step in our model extension relates to the inclusion 'upbringing and parental influence'. We wonder whether, apart from being young or born into a specific era, whether the first phase of our lives is important for understanding how we make financial decisions later in life. We all age, and we all are part of a generation, but within these generation, we all may differ when it comes to the type of upbringing that we have had. Hence, in table 3 we first compare the OLS baseline coefficients with a model in which also include the responses to our questions that relate to upbringing and parental influence. Three of the additional coefficients turn out to be significant. Respondents that were born into families that were well off financially, are 5.9 percent more likely to be saving. This is not are mere reflection of differences in income, as these have been controlled for separately in our baseline specifications. Besides being born into a wealthy family, we also find significant traces of parental influence in the willingness to save. Not having had any side jobs during youth reduces the willingness to safe later in life. In other words, having side jobs appears to increase the appreciation of income and money and enhance the willingness to safe some of it for future needs. But besides this impact of side jobs, we also observe that (grand)parental stimulation yields comparable effects. If (grand)parents actively stimulate financial saving behavior during youth, we find that this willingness is also stronger along the lifecycle.

- Insert table 3| extended saving regressions -

Apart from upbringing and parental influence, we also empirical test some of the available psychometrics to assess whether attitude is leading up financial planning and decision making. This we did in four separate steps. We start by including 'numeracy', which we

capture by the combination of college education, mathematical abilities, and financial interests. In the third column of table 3, we show that only the latter appears to be of influence on the willingness to save. Respondents that indicated to be keeping up with the financial news, are significantly more likely to save for future needs. It appears that being interested is more relevant for explaining saving behavior that the level of education, not numeric ability. We also should stress that including college education does not affect our coefficient for income, although they are obviously correlated. The effects of financial literacy appear to be reduced somewhat, when accounting for mathematical skills. This indicates that the common metric for financial literacy may also reflect some aspects of numeracy.

When we then turn our attention to measures for self-efficacy, we discover some interesting results. Here we find that managing the household administration is not relevant for explaining individual saving tendencies. It is not the *experience* of admin, but the *way* of admin that seems to count here. Respondents that indicated to keep a tight administration are significantly more willing to make sacrifices for future needs. Overview and orderliness are important, not just exposure to the task of financial planning. This is also confirmed by the other finding that shows that keeping track of expenses, a more detailed specification of tight admin, also adds to the willingness to save. On a final note regarding our self-efficacy results, we should also stress the fact that the generation effects disappear once we account for the individual variation on self-efficacy. In other words, the era during one is born and raised matters, but financial saving behavior is influenced more by our individual self-efficacy.

A third set of psychometrics that we include in table 3, relates to the locus of control. In appendix A, we specify the 13 questions with which we constructed the two metrics that are included in the fifth column of table 3. Our finding here, is straightforward, convincing and significant. A strong internal locus of financial control increases the odds of being willing to sacrifice present wellbeing for future results. This does not come as a surprise, since the locus measure quantifies the belief of respondents that future results are the outcomes of own efforts. If this belief is strong, then it makes more sense to commit current resources for future outcomes. If the chance construct were dominant, we would expect little willingness to safe, as the respondent would be doubtfull of any future results as chance would be identified as the main factor. However, our results for the chance construct score lacks significance. We can only conclude that faith in the future results of personal actions leads up to more willingness to save.

The fourth and final set of psychometrics relate to the individual future orientation of our respondents. One may expect that if future orientation is strong, that the tendency to safe

for later needs is more prominent as well. This we verify, by including the answers to a set of four final questions, of which three turn out to be significant here. We find that respondents with a more distant time horizon are more likely to save for later. An intuitive finding, which corresponds with the age effects that are part of the baseline model. We find that this tendency to save increase with optimism regarding the economic outlook. The optimists appear to be more willing to postpone their consumption, while the pessimist tend to spend it rather right away. Finally, to test this spending immediately interpretation directly, we also posed the question how respondents ranks themselves on a 7 point scale regarding their tendency to spend immediately (1) versus saving as much as possible (7). This response is clearly relevant for explaining the saving willingness, and shows that immediate spending erodes the willingness to save.

Saving on a savings accounts is obviously not the only way in which households can take personal financial responsibility. Planning for the future financial needs may in many cases be better served by the high returns that one can find on the longer horizon investments in stock markets. Hence, we have repeated the same cross sectional analysis across our households, but replaced the dependent variable of saving, by activity in stock markets. We have asked our respondents whether they have invested in stock markets, and we use the same baseline and extended model specifications to understand their responses. The results are reported in table 4.

- Insert table 4| extended investing regressions -

The baseline model results in the first column show that stock market activity is more common among the younger households that have higher incomes, higher financial literacy and are more willing to take risks. Results that are in line with the recent work of Van Rooij and Teppa (2014). The results regarding upbringing and parental influence are weak compared to the once related to saving behavior. We find weakly significant results for the effects of endowment and allowance. Respondents born into rich families and respondents that received pocket money during youth are slightly more likely to become active in the stock markets later in life. The fact that these results are less compelling may well be related to the fact that 'saving for later' is more a kitchen table topic than stock investment strategies. Regarding numeracy, we find that only education lights up as relevant for stock market activity. This overlaps with the income results that we detected in the baseline model. Mathematical skills and financial interests do not seem to matter significantly. When including self-efficacy, we

find that managing household administration is the key variable. Respondents that manage the household admin are significantly more likely to also be active in stock markets. A results which is intuitive when considering the opposite. It would be surprising to find respondents who are actively investing their household wealth in stock market, but not willing to manage their household administration. These wolfs on cornery street are rare, apparently. More interesting are the results that we find for the locus of control outcomes. Here, we see that respondents are more likely to invest in stock markets when they score low on chance. If chance would be dominant in their view of the world, stock market would be mere lotteries, and participating would be less appealing. Rachel the last column of table 4 is identical to that of savings (table 3), I guess there is a glitch here…..

5. Conclusions

To what extent do households save and why do some households save? These are two questions, which have been at the heart of the economics literature for many decades. In this paper, we blend three elements for work on life-cycle models, financial literacy, and the psychometric of decision making to shed some greater light on answering these questions. We construct survey questions with which we measure the financial activity of our respondents – a set of 1,330 Dutch households. Our extensive survey puts us in the unique position to simultaneously analyze and weight the effects of household demographics, skills, upbringing, and attitude into the current research in this area.

Our results show that willingness to save (to sacrifice present wellbeing for future results) is stronger among younger households with high levels of financial literacy. We also detect significant traces of generation clustering, as saving for later is more popular among the post war baby-boom generation, then among those who were born and raised before and after them. This generation effect may well be explained by the work of Malmendier (2011) who documented similar findings regarding depression babies and their risk appetite later in life. In the Dutch settings of our sample the post war period has been associated with the toughest economic circumstances and appears to be still visible in the cross sectional variation of the saving behavior in 2011. We also find evidence for (grand)parental influence in our data. Being born into rich families increases the odds of saving money later in life. But perhaps more interesting is the finding that shows that parental stimulating and the experience with side jobs during youth leave permanent traces in saving behavior later in life. One can teach children the value of money in a way that affects decision making in adult life. Our results

also offer evidence that saving behavior is influenced by a wide side of behavior psychometrics. Respondents that are financially interest, keep tight household administration, have a strong locus of control and have a positive economic outlook are all more prone to postpone the immediate consumption for the sake of future needs. We also test whether the same results can account for stock market activity, as financial savings are not the only means for household financial planning. Stock market activity is more common among the younger households that have higher incomes, higher financial literacy and are more willing to take risks. But also when it comes to stock market activity, we show that parental influence and individual psychometrics matter.

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Table 1| Summary statistics

Variable	Mean	Std. Dev.	N
Baseline Variables			
Male respondents (percent)	0.558	0.497	1330
Age head of household (years)	57.042	13.365	1330
Generation born before 1945	0.261	0.439	1330
Generation born between 1945-1960	0.418	0.493	1330
Generation born between 1960-1975	0.244	0.429	1330
Household with Children	0.291	0.454	1330
Household Size (number of persons)	2.341	1.173	1330
Risk Taker (Scale 1 to 7)	0.095	0.294	1330
Household Monthly Net Income (Thousand Euros)	7.348	0.67	1253
Financial Literacy score of 5 or 6	0.158	0.365	1330
Upbringing Variables			
Respondents families were well off	0.26	0.439	1330
Received pocket money age 12	0.535	0.499	1330
Parents saved for resp edu	0.216	0.412	1330
Childhood Allowance	2.454	1.362	1330
Childhood Paper Round	2.944	1.027	1330
Grandparent's stimulating saving	2.273	1.032	1330
Numeracy Variables			
Good at Math	0.271	0.445	1330
Keeps up with the Financial News	0.113	0.316	1330
Self-Efficacy Variables College Education	0.398	0.49	1330
Manages Household Admin	0.745	0.436	1330
Keeps Tight Household Admin	0.602	0.49	1330
Ability to Keep Track of Expenses	3.449	1.098	1330
Difficulty Controlling Spending	2.807	1.448	1330
Locus of Control Variables			
Strong internal locus of financial control	4.433	0.889	1330
High Score of Chance Construct	2.905	0.791	1330
Future Orientation Variables			
Positive Economic Outlook	0.311	0.463	1330
Future Orientation	7.124	0.526	1330
Immediate Spending	5.067	1.15	1330
More Distant Time Horizon	2.483	1.187	1330

Table 2| Baseline saving regressions

Variables	(1) ols	(2) logit
Male respondents (percent)	-0.00381	0.979
	(0.0294)	(0.145)
Age head of household (years)	-0.0355***	0.859**
	(0.0131)	(0.0562)
Age Squared	0.000237**	1.001*
	(0.000103)	(0.000559)
Generation born before 1945	0.143	1.544
	(0.144)	(1.039)
Generation born between 1945-1960	0.234*	2.789*
	(0.127)	(1.571)
Generation born between 1960-1975	0.132	1.776
	(0.0871)	(0.678)
Household with Children	0.0251	1.136
	(0.0538)	(0.289)
Household Size (number of persons)	-0.00303	0.984
	(0.0204)	(0.0947)
Risk Taker	0.0735	1.427*
	(0.0449)	(0.295)
Monthly Net Income (Euros)	0.0297	1.172
	(0.0211)	(0.129)
Financial Literacy score of 5 or 6	0.102***	1.640***
	(0.0369)	(0.279)
Constant	1.101***	10.64
	(0.362)	(18.91)
Observations	1,253	1,253
R-squared / Pseudo-R-squared	0.063	0.053

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Odds Ratios given for Ordered Logit Model

Table 3| Extended saving regressions

	Basic	Upbringing	Numeracy	Self-Efficacy	Locus	Future
	(1)	(2)	(3)	(4)	(5)	(6)
Male respondents (percent)	-.004	-.006	-.009	.011	-.010	-.002
	(.029)	(.029)	(.029)	(.029)	(.029)	(.028)
Age head of household (years)	-.036	-.037	-.036	-.030	-.034	-.024
	(.013)***	(.013)***	(.013)***	(.013)**	(.013)***	(.012)*
Age Squared	.0002	.0003	.0002	.0002	.0002	.0002
	(.0001)**	(.0001)**	(.0001)**	(.0001)*	(.0001)**	(.0001)*
Generation born before 1945	.143	.164	.137	.123	.165	.089
	(.144)	(.143)	(.143)	(.141)	(.141)	(.138)
Generation born between 1945-1960	.234	.249	.231	.201	.260	.173
	(.127)*	(.127)**	(.127)*	(.125)	(.125)**	(.123)
Generation born between 1960-1975	.132	.141	.137	.107	.151	.103
	(.087)	(.087)	(.087)	(.086)	(.085)*	(.085)
Household with Children (dummy 1=yes)	.025	.032	.025	.033	.039	.036
	(.054)	(.053)	(.054)	(.054)	(.053)	(.049)
Household Size (number of persons)	-.003	-.006	-.005	-.008	-.005	-.011
	(.020)	(.020)	(.020)	(.021)	(.020)	(.019)
Risk Taker	.073	.050	.055	.065	.059	.038
	(.045)	(.046)	(.045)	(.045)	(.045)	(.043)
Monthly Net Income (Euros)	.030	.020	.024	.014	.015	.024
	(.021)	(.021)	(.021)	(.022)	(.021)	(.020)
Financial Literacy score of 5 or 6	.102	.101	.093	.101	.095	.089
	(.037)***	(.037)***	(.037)**	(.036)***	(.037)**	(.034)***
Respondents families were well off		.059				
		(.032)*				
Received pocket money at age 12		.011				
		(.033)				
Parents saved for resp edu		.025				
		(.035)				
Childhood Allowance		.005				
		(.012)				
Childhood Paper Round		-.034				
		(.013)**				
Grandparent's stimulating saving		-.033				
		(.012)***				
Good at Math			.001			
			(.030)			
Keeps up with the Financial News			.105			
			(.045)**			
College Education				.026		
				(.027)		
Manages Household Admin				-.006		
				(.031)		
Keeps Tight Household Admin				.175		
				(.031)***		
Ability to Keep Track of Expenses				-.029		
				(.014)**		
Difficulty Controlling Spending				-.003		
				(.009)		
Strong internal locus of financial control					.082	
					(.015)***	
High Score of Chance Construct					.002	
					(.017)	
Positive Economic Outlook						.286
						(.031)***
Future Orientation						.029
						(.023)
Immediate Spending						.060
						(.010)***
More Distant Time Horizon						.017
						(.010)*
Obs.	1253	1253	1253	1253	1253	1253
R^2	.063	.078	.068	.089	.087	.162

Table 4| Investing regressions

	Basic	Upbringing	Numeracy	Self-Efficacy	Locus	Future
	(1)	(2)	(3)	(4)	(5)	(6)
Male respondents (percent)	.004	.010	.002	.019	.008	-.002
	(.024)	(.024)	(.024)	(.024)	(.024)	(.028)
Age head of household (years)	-.011	-.009	-.010	-.007	-.010	-.024
	(.010)	(.010)	(.010)	(.011)	(.010)	(.012)*
Age Squared	.00009	.00009	.00009	.00006	.00009	.0002
	(.00009)	(.00009)	(.00009)	(.00009)	(.00009)	(.0001)*
Generation born before 1945	.090	.102	.085	.113	.095	.089
	(.110)	(.111)	(.110)	(.110)	(.109)	(.138)
Generation born between 1945-1960	.145	.148	.142	.164	.150	.173
	(.092)	(.093)	(.091)	(.092)*	(.091)*	(.123)
Generation born between 1960-1975	.165	.164	.166	.176	.171	.103
	(.063)***	(.064)**	(.062)***	(.063)***	(.062)***	(.085)
Household with Children	-.017	-.017	-.016	-.023	-.012	.036
	(.039)	(.040)	(.039)	(.040)	(.039)	(.049)
Household Size (number of persons)	-.023	-.018	-.023	-.010	-.024	-.011
	(.014)	(.015)	(.014)	(.015)	(.014)*	(.019)
Risk Taker	.244	.221	.237	.228	.233	.038
	(.045)***	(.045)***	(.046)***	(.044)***	(.045)***	(.043)
Monthly Net Income (Euros)	.075	.067	.072	.037	.066	.024
	(.017)***	(.017)***	(.017)***	(.017)**	(.017)***	(.020)
Financial Literacy score of 5 or 6	.164	.155	.159	.142	.155	.089
	(.035)***	(.036)***	(.036)***	(.036)***	(.035)***	(.034)***
Respondents families were well off		.052				
		(.027)*				
Received pocket money age 12		-.003				
		(.027)				
Parents saved for resp edu		.054				
		(.030)*				
Childhood Allowance		-.018				
		(.010)*				
Childhood Paper Round		.003				
		(.012)				
Grandparent's stimulating saving		-.004				
		(.010)				
Good at Math			.012			
			(.027)			
Keeps up with the Financial News			.041			
			(.043)			
College Education				.101		
				(.025)***		
Manages Household Admin				.091		
				(.023)***		
Keeps Tight Household Admin				.001		
				(.025)		
Ability to Keep Track of Expenses				-.017		
				(.012)		
Difficulty Controlling Spending				-.019		
				(.007)***		
Strong internal locus of financial control					.006	
					(.012)	
High Score of Chance Construct					-.045	
					(.013)***	
Positive Economic Outlook						.286
						(.031)***
Future Orientation						.029
						(.023)
Immediate Spending						.060
						(.010)***
More Distant Time Horizon						.017
						(.010)*
Obs.	1253	1253	1253	1253	1253	1253
R^2	.104	.117	.106	.134	.112	.162

Appendix A| Locus of financial control question set

Please state the level to which you agree with the following statements

01 (completely disagree) – 02 – 03 – 04 – 05 – 06 – 07 (completely agree)

Internal Dimension

LOCUS01: Saving and careful investments are the most important factors to become rich

LOCUS02: Whether or not I end up rich depends mostly on my abilities

LOCUS03: People that handle their financial affairs prudently remain rich in the longer run

LOCUS04: Generally speaking, it is my own fault if I end up poor

LOCUS05: I am usually capable of handling my own personal affairs

LOCUS06: If I get what I want, this usually results from my own hard labor

LOCUS07: My life results from my own actions

Chance Dimension

LOCUS08: There is little one can do to protect myself from poverty

LOCUS09: Ending up rich has nothing to do with luck

LOCUS10: Regarding money, there is little one can do for yourself once you are poor

LOCUS11: In my case, saving money is not prudent as financial matters depend on luck

LOCUS12: Faith is the prime factors that determines whether you end up rich or poor

LOCUS13: Only by winning lotteries or inheriting money, one can get rich