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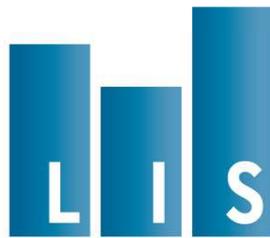
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Who is Eager to Save for Retirement - The Cross-Country Evidence

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Who is Eager to Save for Retirement – the Cross-Country Evidence

Abstract

In this study we challenge the problem of inadequate voluntary pension saving looking for its behavioural determinants. By exploring the Luxembourg Wealth Study dataset for four countries (Greece, Italy, United Kingdom and United States) we argue that financial risk aversion and intertemporal choices significantly affect the individuals' propensity to save for retirement. Moreover, we verify the links between these two behavioural factors and sociodemographic characteristics of the investigated societies which should have practical implications for regulatory framework.

Keywords: supplementary pension savings, risk aversion, intertemporal choices, sociodemographic factors, retirement, retired, logit and Tobit models

JEL: C25, H55, J32

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1. Introduction

Due to societies' ageing process the replacement rate from the public pension system is expected to steadily decrease in the next decades. On the other hand the reduction of consumption opportunities faced by future pensioners may not be politically acceptable. Though, to avoid the additional redistribution from working age generation to pensioners, governments should make the effort to motivate the individuals to save supplementary for their retirement. The current international experiences are not optimistic as frequently the participation rate is far from being satisfactory (Rutecka *et al.*, 2014).

To facilitate retirement savings governments usually introduce tax benefit. However, in such a case the society always faces an important trade-off whether to subsidize voluntary savings or invest in the economy's potential? Moreover, frequently these tax benefits (*e.g.* in Germany and Poland) are used mainly by the wealthy citizens and not by the poor ones, which are at the biggest risk of poverty in the old age.

Bearing in mind the bounded rationality of the individuals concerned about their future pensions, the issue seems even more severe and calling for attention. In fact, it has been shown that the problem of low savings rate can be solved by the means of behavioural economics, *e.g.* by providing people with particular nudges to save, such as manipulating the default option in retirement plans (Thaler & Sunstein, 2008), or making individuals commit to some specific, long-term program (Cartwright, 2014). Nonetheless, the two aforementioned features do not exploit the list of behavioural factors potentially significant for savings decisions.

In this paper we would like to focus the attention on **financial risk attitudes**¹ and **intertemporal choices**, which importance for savings decisions has been presented on a theoretical basis (Samuelson, 1937), (Yaari, 1965), (Bommier, 2006). However, the empirics in this particular research area is still largely unexplored. Gaining such a knowledge about the distribution of these two parameters across society would enable to prepare more tailor-made offer of retirement savings products. Our study contributes to the existing literature by providing the empirical evidence based on the updated set of the (Luxembourg Wealth Study, 2016) (LWS) data from four countries *i.e.* Greece, Italy, UK and USA². LWS use the national surveys from upper and middle income countries and homogenize them providing a unique opportunity to run a cross-country comparative studies. This enables to formulate not only country-level but also global-level conclusion and further policy recommendations.

The remainder of the paper is organized as follows: Section 2. presents the theoretical rationale for exploring the risk attitudes and intertemporal choices in analysing individuals' retirement savings decision. Section 3. surveys the empirical literature. Section 4. presents the model and hypotheses tested. Section 5. contains a detailed description of the dataset used in this research. Section 6. reports the empirical outcomes. Section 7. concludes the study.

¹ From now on referred for simplicity as 'risk attitudes', 'risk aversion' or 'risk tolerance' interchangeably.

² The sample has been narrowed to four countries due to data availability on risk aversion and/or intertemporal choices in LWS database.

2. Theoretical background

The individual decisions concerning retirement pension savings are naturally complex, involving a wide variety of determinants. Such problems can be analysed within the two major dimensions. First, the individuals make up their minds regarding the funds put aside at each single point in time. From this perspective, the choice becomes a portfolio selection one. That is, given a person's current income, their **attitude towards risk** as well as specific characteristics of the financial products available in the market, an optimal decision is made regarding the way to allocate the total money at one's disposal. The aforementioned determinants come from the assumptions underlying the commonly recognized model of modern portfolio theory (Markowitz, 1952). Interestingly, an alternative model adds psychological traits as another powerful influential factor. The behavioural portfolio theory (Shefrin & Statman, 2000) allows for such decisions being adjusted for the cognitive errors individuals experience when assessing the probability distribution of future outcomes (returns) on particular financial opportunities. Namely, this assessment is affected, for example, by the common bias of overweighting the small probabilities of high returns whilst underweighting the high probabilities of low returns (or losses).

Secondly, it is essential to introduce the time variation into the retirement savings analysis. Any issue concerned with the pension topic is reviewed in the long run. The central point is a trade-off between current and future consumption, so that the individuals decide on what fraction of their income to spend today while saving the rest and delaying the consumption until later (reaching retirement age). The two core issues when analysing the **intertemporal choice problem** are: utility theory and time discounting (Camerer, Loewenstein, & Rabin, 2003). Rational agents are assumed to discount the utilities obtained from possible future outcomes in the form of their expected values, and then maximize over the set of such alternatives (Samuelson, 1937). Moreover, they are assumed to be risk averse on average. The problem with the expected utility theory, however, is that many different shapes of utility functions had been proposed, but none can be undoubtedly verified by the observable decision making (Friedman & Savage, 1948)

Time discounting, on the other hand, originates from the assumption that people do not value equally the cash flows that are the same in absolute terms, but occur at different points in time. Those that are more impatient, for example, exhibit a higher rate of discount, meaning that the future value of money diminishes for them very fast. Classically, an exponential form is used when assessing the discounting function. However, such a form implies individually fixed rate of time discounting, whereas experimental data suggests that people tend to behave inconsistently in terms of discounting – by changing the rates with the time passing (Thaler, 1981). This is why it becomes more common nowadays to introduce hyperbolic, or quasi-hyperbolic discounting functions (Strotz, 1955).

One of the most prominent theoretical frameworks in the context of intertemporal choice, is a life-cycle model. Its central assumption holds that individual consumption-savings decisions

today are determined by expectations of the future changes in income. Specifically, it is believed that a person adjusts his current consumption level with respect to both current as well as anticipated future incomes. For instance, according to the model, one would increase his spending today when faced with a reliable belief of receiving higher earnings tomorrow (Diamond & Hausman, 1984). However, the assumptions of life-cycle theory in practice might not always work - first, people often tend to behave backward- instead of forward-looking (basing their current decisions on past actions), but also they may face particular constraints preventing them from increasing consumption on the spot. An example here could be an exhaustion of a credit line.

Another reason why the life-cycle model may fail in its capability of predicting individual savings and consumption decisions is simply ignorance and/or lack of fundamental financial knowledge (Lusardi, 2011). There are many people who either do not bother thinking about sources of covering their living expenses once retired, or cannot assess accurately how much they should put aside regularly in order to meet future needs. Moreover, the capabilities of people to smooth consumption in accordance with future expected incomes are limited. Even the process of assessing the same future cash inflow from the present perspective (via discounting) could provide different results, depending on individual time preferences.

As mentioned, the life-cycle model of consumption-savings decisions is based on individual expectations of the future. However, future outcomes of any action can never be assessed in advance with a complete certainty. In such a context, arguments for uncertainty of capital investment return along with uncertainty of future non-capital income had been put forward (Sandmo, 1970). The former highlights an increased risk along an increase in accumulated wealth. In other words, a high value of one's investment results in a possibility of severe future loss. The latter argument, on the other hand, states that the job security can in fact discourage consumption smoothing (Boulding, 1966).

3. Survey of empirical literature

Friedman & Sunder (1994) in their seminal work stated: "Reliable demographic data on individual risk attitudes is virtually non-existent". Probably, the same is true in case of time preference characteristic. After two decades we notice a significant diversity of empirical studies respective to the investigated samples and the methods employed.

Barsky *et al.* (1997) analysed the dataset of US Health and Retirement Study (HRS) targeting the respondents between the ages of 51 and 61. A HRS asks a wide range of questions concerning health status, retirement decisions, income and assets but also some behavioural questions about individuals' preferences *e.g.* towards smoking or drinking. While the obtained distribution of risk attitudes was strongly modal, where the majority of society was identified as low risk tolerant individuals, the authors identified also a significant group of respondents with high willingness to undertake substantial gambles over lifetime income. Employing the similar research framework Jaeger *et al.* (2010) investigated German Socio-Economic Panel (SOEP) data and found a willingness to accept risk as a significant determinant of migration

decisions. Caliendo, Fossen, & Kritikos (2014), used SOEP to verify the relationship between risk attitudes and labour market choices.

Instead of using secondary data, Wang, Rieger, & Hens (2009) run an international survey in 45 countries interviewing university students. The authors confirmed a hyperbolic pattern of discounting the future, *i.e.* people discount immediate future more than a far one. They also discount the small payoffs more than the big ones. Brown, Ivković, & Weisbenner (2015) designed a survey for Croatian population to analyse the time preference of the respondents. They found that the decision whether to accept an immediate pension payment or a larger stream of delayed payments depends not only on “conventional” socio-demographic characteristics *e.g.* gender and age, but also has its roots in liquidity constraints, longevity expectations and the confidence in government.

The other strand in the literature employs the experimental approach. Harrison, Lau, & Rutström (2007) carried an experiment across Denmark using 253 people between 19 and 75 years of age. Their main conclusion states that the average Danish is risk averse and risk attitudes vary respective to socio-demographic characteristics such as income and age. Abdellaoui, Attema, & Bleichrodt (2010) enrolling seventy students of Erasmus University Rotterdam found intertemporal utility function concave for gains and convex for losses confirming the postulates of prospect theory (Kahneman & Tversky, 1979). These results were consistent with a hypothesis put forward by Loewenstein & Prelec (1992) at the same time providing little support for the popular quasi-hyperbolic model. On the other hand the favourable results for (quasi)hyperbolic hypothesis were noted by Pender (1996) for Indian rural inhabitants and by Klemick & Yesuf (2008) in case of Ethiopia. An important conclusion based on the field experiment was formulated by Ashraf, Karlan, & Yin (2006): women from Philippines revealing hyperbolic time preference were more likely to enrol to commitment savings program.

We also find the works combining the aforementioned approaches. Dohmen *et al* (2011) explored SOEP dataset and then followed it by an experiment conducted with a representative subject pool in subjects' homes. The experiment confirmed the behavioural validity of risk measured derived from SOEP. Moreover, Dohmen *et al.* (2011) argued that gender, age, height, and parental background had an economically significant impact on willingness to take risks. Lahno *et al.* (2015) analysing the determinants of interpersonal conflicts run a survey across Eastern Uganda combining it with the experiment uncovering individuals' attitudes towards risk. Lahno *et al.* (2015) noted, that the observed heterogeneity can be partially explained by gender, risk and religion.

Summing up the review, we cannot deny that there exist numerous research works verifying the determinants of risk attitudes and time preference for a single countries. It is then hard to make a robust cross-country comparisons looking for the global determinants as different methods have been used in each study. At the same time we notice only one work, , where the authors try to explore the internationally diversified sample *i.e.* (Wang, Rieger, & Hens, 2009). However, in this particular case the sample was non representative for the investigated

societies as it contained only university students. The use of LWS data³ enables us to overcome the aforementioned constraints. Providing evidence on a cross-country comparable basis we hope to bridge the gap existing in the literature.

4. Econometric approach

In order to verify the link between the socio-demographic characteristics, behavioural variables and the demand for pension accounts we have estimated the following models for each country⁴ separately:

$$RA_i = \beta SD_i + \varepsilon_i \quad (1)$$

$$IT_i = \beta SD_i + \varepsilon_i \quad (2)$$

$$PA_i = \gamma RA_i + \theta IT_i + \beta SD_i + \varepsilon_i \quad (3)$$

where RA is a risk aversion variable, IT an intertemporal choices variable, SD is a vector of socio-demographic characteristics and PA is a pension account variable describing the demand for voluntary pension savings of a particular individual i . Therefore the equations 1. and 2. verify the importance of socio-demographic determinants for two aforementioned behavioural phenomena, while the equation 3. investigates the significance of RA and IT for pension demand while controlling for SD factors.

RA and IT are the ordered variables. RA ranks individuals, into four (five for UK) categories, from 1 which means least risk averse to 4 which mean most risk averse. IT classifies individuals from 1 the most patient to 5 the less patient in Italy. For USA, the variable IT classifies individuals from 1 less patient to 5 more patients. In UK, IT is dichotomous variable which takes the value one if the individual is patient and 0 if he is not. This type of variables is modelled by **ordered logit model**. Hence, by maximising the appropriate likelihood function we estimate the probability that a particular category is chosen by the individual

$$P(RA_i = j) = P(a_{j-1} < RA_i \leq a_j) = F(\beta SD_i + a_j) - F(\beta SD_i + a_{j-1}) \quad (4)$$

where F is the logistic cumulative distribution function.

Next, the demand for pension (PA) has been measured by the amount of funds accumulated in the individual voluntary pension account. The value of accumulated assets can be equal to 0 for people who do not save at all or positive and continuous for the rest. Hence, we deal with a censored variable (censored from below) which is usually modelled by **Tobit model**.

³ The detailed description of the LWS data utilized in our study can be found in Section 5. and Appendix A.

⁴ Estimating the model on a full dataset would be undesirable as the number of observations for each country varies significantly.

In our case we have used Tobit model to explain two decisions simultaneously. The first decision is whether or not to save voluntarily and in case of a positive answer the second decision is about how much to save. Hence, it is a combination of two models: probit and truncated regression⁵.

Finally, while SD is a vector containing many variables we must be aware of potential multicollinearity between them. This phenomenon does not lead to the biased estimates of the parameters, but may dramatically increase the probability of Π^{nd} type error – we may wrongly conclude that variable is insignificant. However, in our case multicollinearity has not been found to be a severe problem. Maddala & Lahiri (2009) argue that large (inflated) standard errors of the estimates indicate serious multicollinearity, but we have not found this pattern in the obtained results.

5. Data

The data employed in this study comes from the “Survey on Italian households’ income and wealth 2010”, “Household Assets Survey 2011” for UK and “Survey of Consumer Finance 2013” for USA. For Greece, the European Central Bank survey data from 2009. This four datasets have been further acquired and harmonized by LWS to enable comparability across countries (Luxembourg Wealth Study, 2016).

Each country has its specific dataset containing two kinds of files: the individual levels files and the household level files. The individual files present the information about the members of household while the latter files display the information about the particular households. The total of the continuous variables for the household’s members is equal to the overall variable for this particular household; for example the sum of the individual members’ income is reported as an aggregate income in the household file. Every file contains also a weight variable. The weight variable makes the sample representative for the overall population, hence, allows for a more accurate estimation. The investigated variables have been standardised in terms of their content and coding structure. The continuous variables have been expressed in the same units across different dataset. The categorical variables have been standardised and coded using the same value code and label for all the countries.

In our study we focus our attention on the determinants of three phenomena, namely risk aversion, intertemporal choices and demand for pensions. In the local surveys, **risk aversion** has been measured asking the following question: “Which of the following statement comes closest to describing the amount of financial risk that you (and your husband/wife/partner) are willing to take when you save or make investment?” The respondent can pick one of the following answers: [1] take substantial financial risks expecting to earn substantial returns; [2] take above average financial risks expecting to earn above average returns; [3] take average

⁵ An interested reader may find a comprehensive description of the Tobit model estimation in (Gourieroux, 2000).

financial risks expecting to earn average returns; [4] not willing to take any financial risk. In UK the answers were ranked in 5 categories rather than four.

There have been slight differences between the analysed countries in the assessment of **intertemporal choices**. However, the comparison is still possible as the results allow to classify individuals from the most patient ones (not discounting the future) to the most impatient individuals who discount the future at the highest rate.

The set of questions to estimate time discounting rate measuring intertemporal choices was following.

Italy: *You have won the lottery and will receive a sum equal to your household’s net yearly revenue. You will receive the money in a year’s time. However, if you give up part of the sum you can collect the rest of your win immediately.*⁶

The respondent could be classified in 5 categories from 1 the most patient (forward looking) to 5 for the most impatient as presented in the Table 5.1.

	Accept to give up	Reject to give up
Category 1		2%
Category 2	2%	5%
Category 3	5%	10%
Category 4	10%	20%
Category 5	20%	

Table 5.1. Intertemporal choices classification for Italy

UK: *If you had a choice of receiving a thousand pounds today or one thousand one hundred pounds next year, which would you choose?*

1. £1,000 today
2. £1,100 next year
3. Don’t know/ no opinion (SPONTANEOUS ONLY).

USA: *In planning or budgeting your (family’s) saving and spending, which of the following time periods is most important to you (and your family living here):*

1. The next few months
2. The next year
3. Next few years
4. Next 5-10 years

⁶ This question can be considered as a measure of risk aversion: the amount that respondent is ready to give up to avoid future uncertainty is considered as a risk premium. However, in the question, the uncertainty about the future benefit is not mentioned. This is why we argue that the question measures patience (intertemporal choices): respondent who is ready to give up more (20%) to get the amount immediately is considered as impatient.

5. Longer than 10 years.

The intertemporal choices are not measured for the **Greece's** survey.

The **demand for pensions** has been measured by the amount of funds accumulated in the voluntary pension accounts. This variable is equal to 0 for the individuals who do not participate in the voluntary pension programs and is continuous and positive for the others. This kind of variables is better modelled by Tobit model (Jesuit , Mahler, & Paradowski , 2008), hence, we run a weighted⁷ Tobit model for the three countries (USA, UK and Italy).⁸

The detailed description of each **socio-demographic regressors** used in this study has been contained in the Appendix .

6. Empirical results

6.1 Risk aversion

The risk aversion estimates for the four investigated societies has been presented in the Table 6.1.

	USA (2013)	Italy (2010)	Greece (2009)	UK (2011)	
[1] takes substantial financial risks expecting to earn substantial returns	4.22%	1.09%	3%	(1) Risk tolerant	1%
[2] takes above average financial risks expecting to earn above average returns	18.95%	19.71%	4%	2	8%
[3] takes average financial risks expecting to earn average returns	39.96%	33.11%	18%	3	16%
[4] not willing to take any financial risk	36.87%	46.09%	75%	4	45%
				(5) Risk averse	30%

Table 6.1. Risk attitude by country

We notice that in every society the majority of its members are moderately and highly risk averse, which is in line with the empirical outcomes reported by (Barsky, Juster, Kimball, & Shapiro, 1997).

Below, we discuss the determinants of the risk aversion while the detailed results of model (1) estimation has been displayed in the Appendix B (Table B.2, Table B.6, Table B.11, Table B.12, Table B.17).

⁷ In order to get the representative results for the total individual population, we use *population individual cross sectional weight*. According to LIS, in many datasets the individual and the household-level weight are the same.

⁸ Due to insufficient number of voluntary pension accounts owners (only 130 out of 38700 individuals) we do not estimate the Tobit model for Greece.

Age: the descriptive statistics exhibits that older people are more likely to be risk averse in every analyzed country (Table B.1, Table B.5, Table B.10, Table B.16). We utilized gamma rank correlation measure proposed by Goodman & Kruskal (1954) to measure the strength of this relationship. We found the strongest relationship in Greece (0.3) while in Italy, UK and USA it reached 0.11, 0.13 and 0.02 respectively.

The estimation results reveal the age to be a significant variable at 10% level in Italy and at 1% in the remaining countries, while the analysis of the odds ratios indicates that the risk aversion grows with age at highest rate in UK (odds ratio equal to 1.19) and is only slightly associated with age in case of Italy (1.009).

Gender: women have been found to be more risk averse than men, however, this relationship is weak in three countries, *i.e.* Italy and UK (gamma 0.03) and USA (gamma 0.09) and stronger in Greece (0.28). This positive relationship has been also identified in the other works *e.g.* (Barsky, Juster, Kimball, & Shapiro, 1997), (Byrnes, Miller, & Schafer, 1999), (Lauriola & Levin, 2001).

The gender coefficients for equation 1. have been found to be significant at 1% level for every country. The odds ratios indicates that in Greece women are 1.53 more likely to be risk averse than men, in Italy 1.44, in UK 1.19 and 1.49 in case of USA.

Ethnicity: the US dataset provides an opportunity to verify the importance of ethnicity factor. In the previous studies Brown (2007) investigated the investment behaviour of the individuals concluding that it is vastly driven by race, ethnicity and/or class and the Whites were found to be more eager to invest in risky assets comparing to Blacks and Hispanics. Our estimates drive us to the similar conclusions: Blacks/African-American are 1.44 more likely to be risk averse than Whites (reference variable), Hispanics/Latino 2.1 times and the others (Asian, American Indian/Alaska Natives, Native Hawaiians/Pacific Islanders) 1.39 times.

Marital status: the cross-country analysis of this determinant has not lead to any robust conclusions, as the estimation results have been found to be rather noisy, *e.g.* while in USA consensual union has been found to increase significantly probability of being more risk averse respective to the married individuals, in UK the similar estimate has been insignificant and lower than 1, hence, reducing a probability of being risk averse. However, separated and divorced have been found to be significantly less risk averse than married.

Number of children: this variable has again impacted differently risk aversion. In UK it has negatively affected risk aversion, which has been opposite to the Italian case. For Greece it was found to be insignificant.

Education: education has a significant and negative impact on risk aversion in three of the investigated countries and the weak opposite relationship has been noticed in case of UK. This conclusion has been supported both by gamma ratios estimates (-0.4 for Greece, -0.13 for Italy, 0.01 for UK and -0.51 for USA) and odds ratios from logit models: lower than 1 and highly significant ($\alpha=1\%$) for the three countries and greater than 1 and moderately significant for UK. This divergence was also observed in previous works. Sahm (2007)

advocated for the negative relationship between risk aversion and education, while Aarbu & Schroyen (2009) provided the opposite conclusions for Norway, similar to the UK example in our research.

Employment status: the existing studies widely confirm that labour market choices indicate individuals' risk attitude and that self-employed are usually risk tolerant *e.g.* (Cramer, Hartog, Jonker, & Van Praag, 2002), (Bonin & Dohmen, 2007), (Ahn, 2010). Our research also shares this view. The estimates show that self-employed are 1.78 less likely to be risk averse than employees (reference variable) in Greece, 1.16 in UK and 1.78 in USA. In Italy the odds ratio is not significant.

Employment sector: we have found the employment sector to be a significant determinant of risk aversion in three of the investigated countries. The logit estimates indicate that in Greece workers from industry and services sector are more likely to be risk tolerant than people working in agriculture (reference variable) by 3.03 and 2.77 times respectively, in Italy 1.4 times in case of services and 1.26 times for both industry and services. Up to our best knowledge the relationship between the activity sector and risk aversion has not been discussed in the literature.

Income: income has been traditionally perceived as an important factor affecting individuals' behaviour. Our study confirms the well-grounded conclusions formulated by Arrow (1963) and Pratt (1964) where higher income was associated with lower risk aversion. The estimated odds ratios were equal to 0.64 for Greece, 0.91 for Italy, 0.93 for UK and 0.81 for USA. For Italy the ratio was found to be insignificant.

Savings: there are two intuitions behind the potential relationship between savings and risk aversion. First, people who save more can also behave more risky, as they have a financial rescue wheel in case of the adverse outcomes of their risky activity. Contrary, the bigger savings may reflect greater risk aversion – individuals just collect the savings in case of any trouble while running a normal life. Our research finds the savings behaviour as an important factor explaining peoples' risk attitudes and supports the first view. In case of USA, the estimated model exhibits that people who declare that they "Save income of one family member and spend the other" are 1.51 more likely to be more risk tolerant than those who do not save at all (reference variable). Individuals stating that they "Spend regular income and save other" are 1.56 more likely to be more risk tolerant. Finally, people who declare that they "Save regularly by putting money aside each month" are 1.66 more likely to be more risk tolerant than people who do not save. In Italy, the variable of savings is a dummy and we notice that people who save are 1.19 more likely to be risk tolerant. In Greece, the odds ratio of the logit model is insignificant.

The results of our findings on risk aversion predictors have been presented in Table 6.2.

Socio-demographic variable	<i>Greece</i>	<i>Italy</i>	<i>UK</i>	<i>USA</i>
Age	+	+	+	+
Gender	Women more risk averse	Women more risk averse	Women more risk averse	Women more risk averse
Number of children	0	-	+	n/d
Education	-	-	weak +	-
Employment status	Self-employed less risk averse	0	Self-employed less risk averse	Self-employed less risk averse
Employment sector	Industry and services workers less risk averse than agriculture workers	Industry and services workers less risk averse than agriculture workers	0	Industry and services workers less risk averse than agriculture workers
Income	-	0	-	-
Savings	0	Savers are less risk averse	n/d	Savers are less risk averse

Table 6.2 Risk aversion predictors – summary results

Note: : ‘+’/’-’ means that variable positively/negatively impacts risk aversion (less/more risk tolerant), while ‘0’ indicates that variable is insignificant. ‘Ethnicity’ has been excluded from the table as only data for US is available for this variable. Summary for ‘marital status’ has not been presented due to very noisy or insignificant results. ‘n/d’ means that no data was available.

6.2 Intertemporal choices

The summary statistics show the significant heterogeneity of people’s attitudes towards future in the investigated countries. According to the taxonomy presented in Table 5.1. 28% of Italians have been classified to 1st category, 16% to 2nd, 18% to 3rd, 17% to 4th and 21% to 5th. In UK 76% of the respondents picked the immediate payment (1000 pounds today), 23% picked the differed payment (1100 pounds next year) and 1% had no opinion. In USA 23% of the population were concerned by the next few months, 13% by next year; 25% declared that the most important for their spending were the next few years; 23% were concerned by the 5-10 next years and 16% by more than next 10 years¹.

Next, we estimated the model 2. (Table B.7, Table B.13, Table B.18). For USA and Italy the dependent variable is ordinal, hence we employed the ordered logit model. However, for UK the variable of intertemporal choices is a dummy and the logit model was estimated. As the dependent variable is measured slightly different between the countries we avoid comparing the particular values of coefficients, but the comparison of the parameters’ sign indicating the direction of relationship is still possible.

¹ For Greece the data on intertemporal choices was not available.

Age: we have found a positive and significant impact of age on being forward looking in two of the analysed countries: in UK and USA. The empirical literature is unanimous in this field. While (Arrondel, Masson, & Veger, 2004) confirm our findings, (Brown, Ivković, & Weisbenner, 2015) present an opposite view.

Gender: intuitively we should expect that women should be more forward looking according to the longer expected lifetime. However, our results similarly to Arrondel, Masson, & Veger (2004) find the men to pay more attention to future needs in UK and USA. In Italy, the estimates were insignificant again.

Ethnicity: the ordered logit model for US data shows that Blacks/African-Americans are 1.47 less likely to be forward looking than Whites (reference variable) and Hispanic/Latino 1.29 times. However, Asians, American Indians/Alaska Natives, Native Hawaiians / Pacific Islanders are 1.42 more likely to be forward looking than Whites. The previous studies found Blacks to discount future higher (being less forward looking) than, Whites *i.e.* (Black, 1984), (Lawrance, 1991).

Marital status: similarly to the results obtained for risk aversion, we cannot formulate any firm conclusions on the potential impact of marital status on intertemporal choices. In Italy, we have found that widowed people are more likely to be forward looking than married. In UK marital status has been found to be insignificant, while in USA separated and widowed people are less likely to be forward looking. These findings are again similar to (Brown, Ivković, & Weisbenner, 2015) obtained for Croatian society.

Number of children: individuals who live in the households with high number of children have been found to be less forward looking in UK and USA. Surprisingly, for Italy we identified an opposite relationship.

Education: the previous literature found a positive impact of education on being forward looking (Arrondel, Masson, & Veger, 2004), (Brown, Ivković, & Weisbenner, 2015) and our research leads to the same conclusions as we have estimated significant coefficients for all of the analyzed countries.

Employment status: we have not identified any significant impact of employment status on intertemporal choices in the investigated countries.

Employment sector: the relationship between industry and time preference is mixed. People working in industry in UK and USA are less likely to be forward looking than people in agriculture sector. The same also holds for the workers from US services sector. In Italy an opposite result is observed - people in industry and services are more likely to be forward looking than people in agriculture.

Income: our research confirms the results obtained by (Brown, Ivković, & Weisbenner, 2015). In three analyzed countries the relationship between income and probability of being forward looking is positive and significant.

Savings: the link between intertemporal choices and savings has been intensively investigated so far and the existing studies confirm the theoretical claims that people who discount future less tend to save more (Loewenstein & Prelec, 1992), (Bommier & Le Grand, 2014). We have also found this relationship to be significant in three analyzed countries.

Financial literacy: a few questions assessing financial literacy have been asked in Italian survey which provides an opportunity to verify its importance for intertemporal choices. We have found that people who answer correctly to interest rate question and those who give a correct answer about financial market are 1.44 and 1.42 (respectively) more likely to be forward looking than those who give false answers. However, in the similar study (Brown, Ivković, & Weisbenner, 2015) did not identify financial literacy to be a significant factor for intertemporal choices.

Again, we summarise our results for ‘intertemporal choices’ in Table 6.3

Socio-demographic variable	<i>Greece</i>	<i>Italy</i>	<i>UK</i>	<i>USA</i>
Age	n/d	0	+	+
Gender	n/d	0	Women are more forward looking	Women are more forward looking
Number of children	n/d	+	-	-
Education	n/d	+	+	+
Employment status	n/d	0	0	0
Employment sector	n/d	Industry and services workers are more forward looking.	Industry and services workers are less forward looking	Industry and services workers are less forward looking
Income	n/d	+	+	+
Savings	n/d	+	+	+

Table 6.3 Intertemporal choices predictors – summary results

Note: ‘+’/’-’ means that variable positively/negatively impacts forward looking behaviour (more/less patience), while ‘0’ indicates that variable is insignificant. ‘Ethnicity’ has been excluded from the table as only data for US is available for this variable similarly to ‘Financial literacy’ available only for Italy. Summary for ‘marital status’ has not been presented due to very noisy or insignificant results.

6.3 Demand for pensions

Finally, we check whether the two investigated behavioural variables impacts the demand for pensions. For this reason we estimate the Tobit models for three countries² (Italy, UK and USA) limiting our sample to the individuals earning enough to enable savings accumulation

² In Greece only 130 out from 37,800 individuals owned a voluntary pension account, hence the estimates for such a small sample should be treated with cautious, but we provide it for the interested reader (Table B.3, Table B.4).

(Table B.9, Table B.15, Table B.20).³ As a set of control variables in the model specification we use socio-demographic factors discussed before.

Risk aversion: in our study we have identified that risk aversion negatively affects pension savings accumulation. In Italy, people who declare they prefer financial investments with a good return, but also a fair degree of protection for the invested capital save 24,525€ less than risk tolerant individuals who declare preference towards financial investments with very high returns, but with a high risk of losing part of the capital (reference variable). People who declare that they prefer financial investments with a fair return accompanied by a good degree of protection for the invested capital accumulate 18,403€ less than risk tolerant individuals. And finally, people who declare their preference for financial investments with low returns, with no risk of losing the invested capital accumulate in their pension account 24,355€ less than risk tolerant individuals. The Tobit models estimated for UK exhibit that people who are fair towards risk accumulate 31,413£ less and individuals who are risk averse 37,021£ less than people who are risk tolerant (reference variable). In UK risk aversion was also measured using a gamble⁴. Employing this measure we find out that people who avoid the risky gamble accumulate 13,258£ less than people who choose the risky alternative. In USA individuals who declare taking average financial risks expecting average return accumulate 55,213\$ less than people who state that they take substantial financial risks expecting to earn substantial return (reference variable). People who declare that they are not willing to take any financial any risk accumulate 211,483 \$ less than risk tolerant ones in their voluntary pension accounts.

The observed negative relationship has been also confirmed by the other studies *e.g.* (Bommier & Le Grand, 2014), (Merouani, Hammouda, & El Moudden, 2016). The potential explanation states that risk averse individuals may be afraid of not receiving their savings back, hence, they prefer the current consumption.

Intertemporal choices: according to the existing works (*e.g.* (Arrondel, Masson, & Veger, 2004), (Lusardi & Mitchell, 2007)) people who highly discount the future should be less eager to save for retirement. Our study also supports this view. In UK, we find that individuals who are ready to wait for the deferred payment accumulate in their voluntary pension accounts 23,790£ more than individuals who are not willing to wait. USA data shows that individuals who are forward looking⁵ accumulate US\$84,896 more than individuals disregarding the future⁶.

The summarized results for pensions demand has been contained in Table 6.4

³ To control for income effects, we focus only on people who save: in UK and US the surveys ask a question about peoples' expenditures and additionally if they spend all their income or save a part of it. In this particular model we focus only on people who declare that their income allows them to save. For Italy we take only individuals between the 3th-5th quintile of income. However, an interested reader can also find the estimates for the whole sample cases (Table B.8, Table B.14, Table B.19)

⁴ *If you had a choice between a guaranteed payment of one thousand pounds and a one in five chance of winning ten thousand pounds, which would you choose?*

⁵ People who declare that longer than 10 years is the most important time horizon for their budget plan.

⁶ Individuals who declare that next few months are the most important for their budget.

Behavioural variable	<i>Italy</i>	<i>UK</i>	<i>USA</i>
Risk aversion	-	-	-
Intertemporal choice (being forward looking)	0	+	+

Table 6.4 Demand for pensions - summary results for behavioural predictors.

Note: '+'/'-' means positive impact of particular variable on pensions demand, while '0' indicates insignificant variable.

7. Conclusions

In this study we have examined two kinds of relationships. First of all, while analysing the data for four countries we have identified a list of common socio-demographic characteristics which influence individuals' risk aversion and intertemporal choices. Secondly, we have demonstrated that in every country the aforementioned behavioural characteristics similarly affect the demand for voluntary pensions. We believe the obtained results enable us to formulate some policy recommendations enhancing peoples' propensity to save for retirement.

We have shown that greater risk aversion reduces peoples' willingness to save and at the same time the majority of society members are at least moderately risk averse. This observation should motivate the regulatory bodies to run a strict supervision of the pension savings' sector. At the same time financial institutions should pay more attention to the development and sales of low risk products, even if the theory postulates to invest more in risky instruments, due to the returns' mean reversion (*e.g.* (Poterba & Summers, 1988), (Spierdijk, Bikker, & van den Hoek, 2012)) which improves the risk-return trade-off in the long run. High risk aversion may also have tremendous consequences for the decumulation phase. The regulators should deeply reconsider this argument whenever they wish to impose mandatory annuitization of voluntary retirement savings. People may be afraid to die shortly after getting retired¹, hence, they might have a feeling of overpaying the annuity. Therefore the lump-sum option should always be available and the longevity risk should be managed by public (mandatory) pension pillar.

Our next general conclusion states that people who discount future highly are less likely to save for retirement. Therefore, the government and/or private institutions should offer the savings products combined with some other products/services offering immediate benefits. Following Jhabvala (1998) the examples from the public sector may be an access to the healthcare system for children of the insured person or the discounted tickets for transportation.

Moving to the more particular results regarding the determinants of the two investigated behavioural phenomena we noticed age, gender, education, income and savings to be the

¹ Even if people systematically underestimate how long they will live (Drinkwater & Sondergeld, 2004).

significant regressors in each country and to some extent surprisingly, the analysis of “family variables”, *i.e.* marital status and number of children did not lead us to any robust conclusions. The financial advisors may find these results particularly useful while assessing the behavioural profile of their clients to select a tailor-made offer of financial products. For example, earning high income, well-educated men are the most likely to be risk tolerant and discounting the future at low rate. Contrary, low educated and earning low income women would be probably the hardest to convince to engage in voluntary savings program. We should note that at the same time they are at the biggest risk of poverty in the old age, hence, the government should focus the attention on this particular group while projecting the regulations for the IIIrd pension pillar, *e.g.* by imposing an automatic enrolment to the savings program (an opt-out mechanism).

Due to the scarcity of similar works, it is also worth to underline the highly significant results for the ethnicity factor. Brown (2007) claimed this may be due to the fact that financial branch is dominated by Whites, hence, hiring more ethnic and racial minority members by these institutions can resolve the problem.² Our study provides the additional support this can be a right way.

Last, but not least we should note the points deserving the further research attention. So far we have investigated only two behavioural factors affecting pension savings decisions, but the list of potential behavioural determinants is perhaps longer. One of the candidates may be an individual's confidence in a public pension system. For the last decades, especially in the Continental Europe, the governments were granting generous pension benefits (in terms of replacement rate) as the demographic situation was favourable. Therefore, many people can recognize the current conditions as a “state of nature” and treats the warning consequences of demographic projections as incredible. Understanding the importance of these beliefs may have a tremendous meaning for a future shape of the pension systems.

² Brown (2007) states that Blacks have traditionally been more willing to invest in real estate because they know estate agents who are themselves Black.

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A. Appendix – Variables definitions³

Name	Definition	Comments
<i>Socio-demographic variables</i>		
Age	Age in years	n/a
Disposable household income	Total monetary and non-monetary current income net of income taxes and social security contributions.	n/a
Education	Recode of highest completed level of education into three categories: - low: less than secondary education completed (never attended, no completed education or education completed at the ISCED levels 0, 1 or 2); - medium: secondary education completed (completed ISCED levels 3 or 4); - high: tertiary education completed (completed ISCED levels 5 or 6).	n/a
Ethnicity/race	Information about cultural, racial, religious, or linguistic characteristics, origin, or classification.	n/a
Gender	Classification of persons according to their sex.	
Immigrant (dummy)	All persons who have that country as country of usual residence and (in order of priority): - whom the data provider defined as immigrants; - who self-define them-selves as immigrants; - who are the citizen/national of another country; - who were born in another country.	n/a
Individual voluntary pension accounts	Value of voluntary non-occupational individual accounts for old-age purposes.	Refers to non-occupational plans for which the state does not require mandatory participation. Please note that non-occupational plans are not established by the employer, but employers could also participate in such plans. The contributions can be paid by the individual alone or by the individual and his/her employer.
Industry	Industry classification of main job.	n/a
Marital status	Classification of persons according to their marital status, as provided in relation to the marriage laws or customs of the country.	Marital status will in general correspond to the <i>de jure</i> situation (<i>i.e.</i> the situation with respect to legal unions – whether marriage or registered unions), but can also refer to some customary consensual

³ The definitions and comments contained in Appendix A have been provided by Luxembourg Income Study (LIS).

		<p>unions in case they are based on generally accepted and agreed upon norms and regulations as established by common practice. As a result, whereas for most datasets the “married/in union” overall category only refers to the de jure unions (code 110), for some others it can also refer to consensual unions (code 120). Users interested in partnership status including both the de jure and the de facto situations (<i>i.e.</i> any consensual union) should use the variable PARTNER instead. Note that in case the 100s codes refer to both the de jure and de facto situations, then code 210 (“never married/never in union”) will in practice capture those who were never in a de jure union (never married or in a registered union) and who are not CURRENTLY in a consensual union (as information on cohabitation history is rarely provided).</p>
Number of own children	Number of (biological, adoptive or step) children of the individual who exist in a household.	This variable is always provided for head and spouse (assuming the children of head are also children of his/her spouse). It is provided for other members only when the dataset includes pointers to parents or a full matrix of relationships.
Status in employment	Status in employment in main job. At a minimum, employees should be distinguished from the self-employed, but other details available can be provided (<i>e.g.</i> , regular versus non regular for employees and type of self-employed - employer, own-account worker, member of producers co-operative and contributing family worker).	n/a
Total income	This includes: - total monetary payments from labour, property, and social or private transfers. - total value of non-monetary goods and services received from labour and social or private transfers, excluding social transfers in kind such as universal health insurance, universal education benefits, and near cash benefits from public housing.	n/a
Behavioural variables		
Financial literacy	Financial literacy of each household member. The topics	n/a

	covered can include the basic financial literacy (numeracy, money illusion, time value of money, information about the understanding of interest rates, compounding, discounting, etc.) as well as topics related to more advanced financial knowledge (the difference between stocks and bonds, the function of the stock market, the working of risk diversification, the relationship between bond prices and interest rates, etc.).	
Forward looking	How far the household members look into the future for their financial planning (<i>e.g.</i> the time period that is important for household savings and spending) or how in details the household members organise their financial planning.	n/a
Risk aversion	Investment strategies that the household member is willing to take with respect to the exposure to risk of losing capital; it can also contain the information about the preferences in terms of risk and return on financial investments.	n/a
Savings behaviour	Indication of whether or not a household member saves during the income reference year based on all sources of their income (<i>i.e.</i> employment income, rent, income from capital, social security income, private transfers, etc.).	n/a

B. Appendix – Model estimates

Greek results

Table B.1. Summary statistics:

	[1] Takes substantial financial risks expecting to earn substantial returns	[2] Takes above average financial risks expecting to earn above average returns	[3] Takes average financial risks expecting to earn average returns	[4] Not willing to take any financial risk
[1] Male	4%	6%	22%	68%
[2] Female	2%	3%	15%	80%
Gamma	0.28			
Less than 24	5%	2%	21%	72%
25-34	3%	7%	22%	68%
35-44	4%	7%	24%	65%
45-54	4%	4%	20%	72%
55-64	2%	2%	14%	82%
65 and over	1%	1%	6%	93%
Gamma	0.3			
[1] Low	1%	2%	9%	88%
[2] Medium	3%	6%	22%	69%
[3] High	4%	6%	26%	64%
Gamma	-0.4			
[110] Married	3%	4%	19%	74%
[210] Never married/no	4%	6%	21%	69%
[222] Divorced	4%	7%	16%	73%
[223] Widowed	0%	1%	4%	95%
Chi ²	432	Pr	0	Gamma= 0.11
[0] Not living with own children	2%	4%	15%	79%
[1] Living with 1 own child	4%	4%	19%	73%
[2] Living with 2 own children	3%	5%	23%	69%
[3] Living with 3 own children	2%	9%	21%	68%
[4] Living with 4 own children	8%	4%	31%	58%
[5] Living with 5 own children	0	0	33%	67%
	Gamma= - 0.18			
Average personal income	27793.81	16949.84	16275	11919.59
Average accumulated stock of assets in voluntary pension account in local currency	158.63	131.5789	245.2316	68.07949

[100] Dependent employee	3%	5%	23%	70%
[210] Employer	10%	12%	28%	49%
[220] Own-account work	7%	10%	26%	57%
[240] Contributing family workers	5%	5%	26%	63%
Gamma	-0.25			
[0] Not immigrant	2%	4%	18%	76%
[1] Immigrant	5%	5%	19%	71%
Gamma	-0.11			
[1] Agriculture	0%	0%	24%	76%
[2] Industry	3%	6%	24%	68%
[3] Services	3%	5%	23%	69%
Gamma	0.0093			
[11] Does not save: expenses exceed income	5%	5%	14%	76%
[12] Does not save: expenses about the same as income	2%	4%	17%	76%
[20] Saves	2%	4%	22%	72%
Gamma	-0.05			

Source: Own study based on LWS data.

Table B.2: Weighted ordered logit model regressed on the socio-demographic variables. The dependent variable is risk aversion.

VARIABLES	(Model 1) odds ratio	(Model 2) odds ratio
Risk aversion		
Gender	1.530*** (0.102)	
Age	1.021*** (0.00396)	
Low education (ref)		
2. Medium level of education	0.479*** (0.0489)	
3. High level of education	0.465*** (0.0513)	
Poor	0.508*** (0.0800)	
Number of children	1.005 (0.0427)	
100o. Occupational statuts	1 (0)	
Immigrant	0.527*** (0.0491)	
110b. Married (ref)	1 (0)	
210. Never married/not in union	0.830* (0.0824)	
222. Divorced	0.684*** (0.0809)	
223. Widowed	0.588*** (0.121)	
ln_Household income	0.642*** (0.0451)	
2. Industry	0.331*** (0.123)	
3. Service	0.369*** (0.136)	
Save	1.118 (0.0853)	
100b. Dependent employed (ref)		1 (0)
210. Employer		0.489*** (0.0462)
220. Own-account worker		0.569*** (0.0310)
240. Contributing family worker		1.371 (0.374)
cut1		

Constant	0.000206*** (0.000167)	0.0345*** (0.00212)
cut2		
Constant	0.000583*** (0.000471)	0.0905*** (0.00390)
cut3		
Constant	0.00321*** (0.00259)	0.424*** (0.0127)
Observations	5,115	7,615

Note: In the tables contained in Appendix B. we use the following symbols: * - significant at 10% level, ** - significant at 5% level, ***- significant at 1% level.

Source: The models were estimated using Stata software and LWS data.

Table B.3: Demand for voluntary pension account

	[1] Takes substantial financial risks expecting to earn substantial returns	[2] Takes above average financial risks expecting to earn above average returns	[3] Takes average financial risks expecting to earn average returns	[4] Not willing to take any financial risk
Does not have voluntary pension account	2%	4%	16%	77%
Having voluntary pension account	6%	3%	49%	42%

Note: The numbers in the table refer only to 130 out of 37800 individuals who possess an individual pension account.

Source: Own study based on LWS data.

Table B.4: The impact of risk aversion on demand for voluntary pension account - weighted logistic model

VARIABLES	(1) odds ratio
Demand for voluntary pension account	
Risk aversion	0.623*** (0.0677)
Gender	1.031 (0.254)
Age	1.001 (0.00583)
2. Medium education	4.152*** (1.452)
3. High education	5.518*** (2.253)
Constant	0.0122*** (0.00835)
Observations	14,855

Source: The model was estimated using Stata software and LWS data.

Italian results

Table B.5. Summary statistics

	[1] Prefers financial investments with very high returns, but with a high risk of losing part of the capital	[2] Prefers financial investments with a good return, but also a fair degree of protection for the invested capital	[3] Prefers financial investments with a fair return, with a good degree of protection for the invested capital	[4] Prefers financial investments with low returns, with no risk of losing the invested capital
Less than 24	1%	22%	35%	42%
25-34	1%	22%	36%	42%
35-44	1%	21%	35%	43%
45-54	1%	22%	35%	42%
55-64	1%	20%	35%	44%
65 and over	1%	15%	27%	58%
Gamma	0.11			
[1] Male	1%	20%	34%	45%
[2] Female	1%	19%	33%	47%
Gamma	0.03			
[0] None	1%	19%	30%	49%
[10] Primary school	1%	16%	25%	58%
[20] Lower secondary school	1%	20%	33%	47%
[31] Vocational second school	1%	20%	34%	45%
[32] Upper secondary school	1%	22%	38%	39%
[51] 3-year university	1%	22%	39%	38%
[52] 5-year university	1%	23%	41%	34%
[60] Postgraduate qualification	1%	22%	43%	34%
Gamma	-0.13			
[110] Regular employee	1%	21%	36%	42%
[120] Non regular employee	4%	15%	23%	58%
[200] Self-employed	0%	0%	100%	0%
[210] Employer	1%	25%	37%	37%
[220] Own-account workers	1%	22%	38%	39%
[240] Contributing family workers	0%	26%	35%	39%
Gamma	-0.044			
[1] Agriculture	0%	17%	32%	51%
[2] Industry	1%	19%	31%	48%

[3] Services	1%	22%	39%	38%
Gamma	-0.14			
Average income	16952.25	14722.3	14896.33	12655.08
[0] Not living with own children	1%	17%	30%	52%
[1] Living with 1 own child	1%	19%	34%	46%
[2] Living with 2 own children	1%	22%	36%	41%
[3] Living with 3 own children	0%	24%	34%	42%
[4] Living with 4 own children	2%	20%	42%	37%
[5] Living with 5 own children	0%	45%	18%	36%
[6] Living with 6 own children	0%	0%	100%	0%
Gamma	-0.12			
I				
[11] Does not save: expenses higher than income	1%	15%	30%	54%
[12] Does not save: expenses equal to income	1%	18%	29%	52%
[20] Saves	1%	20%	36%	44%
Gamma	-0.11			
Average accumulated stock of assets in voluntary pension account in local currency	468.3417	168.9029	239.0009	101.2987
Quantile of income				
1 st	1%	17%	30%	52%
2 nd	1%	19%	34%	46%
3 rd	1%	22%	36%	41%
4 th	0%	24%	34%	42%
5 th	2%	20%	42%	37%
If i had to change a job my priority would be :				
Working in a healthy safe place	1%	18%	39%	42%
A secure job, without the risk of company shutdown or of dismissal	2%	20%	37%	42%
Working in healthy safe place is my priority (1&2 nd priority if I had to change a job)	1%	18%	39%	42%
A secure job, without the risk of company shutdown or of dismissal (1&2 nd priority if I had to change a job)	2%	20%	37%	42%
Refuse to give up 2% (patient)	1%	24%	29%	46%
Accept to give up 2% and refuse 5%	1%	18%	39%	41%
Accept to give up 5% and refuse 10%	2%	17%	43%	39%

Accept to give 10% and refuse 20%	0%	19%	32%	49%
Accept to give up 20% (impatient)	2%	16%	24%	57%
Gamma	0.09			
Having voluntary health insurance	2%	16%	44%	38%
Not having voluntary health insurance	1%	20%	32%	47%
Gamma	0.08			
Poor	1%	18%	26%	56%
Gamma	0.11			

Source: Own study based on LWS data.

Table B.6. Weighted ordered logit model regressed on the socio-demographic variables. The dependent variable is risk aversion.

VARIABLES	odds ratio
Risk aversion	
Age	1.008** (0.00381)
Gender	1.445*** (0.114)
Poor	1.104 (0.166)
Household disposal income	1.000 (2.32e-06)
2. Good health	1.649*** (0.118)
3. Fair	1.668*** (0.233)
4. Bad health	1.207 (0.413)
5. Very bad health	0.905 (0.758)
2. Self-employed, own account worker and employer	1.022 (0.0816)
3. Contributing family worker	0.678** (0.117)
2. Medium education	0.769*** (0.0599)
3. High education	0.747*** (0.0801)
Number of children	1.082** (0.0414)
1. Immigrant	2.451*** (0.296)
110b. Married (ref)	1 (0)
210. Never married/not in union	1.079 (0.112)
222. Formerly married/in union	0.824* (0.0957)
223. Widowed	0.942 (0.199)
2. Industry	1.046 (0.195)
3. Service	0.711* (0.128)
ln_personal income	0.908 (0.0691)
2. Save	0.840**

	(0.0595)
Correct answer to inflation question	1.392*** (0.115)
Correct answer to bonds question.	1.181** (0.0840)
cut1	
Constant	0.0128*** (0.0101)
cut2	
Constant	0.309 (0.239)
cut3	
Constant	1.717 (1.330)
Observations	3,379

Note: The risk aversion variable takes the value from 1 (risk tolerant) to 4 (risk averse).

Source: The model was estimated using Stata software and LWS data.

Table B.7: Weighted ordered logit model. The dependent variable is the preference for the present (opposite of forward looking).

VARIABLES	odds ratio
Preference for the present	
Gender	0.880 (0.0888)
Age	1.000 (0.00475)
2. Medium level of education	0.771** (0.0801)
3. Higher level of education	0.775* (0.111)
Immigrant	0.902 (0.138)
Correct answer to inflation question	0.678*** (0.0751)
Correct answer to the bonds question	0.674*** (0.0645)
Save	0.767*** (0.0730)
ln_personal income	0.974 (0.243)
Poor individual	2.683*** (0.544)
2. Self-employed, employer and own account worker	0.948 (0.105)
3. Contributing family worker	1.024 (0.253)
Number of children	0.892** (0.0419)
Household income	1.000 (3.37e-06)
2. Industry	0.566** (0.135)
3. Services	0.629** (0.145)
cut1	
Constant	0.0471 (0.126)
cut2	
Constant	0.108 (0.288)
cut3	
Constant	0.266 (0.708)
cut4	

Constant	0.632 (1.683)
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Observations	1,690
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Note: The dependent variable is the preference for the present (opposite of forward looking). It is equal to one if the individual have patient and refuse to pay 2% to get the amount won in a lottery immediately and it equal to 5 if the individual is impatient and accept to give up 20% of the amount in order to get it immediately.

Source: The model was estimated using Stata software and LWS data.

Table B.8. Weighted Tobit model. The dependent variable is the amount accumulated in the voluntary pension account.

VARIABLES	model
Age	-1,733*** (167.2)
Gender	-9,830*** (2,896)
2. Medium level of education	23,375*** (3,916)
3. Higher level of education	29,271*** (4,706)
2. Prefers financial investments with a good return, but also a fair degree of protection for the invested capital	-23,803*** (8,306)
3. Prefers financial investments with a fair return, with a good degree of protection for the invested capital	-15,600* (7,959)
4. Prefers financial investments with low returns, with no risk of losing the invested capital	-23,911*** (8,119)
finlit	-3,275 (3,481)
finlit2	15,762*** (3,424)
Household income poor	0.358*** (0.0582)
Constant	6,574 (10,798)
Observations	7,721

Note: The model was estimated for the whole sample.

Source: The model was estimated using Stata software and LWS data.

Table B.9. Weighted Tobit model for the 3-5th quintile of income. The dependent variable is the amount accumulated in the voluntary pension account²².

VARIABLES	model
Age	-1,822*** (175.6)
Gender	-3,377 (2,894)
2. Medium level of education	21,543*** (4,019)
3. Higher level of education	24,380*** (4,728)
2. Prefers financial investments with a good return, but also a fair degree of protection for the invested capital	-24,525*** (8,421)
3. Prefers financial investments with a fair return, with a good degree of protection for the invested capital	-18,403** (8,078)
4. Prefers financial investments with low returns, with no risk of losing the invested capital	-24,355*** (8,221)
finlit	-1,911 (3,586)
finlit2	15,054*** (3,471)
Household income poor	0.334*** -2,141 (7,637)
Constant	9,426 (11,221)
Observations	6,595

Note: The model was estimated for the subsample *i.e.* only for the individuals between 3-5th quintile of income.
Source: The model was estimated using Stata software and LWS data.

²² As we have found intertemporal choices variable insignificant for Italy, we present the estimates obtained after excluding this variable.

UK results

Table B.10. Summary statistics

	Risk tolerant (1)	2	3	4	Risk averse (5)
Less than 24	1%	9%	23%	48%	19%
25-34	2%	8%	20%	47%	23%
35-44	1%	9%	18%	48%	24%
45-54	1%	9%	16%	47%	27%
55-64	1%	8%	13%	45%	33%
65 and over	2%	6%	14%	39%	38%
Gamma	0.13				
[1] Male	2%	9%	16%	44%	30%
[2] Female	1%	7%	16%	46%	30%
Gamma	0.034				
[110] Married	1%	7%	14%	46%	31%
[120] In consensual union	2%	9%	17%	46%	25%
[210] Never married/no	2%	8%	20%	45%	24%
[221] Separated	3%	9%	19%	40%	30%
[222] Divorced	2%	8%	17%	42%	30%
[223] Widowed	2%	7%	16%	38%	37%
[0] Not living with own children	1%	7%	15%	44%	32%
[1] Living with 1 own child	2%	8%	16%	44%	30%
[2] Living with 2 own children	1%	9%	18%	48%	24%
[3] Living with 3 own children	1%	9%	18%	47%	25%
[4] Living with more than 4 own children	3%	8%	21%	46%	22%
Gamma	-0.09				
[1] Low education	2%	8%	20%	38%	31%
[2] Medium	1%	7%	15%	46%	30%
[3] High education	1%	8%	15%	47%	29%
Gamma	0.013				
[100] Dependent employed	1%	8%	16%	49%	26%
[122] Apprentice / training	0%	17%	17%	28%	39%
[200] Self-employed	0%	0%	0%	100%	0%
[210] Employer	3%	8%	15%	43%	32%
[220] Own-account work	1%	10%	15%	45%	28%
[240] Contributing family workers	2%	4%	19%	40%	36%
Gamma	0.01				

[1] Agriculture	2%	11%	17%	48%	22%
[2] Industry	1%	9%	17%	49%	24%
[3] Services	1%	8%	15%	48%	27%
Gamma	0.065				
[1] Very good health	1%	8%	15%	45%	30%
[2] Good health	1%	8%	15%	48%	28%
[3] Fair	2%	8%	16%	41%	33%
[4] Bad health	3%	8%	19%	39%	31%
[5] Very bad health	5%	7%	23%	33%	33%
Gamma	-0.0049				
Average personal income	20208.42	26593.36	22658.01	23487.67	22445.58
Average household income	30,716	38,232	34,829	37,531	35453.35
Average accumulated stock of assets in voluntary pension account in local currency	4293.068	11289.25	5635.431	4444.046	3786.164
[3] Don't know / no opinion	6%	5%	38%	33%	19%
[2] One in five chance to win 10000	2%	12%	17%	47%	23%
[1] Guaranteed payment of 1000	1%	7%	15%	45%	32%
Gamma	0.19				
[1] £1,000 today	2%	7%	16%	45%	30%
[2] £1,100 next year	1%	8%	14%	46%	31%
[3] Don't know no opin	7%	4%	45%	22%	23%
Gamma	0.02				
Take a risk to get a good return					
[0] Don't know	8%	12%	9%	38%	34%
[1] Agree Strongly	3%	9%	9%	16%	62%
[2] Agree	1%	8%	11%	56%	24%
[3] Neither agree nor disagree	1%	3%	38%	36%	22%
[4] Disagree	1%	12%	5%	46%	36%
[5] Disagree strongly	21%	5%	3%	10%	62%
Gamma	-0.06				

Source: Own study based on LWS data.

Table B.11. Weighted ordered logit model regressed on the socio-demographic variables. The dependent variable is risk aversion.

VARIABLES	odds ratio
Risk aversion	
Gender	1.194*** (0.0519)
Age	1.020*** (0.00203)
2. Medium education	1.312** (0.151)
3. High education	1.217* (0.144)
Dependent employed	1 (0)
Apprentice / trainee	3.438 (3.307)
Employer	1.020 (0.170)
Own-account worker	0.863* (0.0657)
Contributing family worker	0.824 (0.362)
Married	1 (0)
In consensual union	0.904 (0.0601)
Never married/not in union	0.980 (0.0659)
Separated	0.646** (0.111)
Divorced	0.736*** (0.0731)
Widowed	0.774 (0.149)
2. Industry	1.119 (0.261)
3. Services	1.162 (0.267)
2. Good health	0.898** (0.0399)
3. Bad health	0.987 (0.0710)
ln_household income	0.812*** (0.0331)
Number of children	0.953** (0.0220)
cut1	
Constant	0.00504*** (0.00260)
cut2	
Constant	0.0402***

cut3	(0.0204)
Constant	0.118*** (0.0598)
cut4	
Constant	1.128 (0.571)
<u>Observations</u>	<u>8,275</u>

Note: The risk aversion variable takes the value from 1 (risk tolerant) to 5 (risk averse).
Source: The model was estimated using Stata software and LWS data.

Table B.12 Weighted ordered logit model regressed on the socio-demographic variables. The dependent variable is risk aversion dummy.

VARIABLES	odds ratio
Female	1.535*** (0.0810)
Age	1.008*** (0.00203)
2. Medium education	1.147 (0.122)
3.High level of education	1.036 (0.115)
2.Industry	0.935 (0.217)
3.Services	0.955 (0.217)
Number of children	1.078*** (0.0262)
Excellent health (ref)	
2.Good health	1.037 (0.0565)
3.Fair	0.966 (0.0766)
4.Bad health	1.205 (0.253)
5.Very bad health	2.787* (1.520)
1.Dependant employed . apprentice/ trainee	1 (0.701)
2. Self employed	1 (0.693)
3. Employer	0.620*** (0.0964)
4. Self account worker	0.868* (0.0675)
5. Contributing family worker	0.818 (0.289)
2. Neutral toward risk	1.309*** (0.123)
3. Risk averse	1.812*** (0.139)
Household disposal income	1.000*** (8.94e-07)
Constant	0.967 (0.269)
Observations	14,991

Note: The second variable of risk aversion was measured by the following question :
If you had a choice between a guaranteed payment of one thousand pounds and a one five chance of winning ten

thousand pounds. Which would you choose?

- 1- Guaranteed payment of 1000 pounds.
- 2- One five chance of 10 000 pounds.
- 3- Don't know.

We codify the variables by 0 if the individual is risk tolerant and choose one five chance of 10 000 pounds. The variable is coded 1 if the individual is not risk averse and choose the payment of 1000 pounds. The result of the regression (logit) this variable is presented in the following table.

Source: The model was estimated using Stata software and LWS data.

Table B.13: Weighted ordered logit model regressed on the socio-demographic variables. The dependent variable is intertemporal choices dummy.

VARIABLES	odds ratio
Gender	0.758*** (0.0377)
Age	1.006*** (0.00196)
2. Medium education	1.226* (0.137)
3. High education	2.023*** (0.232)
Household income	1.000** (5.50e-07)
2. Industry	0.713* (0.142)
3. Services	0.789 (0.152)
Number of children	0.914*** (0.0214)
2. Good health	0.945 (0.0490)
3. Fair	1.016 (0.0764)
4. Bad health	0.809 (0.163)
5. Very bad health	0.618 (0.330)
1. Dependent employed Apprentice / trainee	1 (0)
2. Self-employed	0.841 (0.809)
3. Employer	1 (0)
4. Own-account worker	1.148 (0.181)
5. Contributing family worker	1.011 (0.0744)
Avoid a risky gamble	0.904* (0.0514)
.Does not save	1 (0)
.Save	1.968*** (0.0990)
Constant	0.261*** (0.0664)
Observations	15,016

Note: The dependent variable takes the value 1 (wait) or 0 (not to wait)

Source: The model was estimated using Stata software and LWS data.

Table B.14: Weighted Tobit model. The dependent variable is the amount accumulated in voluntary pension account.

VARIABLES	model
2. Fair toward risk	-28,933*** (7,002)
3. Risk averse	-23,064*** (5,673)
Avoid the risky gamble	-16,346*** (4,154)
Wait for differed payment	19,150*** (3,948)
Female	-47,770*** (3,792)
age	1,427*** (157,3)
2. Medium level of education	50,167*** (8,835)
3. High level of education	71,860*** (9,098)
1. dependent employed , apprentice / trainee (ref)	0 (0)
2. Self-employed	-870,832 (0)
3. Employer	94,851*** (10,424)
4. Own-account worker	40,785*** (5,107)
5. Contributing family worker	-74,255** (33,831)
2. Industry	9,730 (16,296)
3. Services	-13,852 (16,038)
Constant	-156,569*** (20,950)
Observations	14,968

Note: The model is estimated for the whole sample *i.e.* for the individuals who save and do not save.

Source: The model was estimated using Stata software and LWS data.

Table B.15: Weighted Tobit model. The dependent variable is the amount accumulated in voluntary pension account.

VARIABLES	sigma
2. Fair toward risk	-31,413*** (10,912)
3. Risk averse	-37,021*** (8,806)
Avoid the risky gamble	-13,258** (6,342)
Wait for deffered payment	23,790*** (5,742)
Female	-50,016*** (5,768)
Age	1,316*** (240.2)
2. Medium level of education	60,774*** (16,579)
3. High level of education	82,227*** (16,816)
100b. dependent employed (ref)	0 (0)
122. Apprentice / trainee	-685,132 (0)
200o. Self-employed	
210. Employer	124,525*** (16,491)
220 Own-account worker	63,937*** (8,384)
240. Contributing family worker	-166,585** (68,121)
2.Industry	12,415 (25,471)
3.Services	-12,051 (25,033)
Constant	-171,711*** (33,894)
Observations	8,283

Note: The model is estimated for the subsample *i.e.* only for the individuals who save.

Source: The model was estimated using Stata software and LWS data.

USA results

Table B.16: Summary statistics

	[1] Takes substantial financial risks expecting to earn substantial return	[2] Takes above average financial risks expecting to earn above average return	[3] Takes average financial risks expecting average return	[4] Not willing to take any financial risk
Less than 24	5%	20%	37%	38%
25-34	4%	18%	38%	40%
35-44	6%	21%	38%	35%
45-54	5%	20%	42%	32%
55-64	3%	19%	46%	32%
65 and over	3%	13%	41%	43%
Gamma	0.02			
[1] Male	4%	20%	43%	33%
[2] Female	4%	18%	40%	39%
Gamma	0.09			
[100] Married/in union	3%	12%	30%	55%
[110] Married	4%	21%	46%	29%
[120] In consensual un	4%	15%	30%	51%
[210] Never married/no	4%	17%	38%	40%
[220] Formerly married	3%	13%	28%	56%
[221] Separated	4%	8%	32%	56%
[222] Divorced	4%	12%	35%	50%
[223] Widowed	2%	7%	27%	64%
Chi ²	2.80E+03	Pr	0	
[1] Low level of education	2%	6%	17%	75%
[2] Medium level of education	3%	13%	36%	48%
[3] High level of education	5%	26%	50%	19%
Gamma	-0.51			
[1] White (include Middle Eastern/Arabian with White); Caucasian (ref)	4%	20%	44%	33%
[2] Black/African-American	4%	12%	31%	53%
[3] Hispanic/Latino	4%	8%	22%	66%
[4] Other: Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander	7%	16%	41%	36%

Gamma	0.28			
[1] Excellent health	5%	25%	46%	23%
[2] Good health	3%	18%	42%	36%
[3] Fair health	4%	10%	33%	53%
[4] Poor health	2%	7%	26%	64%
Gamma	0.31			
[110] Employed, at work	4%	21%	43%	31%
[210] Unemployed	4%	12%	35%	49%
[220] Not in labour force	6%	20%	43%	31%
[221] Retired, pension	2%	10%	41%	47%
[222] In education	7%	17%	38%	38%
[223] Homemaker	5%	22%	41%	32%
[224] Disabled	2%	8%	22%	68%
Gamma	0.19			
[100] Dependent employee	4%	19%	41%	36%
[200] Self-employed	7%	27%	49%	17%
Gamma	-0.33			
[1] Agriculture	7%	18%	38%	37%
[2] Industry	4%	18%	42%	36%
[3] Services	5%	22%	43%	30%
Gamma	-0.1			
Average log income	11.1736	11.09101	10.77835	10.08863
Average accumulated stock of assets in voluntary pension account in local currency	170199.5	211779.2	122157.5	11086.41
[0] Not living with own children	3%	17%	43%	37%
[1] Living with 1 own child	5%	17%	39%	38%
[2] Living with 2 own children	4%	24%	42%	30%
[3] Living with 3 own children	6%	26%	34%	34%
[4] Living with 4 own children	3%	16%	43%	38%
[5] Living with 5 own children	3%	17%	39%	41%
[6] Living with 6 own children	26%	11%	21%	42%
[7] Living with 7 own children	0%	0%	67%	33%
Gamma	-0.0875			
[1] Next few months are the most important for my budget plan	3%	10%	25%	62%
[2] Next year is the most important for my budget plan	4%	14%	39%	43%
[3] Next few years are the most important for my budget plan	4%	19%	41%	36%

[4] Next 5-10 years are the most important for my budget plan	4%	23%	50%	23%
[5] Longer than 10 years are the most important for my budget plan	7%	30%	47%	17%
Gamma	-0.36			
Does not save: usually spend more than income	9%	8%	22%	61%
Gamma	0.33			
Does not save: I spend as much as my income	4%	10%	24%	63%
Gamma	0.46			
Saves whatever is left	4%	15%	40%	41%
Gamma	0.13			
Saves income of one family member and spends the other	4%	26%	48%	23%
Gamma	-0.21			
Spends regular income and saves the rest	5%	29%	48%	17%
Gamma	-0.33			
Saves regularly by putting money aside each month	4%	25%	46%	25%
Gamma	-0.32			

Source: Own study based on LWS data.

Table B.17: Weighted ordered logit model regressed on the socio-demographic variables. The dependent variable is risk aversion.

VARIABLES	odds ratio
Risk aversion	
Age	1.021*** (0.00128)
Married/in union (ref)	
110b. Married	1 (0)
120. In consensual union	1.412*** (0.0729)
210. Never married/not in union	0.947 (0.0388)
221. Separated	1.614*** (0.150)
222. Divorced	1.177*** (0.0537)
223. Widowed	1.023 (0.0880)
White (include Middle Eastern/Arabian with White); Caucasian (ref)	
2. Black/African-American	1.446*** (0.0641)
3. Hispanic/Latino	2.103*** (0.111)
4. Other: Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander	1.393*** (0.0965)
Gender	1.492*** (0.0463)
Household income	1.000 (7.91e-08)
2. Medium level of education	0.428*** (0.0329)
3. High level of education	0.256*** (0.0203)
2. Industry	0.790** (0.0870)
3. Services	0.801** (0.0854)
100b. Dependent employed	1 (0)
200. Self employed	0.560*** (0.0289)
2. Good health	0.994 (0.0322)
3. Fair	0.939 (0.0434)
4. Poor health	1.022 (0.117)
ln_Personal incom	0.816*** (0.0149)
[2] Next year is the most important	0.536***

for my budget plan	(0.0258)
[3] Next few years are the most important for my budget plan	0.530*** (0.0223)
[4] Next 5-10 years are the most important for my budget plan	0.457*** (0.0203)
[5] Longer than 10 year are the most important for my budget plan	0.345*** (0.0175)
I don't save, I spend more than my income (ref)	
2. I don't save I spend as much as my income	1.381*** (0.125)
3. I save whatever is left	0.952 (0.0812)
4. I save income of one family member and spend the other	0.667*** (0.0829)
5. Spends regular income and saves the rest	0.647*** (0.0720)
6. Saves regularly by putting money aside each month	0.609*** (0.0516)
cut1	
Constant	0.00187*** (0.000457)
cut2	
Constant	0.0153*** (0.00369)
cut3	
Constant	0.131*** (0.0314)
Observations	18,948

Source: The model was estimated using Stata software and LWS data.

Table B.18. Weighted ordered logit model regressed on the socio-demographic variables. The dependent variable is forward looking.

VARIABLES	(1) odds ratio
Forward looking	
Gender	0.826*** (0.0226)
Age	1.008*** (0.00120)
2. Medium education	0.999 (0.0563)
3. High education	1.243*** (0.0750)
Married/in union (ref)	
110b. Married	1 (0)
120. In consensual union	0.954 (0.0433)
210. Never married/not in union	1.032 (0.0444)
221. Separated	0.878* (0.0680)
222. Divorced	1.043 (0.0449)
223. Widowed	0.823** (0.0641)
White (include Middle Eastern/Arabian with White); Caucasian (ref)	
2. Black/African-American	0.680*** (0.0268)
3. Hispanic/Latino	0.779*** (0.0339)
4. Other: Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander	1.322*** (0.0819)
100b. Dependant employed	1 (0)
200. Self employed	0.965 (0.0371)
2. Industry	0.533*** (0.0481)
3. Services	0.610*** (0.0532)
2. Good health	0.986 (0.0289)
3. Fair	0.874*** (0.0360)
4. Poor health	0.749*** (0.0719)
I don't save, I spend more than my income (ref)	

2. I don't save I spend as much as my income	1.165** (0.0878)
3. I save whatever is left	1.401*** (0.101)
4. Saves income of one family member and spend the rest	1.790*** (0.193)
5. I spends regular income and save the rest	2.258*** (0.217)
6. Saves regularly by putting money aside each month	2.231*** (0.161)
ln_Household income	1.354*** (0.0266)
2. Takes above average financial risks expecting to earn above average return	1.447*** (0.106)
3. Takes average financial risks expecting average return	1.292*** (0.0895)
4. Not willing to take any financial risk	0.656*** (0.0459)
Number of children	0.960*** (0.0118)
cut1	
Constant	7.609*** (1.836)
cut2	
Constant	16.61*** (4.011)
cut3	
Constant	56.70*** (13.75)
cut4	
Constant	229.2*** (55.93)
Observations	20,221

Source: The model was estimated using Stata software and LWS data.

Table B.19: Weighted Tobit model. The dependent variable is the amount accumulated in voluntary pension account.

VARIABLES	model
Age	6,561*** (251.4)
Gender	-38,726*** (7,234)
2. Medium education	255,307*** (21,462)
3. High education	406,468*** (21,953)
2. Takes above average financial risks expecting to earn above average return	37,828* (20,859)
3. Takes average financial risks expecting average return	6,8117 (19,912)
4. Not willing to take any financial any risk	-169,256*** (20,385)
[2] Next year is the most important for my budget plan	6,467 (12,340)
[3] Next few years is the most important for my budget plan	24,737** (10,385)
[4] Next 5-10 years is the most important for my budget plan	43,408*** (10,897)
[5] Longer than 10 yea is the most important for my budget plan	141,847*** (12,426)
ln_hincome	178,096*** (4,953)
2. Black/African-American	-78,835*** (11,697)
3. Hispanic/Latino	-100,007*** (15,094)
4. Other: Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander	-33,818** (16,364)
Number of children	-38,008*** (3,688)
2. I don't save I spend as much as my income	36,351 (22,752)
3. I save whatever is left	61,718*** (21,635)

4. Saves income of one family member and spends the other	52,758 (32,101)
5. I spends regular income and save the rest	89,598*** (25,811)
6. Saves regularly by putting money aside each month	93,167*** (21,458)
Constant	-2.731e+06*** (63,402)
Observations	29,679

Note: The model is estimated for the whole sample *i.e.* for the individuals who save and do not save.

Source: The model was estimated using Stata software and LWS data.

Table B.20. Weighted Tobit model. The dependent variable is the amount accumulated in voluntary pension account.

VARIABLES	(1) model
Age	6,027*** (337.0)
Gender	-39,523*** (9,330)
2. Medium education	258,483*** (36,987)
3. High education	367,948*** (37,341)
2. Takes above average financial risks expecting to earn above average return	-467.2 (24,980)
3. Takes average financial risks expecting average return	-55,231** (24,116)
4. Not willing to take any financial any risk	-211,483*** (25,400)
[2] Next year is the most important for my budget plan	-41,146** (17,743)
[3] Next few years are the most important for my budget plan	3,476 (14,401)
[4] Next 5-10 years is the most important for my budget plan	15,330 (14,558)
[5] Longer than 10 years are the most important for my budget plan	84,896*** (15,967)
ln_hincome	184,173*** (6,357)
2. Black/African-American	-48,990*** (15,046)
3. Hispanic/Latino	-156,052*** (20,988)
4. Other: Asian, American Indian/Alaska native, Native Hawaiian/Pacific Islander	-5,397 (20,337)
Number of children	-32,605*** (4,744)
Constant	-2.573e+06*** (82,717)

Observations 14,841

Note: The model is estimated for the subsample *i.e.* only for the individuals who save.
Source: The model was estimated using Stata software and LWS data.