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RELATORE:

CH.MA PROF.SSA Cinzia Baldan

LAUREANDO: Giorgio Guarenti

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Firma dello studente

*I would like to dedicate this work to my mother, my father and my brother.
They all have been good examples and teachers of values for all their lives.*

Index

Introduction	6
1. Literature Review	8
1.1 How to measure financial literacy	8
1.2 Survey results from the literature	10
1.3 Literature about the impact of financial literacy	11
2. Financial Literacy in Italy.....	16
2.1 Analysis of financial literacy level in Italy.....	16
2.1.1 Data employed.....	16
2.1.2 Descriptive statistics of the answers.....	17
2.1.3 How financial literacy varies across population subgroups	19
2.1.4 Geographic disparities in financial literacy	22
2.2 An International Comparison	23
2.2.1 OECD's role in the creation of comparable indicators of financial literacy	23
2.2.2 Italy's position in the ranking.....	24
2.2.2 Different levels of overconfidence among countries and consequences.....	26
3. How financial literacy matters in personal finance choices	29
3.1 Behaviors under investigation	29
3.2 Does financial literacy matters? Univariate analysis and correlations	32
3.3 Does financial literacy matter? Model set up of multivariate analysis.....	37
3.4 Empirical evidence from the multivariate analysis	42
3.4.1 Financial inclusion variables	42
3.4.2 Electronic cards use	45
3.4.3 Liabilities side variables	47
3.4.4 Insurance coverage and pension plans	49
3.4.5 Investment instruments.....	51
3.4.6 Real outcomes	54
Conclusions	56
References	58
Appendix	62

Introduction

In the last few years financial markets around the world have become more accessible to retail investors. Technological progress, financial innovation and increasing market integration have permitted the financial industry to offer tailored financial contracts and an easier access to credit. Nowadays small investors have the opportunity to choose among a wide range of financial instruments both in the investment and debt side. Products such as student loans, mortgages, credit cards, pension accounts, annuities, reverse mortgages, mutual funds shares, ETFs, CDOs and other derivatives contracts are rapidly spreading in the marketplace. However, the advantages given by these kinds of contracts come at the cost of an increased complexity which have proven to be difficultly mastered by financially unsophisticated investors. These developments are occurring together with changes in the pension landscape that are increasingly thrusting responsibility for saving, investing, and decumulating wealth onto workers and retirees, whereas in the past, older workers relied mainly on State pensions in their retirement. Even in Italy recent pension reforms have caused the shift from the Defined Benefit to the Defined Contribution method which gives greater role for private pension funds in restoring an adequate level of future pension benefits. Workers have to choose whether to participate in pension plans and, if they do participate, they have to decide both how much to contribute and how to allocate their pension wealth. Moreover, during retirement they have to take on responsibility for careful decumulation so as not to outlive their assets while meeting their needs.

In the past, when retirement pensions were designed and implemented by governments, individual workers devoted very little attention to their plan details. Today, by contrast, saving, investment, and decumulation for retirement are occurring in an increasingly personalized environment. This trend toward disintermediation is increasingly requiring people to take important financial decision on their own. This prompts questions about households' preparedness, the level of their financial knowledge, their ability to deal with financial choices. The capability of individuals to make informed financial decisions is critical to developing sound personal finance. Financial literacy is peoples' ability to process economic information and make informed and effective decisions about financial planning, wealth accumulation, debt, pensions, real estate, insurance and tax planning. It also involves knowledge of financial concepts like compound interest, the mechanics of a credit card, inflation, consumer rights, time value of money, risk diversification, etc.

As the shift continues toward individual responsibility for saving, investment, and debt management, it is important for people to be well-equipped with the tools necessary to make

good financial decisions. However, financial literacy should not be taken for granted. Most people around the world lack sufficient levels of financial literacy. This is true not only in countries with developing financial markets, but also in many developed countries. Among the last ones Italy makes no exception. Especially after the 2009 global financial crisis, policymakers all over the world have expressed deep concern about the widespread lack of financial knowledge. The following are the words pronounced by Former U.S. Federal Reserve Board Chairman Ben Bernanke (2011): “In our dynamic and complex financial marketplace, financial education must be a life-long pursuit that enables consumers of all ages and economic positions to stay attuned to changes in their financial needs and circumstances and to take advantage of products and services that best meet their goals. Well-informed consumers, who can serve as their own advocates, are one of the best lines of defense against the proliferation of financial products and services that are unsuitable, unnecessarily costly, or abusive.”

This work is organized as follows. In the first chapter you can find a review of the literature regarding financial literacy topics. One of the aims of this work is to show how well-equipped are Italian households to make financial decisions, for this reason in the second chapter are illustrated the results of two surveys conducted by Bank of Italy about financial literacy. The findings are alarming, since Italy appears among the last countries in the ranking. To test whether this is a serious issue, the third chapter is committed to show that financial literacy has a statistically significant impact on many economic behaviors (such as the participation to the stock market or to private pension plan, the use of electronic payments, request of formal credit) and real outcomes (such as delays on bills payments and the ease with which households make ends meet with their income). The econometric work is based on Bank of Italy SHIW 2016 and its purpose is to prove that an increase in financial literacy level would close at least part of the gap between current household behavior and theoretically optimal economic behavior. At the end, a conclusion sums up the main findings of the work.

1. Literature Review

Financial literacy is a rapidly growing body of economic research. Before starting to learn from the literature the impact of financial literacy on households' economic behavior it is necessary to understand how financial literacy has been measured to date.

1.1 How to measure financial literacy

According to Lusardi and Mitchell (2014), three of the essential concepts which constitute the bedrock of savings and investment decisions are: (i) *numeracy and capacity to do calculations related to interest rates*; (ii) *understanding of inflation*; and (iii) *understanding of risk diversification*. Converting these notions into easily measured financial literacy metrics is difficult, but Lusardi and Mitchell (2008, 2011a, 2011c) have been able to design a standard set of questions. Moreover, they have implemented them in numerous surveys in many countries all over the globe. In order to word the three concepts mentioned above into a questionnaire Lusardi and Mitchell followed a set of guidelines: simplicity, relevance, brevity and capacity to differentiate. The *simplicity* principle imply that the questions should measure knowledge of the building blocks fundamental to decision making in an intertemporal setting. *Relevance* entails the questions to be related to concepts pertinent to peoples' day-to-day financial decisions over the life cycle capturing general ideas, rather than context-specific ones. *Brevity* idea involves the number of questions which must be kept short to secure widespread adoption. *Capacity to differentiate* means that questions should differentiate financial knowledge to permit comparisons across people.

Lusardi and Mitchell (2008, 2011a) figured out three queries which meet the above described criteria. The questions are worded as follows:

- Suppose you had \$100 in a savings account and the interest rate was 2 percent per year. After 5 years, how much do you think you would have in the account if you left the money to grow: [**more than \$102**; exactly \$102; less than \$102; do not know; refuse to answer.]
- Imagine that the interest rate on your savings account was 1 percent per year and inflation was 2 percent per year. After 1 year, would you be able to buy: [more than, exactly the same as, or **less than today** with the money in this account; do not know; refuse to answer.]

- Do you think that the following statement is true or false? “Buying a single company stock usually provides a safer return than a stock mutual fund.” [true; **false**; do not know; refuse to answer.]

The first question measures numeracy and the capacity to do a simple calculation related to compounding of interest rates. The second question measures understanding of inflation in a context of a simple financial decision. The third question tests the knowledge of risk diversification principle, moreover it assesses the understanding of “stocks” and “stock mutual funds” concepts. The rationale of the third question lies behind the fact that decisions about retirement savings must deal with financial markets.

Note that “Don’t Know” (DK) is always a response option. This means that respondents are not forced to pick an answer, thus minimizing guessing. However, this does not mean that there is no room for measurement error.

First of all, the answers to a questionnaire of just three questions can only be a proxy of the real level of a complex concept such as the financial literacy of an individual. Secondly there is the possibility that answers might not measure true financial knowledge. For example, financial literacy may be measured with error, depending on the way questions are worded. In order to test this possibility, Lusardi and Mitchell (2009) and van Rooij, Lusardi, and Alessie (2011) asked two groups of respondents the same risk question, but presented in two different ways, as reported below:

- (a) Buying a company stock usually provides a safer return than a stock mutual fund. True or false?
- (b) Buying a stock mutual fund usually provides a safer return than a company stock. True or false?

What the authors found is that people’s responses are sensitive to how the question was worded. This means that some answers judged to be “correct” may instead be attributable to guessing. In other words, analysis of the financial literacy questions should take into account the possibility that these measures may be noisy proxies of true financial knowledge levels.

It often happens that the questionnaires measuring financial literacy include questions asking people to self-assess their level of financial knowledge. The purpose of this query is to distinguish between objective and subjective measures of financial literacy, where the former is the actual financial knowledge indicated by the answers to the set of three questions posed, while the latter is the self-assessment. More often than not there is a substantial mismatch between these two measures, with the subjective measures prevailing on the objective most of times. This means that respondents are rather confident of their financial knowledge and they tend to overestimate their capabilities, proving to be unaware of their own shortcomings.

Despite this questionnaire cannot be considered a perfect index of the level of financial literacy for the reasons seen above, this relatively parsimonious set of three questions measuring basic concepts such as interest compounding, inflation, and risk diversification has become the starting point for evaluating levels of financial literacy around the world.

In the next section you can find how people respond to this questionnaire contained in surveys conducted in many different countries

1.2 Survey results from the literature

Many researchers have tried to discover how the financial literacy level varies across different socio-demographic characteristics of the population.

Among the first variables examined we find age. The survey data from Lusardi and Mitchell (2014) show that financial literacy is lowest among the young and the old, whereas it reaches its peak in the age range 36 to 50. In other words, the life-cycle profile of financial literacy is hump-shaped. This finding is robust across countries.

What is more, Deevy, Lucich, and Beals (2012) found that although actual financial literacy falls with age, peoples' subjective perception of financial knowledge actually increases with age. This relationship between age and overconfidence might explain why elderly are the most common victims of financial scams.

Another characteristic widely analyzed is sex. Many studies (Lusardi, Mitchell, and Curto, 2010; Lusardi and Mitchell, 2009; Lusardi and Tufano, 2009a, 2009b) tested the existence of a gender gap even in the financial knowledge area. This holds both among the young and the old. What is surprising is that this sex difference is persistent even among single women, which are in charge of their own finances (Hsu, 2011).

Furthermore, Mahdavi and Horton (2012) discovered that even very well-educated women are not particularly financially savvy compared to men with similar characteristics. As the last research mentioned suggest, also education is a variable that matters for the level of financial literacy. As reported in several surveys across the countries (Lusardi and Mitchell, 2007a, 2011c), financial knowledge raises as education level increases.

Another social feature checked for by Lusardi and Tufano (2009a) is the employment type, with lower-paid individuals doing worse and employees and the self-employed doing better than the unemployed.

In the US context also race and ethnicity appears to matter. According to Lusardi and Mitchell (2007a, 2007b) African Americans and Hispanics display the lowest level of financial literacy; finding that holds across different age groups.

Klapper, Lusardi and Panos (2012) found that people living in a city score better than people living in rural areas. This might suggest that social interactions with others, in the community or in the workplace, is a mean of spread of financial knowledge.

Linked to this, Chiteji and Stafford (1999) and Shim *et al.* (2009) suggest that financial literacy may start to be acquired inside household walls. For example, when children directly receive financial education from parents, or indirectly observe their parents' saving and investing behavior. Not surprisingly respondents' financial literacy is positively correlated with their parents' education, and whether their parents held stocks or retirement accounts in the timespan the respondents were teenagers.

To sum up, financial illiteracy is widespread, but it is not homogeneous among population subgroups. Indeed, it is particularly severe among the young and the old, females, unemployed, ethnic minorities, people with low education level and low income.

This heterogeneity could be an advantage for policy intervention aimed at increasing the financial literacy level of the population since it may focus on these key demographic groups.

In the next section we will turn to the big chunk of the literature on financial literacy which studies whether financial knowledge matters for financial decision making.

1.3 Literature about the impact of financial literacy

The early economic literature in this area began by documenting the link between financial literacy and a set of economic behaviors.

Bernheim (1995, 1998) was the first to show that most households lack basic financial knowledge and cannot perform elementary calculations and that crude rules of thumb drive the saving behavior of many households. A strong correlation between financial literacy and day-to-day financial management was documented in a paper by Hilgert *et al.* (2003).

According to the review of the literature on financial literacy performed by Klapper, Lusardi and Panos (2012), financial knowledge has been found to be linked to a set of behaviors related to saving, wealth, and portfolio choice. Many papers show that individuals with greater numeracy and financial literacy are more likely to invest in stocks and to take part in financial markets (Christelis *et al.*, 2010; Yoong, 2011; Almenberg and Dreber, 2011; Christiansen *et al.*, 2008; Almenberg and Widmark, 2011; Van Rooij *et al.*, 2011). Furthermore, more literate

individuals are more likely to choose mutual funds with lower fees (Hastings and Tejada-Ashton, 2008; Hastings and Mitchell, 2011). In the United States, investors are estimated to have foregone substantial equity returns due to fees, expenses, and active investment trading costs, in an attempt to “beat the market”. French (2008) calculates that this amounts to an annual total cost of around \$100 billion, which could be avoided by passive indexing. Since the least financially literate are unlikely to be sensitive to fees, they are most likely to bear such costs. A specific focus is required when dealing with the costs of financial ignorance in retirement. This topic entails a particularly difficult set of decisions requiring retirees to look ahead to an uncertain future when making irrevocable choices with far-reaching consequences. For instance, people must forecast their survival probabilities, investment returns, pension income, and medical and other expenditures. Moreover, many of these financial decisions are once-in-a-lifetime events, including when to retire and claim one’s pension benefits. As a consequence, it would not be surprising if financial literacy improved peoples’ skills to make these important and consequential decisions. In proving this reasoning, Lusardi and Mitchell (2007a, 2007b, 2011a, 2011b) demonstrated that the more financially savvy are indeed more likely to undertake retirement planning; and those who plan also accumulate more wealth, ending up having a higher probability of being better financially endowed when they do retire. This finding is reproduced in many of the countries that are part of an international comparison of financial literacy (Lusardi and Mitchell, 2011c).

Financial literacy affects not only the assets side but also the liability side of households’ balance sheet. Moore (2003) reports that respondents with lower levels of financial literacy are more likely to have costly mortgages. More recently, Gerardi *et al.* (2010) show that those with low financial literacy are more likely to default on sub-prime mortgage or have problems with them, and Campbell (2006) pointed out that those with lower income and less education (characteristics strongly related to financial illiteracy) were less likely to refinance their mortgages during a period of falling interest rates. Stango and Zinman (2009) tested that those who are not able to correctly calculate interest rates out of a stream of payments end up borrowing more and accumulating lower amounts of wealth. Lusardi and Tufano (2009a, 2009b) report that individuals less financial savvy tend to transact in high-cost manners, incurring higher fees and using high-cost methods of borrowing. The less knowledgeable also report that their debt loads are excessive or that they are unable to judge their debt position. The large number of mortgage defaults during the financial crisis has likewise suggested to some that debt and debt management is a fertile area for mistakes; for instance, many borrowers do not know what interest rates were charged on their credit card or mortgage balances (Moore, 2003; Lusardi, 2011).

Financial literacy appears to matter not only in financial matters, but also in real outcomes. Klapper, Lusardi and Panos (2012) carried out a research in Russia which is an interesting case to study given that this country has quickly moved to a market-based banking system and financial education and basic financial literacy are still lagging. In this context, they discovered that individuals with higher levels of financial literacy are significantly more likely to report greater levels of unspent income and less likely to report lower levels of spending. They are also less likely to report experiencing a negative income shock during the year of the financial crisis. Finally, the relationship between financial literacy and the level of unspent income is higher during the financial crisis, after controlling for household characteristics. What these results suggest is that greater financial literacy can help individuals to face unexpected macroeconomic and income shocks.

Despite this large number of findings, correlation between financial knowledge and economic behavior does not mean causation, and it is important to establish a causal link. When financial literacy itself is a choice variable, it is important to disentangle cause from effect. For instance, those with high net worth who invest in financial markets may also be more likely to care about improving their financial knowledge, since they have more at stake. Financial knowledge is potentially an endogenous variable and assessing the direction of causality between financial literacy and financial decision making has been challenging in previous work given the difficulties in obtaining an exogenous source of variation in financial literacy.

One way researchers tried around this problem is to look at financial mistakes and assess whether they are correlated with financial literacy. The rationale behind this is that it is harder to argue that the causality goes from mistakes to financial literacy. Agarwal *et al.* (2009) point out that financial mistakes are more frequent among the young and the elderly. Calvet *et al.* (2007, 2009), find that poorer, less educated, and immigrant households in Sweden are more likely to make financial mistakes. All these are demographic groups with low levels of financial literacy.

A different way to retrieve the effects of financial literacy on economic outcomes is to use a field experiment in which one group of individuals (the treatment group) is exposed to a financial education program and their behavior is then compared to that of a second group not exposed. For instance, in Indonesia, a randomly selected group of unbanked individuals were offered financial literacy training sessions. Comparing with individuals not exposed to training, these sessions were found to increase the demand for banking services. This is especially true among those with low initial levels of financial literacy (Cole *et al.*, 2011).

The financial crisis has also provided a laboratory to study the effects of financial literacy against a backdrop of economic shocks. For example, Bucher-Koenen and Ziegelmeyer (2011)

examined the financial losses suffered by German households during the financial crisis and confirmed that the least financially literate had a higher probability to sell assets that had dropped in value, thus locking in losses.

Another possible strategy is to rely on instrumental variable (IV) estimation. In the last years several authors have implemented IV estimation to measure the impact of financial literacy on financial behavior, and the results tend to be quite convincing. Researchers had to resort to their ingenuity and to economic intuition to figure out valid instruments, which must explain the level of financial literacy of the respondent without being under respondents' control.

In what follows some of the instruments employed so far are illustrated.

Christiansen, Joensen, and Rangvid (2008) used the opening of a new university in a local area as instrument for financial literacy. Following this lead, Klapper, Lusardi and Panos (2012) used the number of public and private universities in the Russian regions and the total number of newspapers in circulation as instruments for financial literacy. Lusardi and Mitchell (2009) instrumented financial knowledge using the fact that different U.S. states mandated financial education in high school at different points in time and in different states. Van Rooij, Lusardi, and Alessie (2011) instrumented financial literacy with the financial experiences of siblings and parents. Behrman *et al.* (2012) use exposure to a new educational voucher system in Chile to isolate the causal effects of financial literacy and schooling attainment on wealth. Fornero and Monticone (2011) used as instruments the presence in the household of a person with a degree in economics and the availability of a PC in the house.

All these studies have shown robust and potent effects of financial literacy on economic outcomes. Interestingly, the IV financial literacy estimates always prove to be larger than the OLS estimates. This might be due to different reasons. It may be that people affected by the instruments have large responses, or there is severe measurement error. However, on the other hand, it seems clear that the non-instrumented estimates of financial literacy may underestimate the true effect. Despite these advances, one might worry that other omitted variables could still influence financial decisions in ways that could bias results.

Although researchers are still trying to solve the endogeneity issue, the results so far obtained by several studies appear to show that an individual's ability to understand and use basic financial and economic concepts plays an important role in achieving an appropriate level of economic wellbeing. Indeed, adequate skills permits individuals to take advantage of the opportunities offered by a developed financial system, while at the same time taking risks into account in a proper manner.

The results so far reported show evidence coming from many countries all over the world. Next chapters will instead focus on Italy, its level of financial literacy and how financial capabilities impact on Italian household economic behavior.

2. Financial Literacy in Italy

This section is devoted to illustrating the level of financial literacy in Italy. In the first part the level of financial knowledge is examined both on Italian population as a whole and with a split by different socio-demographic characteristics to test whether there are substantial differences among Italian population subgroups. In the second part you will see where Italy is positioned with respect to other countries in an international financial literacy ranking.

2.1 Analysis of financial literacy level in Italy

In this subchapter we will investigate the level of financial knowledge of Italian households' heads and how financial skills vary across different subgroups of the population.

2.1.1 Data employed

This study is based on Bank of Italy's Survey on Household Income and Wealth (SHIW) conducted during 2017 and referred to the year 2016.

The Survey on Household Income and Wealth has been run by the Bank of Italy every two years since the 1960s in order to gather detailed information on household demographics, consumption, income, saving, and wealth for a representative sample of the Italian population. The questionnaire has a modular structure and it is composed of a general part addressing aspects relevant to all households and a series of additional sections containing questions relevant to specific subsets of households. Data are collected mainly with the aid of computers (over 90 percent in the latest editions of the survey), using the Computer-Assisted Personal Interviewing program (CAPI). The remaining interviews are conducted using paper-based questionnaires (PAPI, Paper-And-pencil Personal Interviewing), which the survey company subsequently transfers to a computer using the CAPI program as the input screen.

Over the years, the survey has grown in scope and now it includes other aspects of households' economic and financial behavior, such as the payment methods they employ.

Since 2006 the questionnaire also includes a module on financial literacy to be answered by the individual identified as the household head (i.e., the person primarily responsible for the household budget). The asked questions correspond with the set of queries ideated by Lusardi and Mitchell (2011) which has become the global standard for assessing financial knowledge. These questions evaluate the knowledge of concepts such as compound interest rate, inflation and risk diversification in the investment activities. These queries were discussed and quoted in the first chapter of this work.

In 2016, the survey covered 7,421 households (sampling units) composed of 16,464 individuals. As you can see in Table 1, the average age of household heads is about 62, 47.4% are females, 43.1% live in North Italy and 21.6% in Centre Italy, 44.4% live in urban areas, 33% completed high school, and only about 11.5% have a university degree (or more). Already retired people at the time of the interview are 48.2%, employee workers 29.6% and self-employed workers are only 8%. Average net household income is about €30,000 and 71.5% of households own their house.

Table 1		<i>Summary statistics of socio-demographic characteristics</i>	
	Mean	Standard Deviation	
female	0.474	0.499	
age (years)	62.16	15.67	
age <35	0.044	0.204	
age 35-44	0.100	0.300	
age 45-54	0.184	0.388	
age 55-64	0.204	0.403	
age >64	0.467	0.499	
North	0.431	0.495	
Centre	0.216	0.412	
South and Islands	0.353	0.478	
city	0.444	0.497	
none/primary	0.266	0.442	
lower secondary	0.286	0.452	
upper secondary	0.333	0.471	
degree+	0.115	0.319	
employee	0.296	0.456	
self-employed	0.080	0.271	
not-employed	0.142	0.349	
retired	0.482	0.500	
income	30,488	22798	
homeowner	0.715	0.452	

Source: author's elaboration from SHIW 2016

2.1.2 Descriptive statistics of the answers

Moving now to the answers to financial literacy questions, the results are illustrated in Table 2. Panel A of Table 2 reports the answers to the interest compounding question, showing that one out of two respondents gave the right answer, whereas about 21% did not know the answer or did not answer (both the options are included in the 'DK' answer). Panel B shows the answers to the question relative to inflation. More than 60% gave the correct answer, while one quarter of households' heads did not know the answer. Finally, the answers to the question on risk diversification are illustrated in Panel C. Almost 52% of respondents answered correctly

and 38% did not know the answer. Making a comparison among the answers to the three questions, Italians appear to be more familiar with inflation rather than with interest compounding and risk diversification. This is likely to be related to citizens' memories of inflationary periods. Indeed, many households of the sample experienced relatively high inflation in the 1970s and 1980s, when they were younger.

Overall, in Panel D we can see that almost 28% of the households gave correct answers to all the three questions, 30% of the sample got two answers right out of three and 19% responded correctly just to one question. More than 22% gave no correct answers. Of these the vast majority responded that they did not know the answers to all the questions (17% of the total). Finally, 43% admitted that they did not know the answer to at least one question.

Table 2		<i>Answers to the financial literacy questions (percent)</i>
<i>Panel A - Interest</i>		
Correct answer		50.13
DK		21.7
<i>Panel B - Inflation</i>		
Correct answer		61.41
DK		25.54
<i>Panel C - Risk Diversification</i>		
Correct answer		51.61
DK		37.94
<i>Panel D - Overall Performance</i>		
Three correct answers		27.73
Two correct answers		30.34
One correct answer		19.3
Zero correct answers		22.64
At least one DK		43.46
All DK		16.69
No. of observations		7421

Source: author's elaboration from SHIW 2016 - Weighted data.

Fornero and Monticone (2011) performed a similar analysis using SHIW 2006 data. Ten years later people knowledge of interest compounding has increased of 11% points (households' correct answers question to the same question were 40%), while it has maintained more or less stable for the inflation query (it was around 59% in 2006). It is instead impossible to draw a comparison regarding the last questions since in 2006 the third question was not directly related to risk diversification, since it tested the understanding of stocks (Imagine you

have only equity funds and stock market prices fall. Are you ...? [Better off/**Worse off**/As well off as before/Don't know]. This different question does not allow what would be an interesting comparison of the overall performance on the same questions asked with a ten years' time gap. As was also noted in the paper by Fornero and Monticone, it is important to remind that in Italy the topics covered by these questions are not taught in standard lower-secondary school programs and only in some types of high schools. Therefore, respondents can hardly rely upon knowledge acquired through formal school education in answering the questions.

2.1.3 How financial literacy varies across population subgroups

As widely discussed in section 1.2, financial literacy is not homogeneous among population subgroups. Table 3 at the following page shows financial knowledge answers by socio-demographic characteristics.

As predicted by the evidence reported by studies conducted in many other countries, the subgroups with the lowest level of financial capabilities are females, the young and the old, inhabitants of rural areas, unemployed, people with low education level and low income.

Men are more financial savvy than women for all questions. Females have a high proportion of DK responses, ranging always between 12 and 13 percentage points higher than males. As remarked by the paper by Fornero and Monticone, on the one hand, the fact that all respondents are household heads should reduce gender differences in knowledge, because this sample is relatively more homogeneous than a sample of the general population. On the other hand, the female and male sub-samples are quite different not only in terms of occupational status, but also as far as education is concerned, since females are less educated and more likely to be non-employed. What this suggest is that the socio-economic status plays a role to explain, at least in part, the gender gap in financial knowledge.

The financial literacy age profile is hump shaped, with a peak in performance in the age class from 45 to 54 years. This better performance holds in all the questions and can be noticed both as highest share of three correct answers and as lowest share of "don't know" answers.

People living in urban areas also perform better than countryside people, where the threshold number of inhabitants that distinguish between the two is 50,000. Even though in the inflation question the difference is very small (62% of correct answers vs 61%), in the other questions the gap is higher (for example in the risk diversification question the percentages are respectively 57 and 49).

Table 3 *Performance by socio-demographics characteristics (percent)*

	Freq.	<i>Interest</i>		<i>Inflation</i>		<i>Risk diversification</i>		<i>Overall performance</i>		
		Correct	DK	Correct	DK	Correct	DK	Three correct	Average score	At least one DK
<i>Gender</i>										
Men	3,901	56.14	15.86	66.64	19.07	56.86	31.70	32.47	1.79	36.74
Women	3,520	43.46	28.17	55.62	32.71	45.79	44.86	22.47	1.40	50.91
<i>Age</i>										
<35	323	52.55	21.62	62.31	24.11	52.59	32.43	27.04	1.69	37.11
35-44	744	55.90	15.17	63.92	20.19	53.78	34.33	30.23	1.75	39.19
45-54	1,368	57.66	12.62	68.88	17.56	61.10	29.06	34.50	1.89	34.16
55-64	1,517	51.43	14.73	66.33	18.48	56.47	31.53	29.36	1.74	37.56
>64	3,576	41.64	33.91	52.94	36.88	42.07	49.59	21.73	1.39	55.59
<i>Area</i>										
North	3,198	52.27	18.84	64.74	23.77	56.31	33.66	30.67	1.70	40.06
Centre	1,604	57.35	17.45	66.06	20.30	58.40	31.29	34.93	1.80	35.32
South and Islands	2,619	42.34	28.64	53.53	31.51	40.31	48.53	18.76	1.36	53.70
<i>City</i>										
rural area	4,127	47.57	23.14	61.05	26.73	48.94	40.69	25.42	1.58	46.26
urban are	3,294	54.88	19.02	62.09	23.33	56.57	32.84	32.00	1.62	38.26
<i>Education</i>										
none/primary	1,971	29.85	48.49	38.79	52.49	29.34	64.15	11.18	0.99	70.88
lower secondary	2,126	46.72	20.78	60.79	25.75	43.35	43.23	21.52	1.54	49.26
upper secondary	2,470	57.69	12.20	69.56	15.65	62.83	25.40	35.02	1.93	30.93
degree+	854	70.62	4.83	78.32	7.03	75.93	16.96	48.69	2.22	19.38
<i>Working status</i>										
employees	2,196	56.92	13.51	67.69	18.44	58.27	30.28	33.04	1.87	35.78
self-employed	593	64.37	6.89	70.81	9.75	66.14	23.27	35.93	2.06	27.08
not-employed	1,056	40.37	28.72	55.13	31.77	42.21	46.66	18.46	1.38	51.43
retired	3,576	42.63	31.89	54.48	35.12	44.05	46.88	23.28	1.43	53.17
<i>Income quartile</i>										
1st quartile (lowest)	1,856	34.97	40.08	44.56	43.87	33.97	57.71	13.95	1.07	65.49
2nd quartile	1,855	42.68	26.71	57.82	30.59	43.40	44.27	21.39	1.42	50.06
3rd quartile	1,855	55.52	13.89	68.12	18.20	55.44	33.24	30.74	1.77	36.80
4th quartile (highest)	1,855	67.29	5.91	75.36	9.34	73.41	16.65	44.65	2.15	21.47
<i>Homeownership</i>										
non-homeowner	2,117	43.46	29.10	52.64	32.18	43.81	46.34	20.79	1.39	52.12
homeowner	5,304	53.24	18.24	65.52	22.44	55.26	34.01	30.97	1.68	39.41

Source: author's elaboration from SHIW 2016 - Weighted data

Average score is not in percentage terms

Financial literacy strongly monotonically increases with level of education. This is true when looking at both correct and DK answers. For instance, the average score more than doubles at the two extremes of the educational achievements, going from less than 1 for people who at most finished the primary school, to more than 2 for college graduated. At the same way, the proportion of DK answers goes from 71% to 19%.

Among the working statuses, self-employed workers display the highest level of financial literacy. This category includes small business owners, owners or members of a family business, and members of “liberal professions” such as lawyers, architects, and so forth. This may be due to the fact that people belonging to this working class are wealthier than others and they can be assumed to be more accustomed to managing their personal/business finances. The gap between self-employed and employee workers, however, is not high in the question related to inflation (71% vs 68% of correct answers). The poor performance of retired respondents may be an effect of age effects and declining cognitive abilities. The non-employed category includes the unemployed, homemakers, students, and so on. They show the lowest performance in the counting of the correct answers, but on the other side retired are more prone in answering DK, exhibiting maybe a higher degree of prudence.

As in the case of education, financial knowledge increases monotonically even with income quartiles. The proportion of households’ heads belonging to the highest quartile and answering correctly to all the three questions is three times higher than the same data in the lowest quartile. The opposite happens in the proportions of people providing a DK answer.

Housing tenure is also related to financial literacy. Home owners display higher financial literacy than renters. This may have two different and complementary explanations. First housing tenure is a proxy of wealth and higher wealth is usually associated with higher financial knowledge. This happens since wealthier people have more at stake, as seen in the literature review chapter. Second, inside the homeowners’ category, there are households currently paying a mortgage and contracting housing debts may provide a learning opportunity in financial topics.

Making a comparison between Table 3 and the comparable data from Fornero and Monticone based on SHIW 2006, the performance of household in the compound interest question has clearly improved in 10 years, no matter the subgroup considered. A higher percentage of people answering correctly and a lower percentage providing the answer DK is observed for both genders, for all occupational status and for all levels of educations. A similar clear improvement is not instead noticed in the answers to the inflation question. An increase in the proportion of correct answers holds in the division by sex, but it is not uniform in the division by education level and working status. On average the performance either remain stable or slightly improve, but in some subgroups it decreases. This remark may suggest that financial literacy level has increased over time, but not homogeneously in all the question. What may explain the fact that people have not significantly increased their knowledge of the inflation concept is that in the last years Italy has not experienced any inflationist wave, therefore people are less used to hear about this financial concept.

2.1.4 Geographic disparities in financial literacy

A peculiarity of the Italian case that is not always found in other countries, is the geographic disparity between northern and southern regions. This gap is photographed by many social and economic indicators like unemployment rate, level of education, per capita income and digital indices just to name a few. Not surprisingly, financial literacy is no exception.

Table 4 reports the overall performance with a split by region.

Table 4		<i>Performance by region (percent)</i>			
		<i>Overall Performance</i>			
Macro area	Region	Freq.	Three correct	Average score	At least one DK
<i>North</i>	Piemonte	642	26.57	1.59	51.42
	Valle d'Aosta	33	0.00	0.48	100.00
	Lombardia	828	33.77	1.71	30.59
	Trentino	218	41.28	2.01	33.17
	Veneto	454	19.14	1.53	49.29
	Friuli	175	45.87	2.19	22.36
	Liguria	277	22.80	1.45	46.62
	Emilia Romagna	571	35.15	1.85	35.86
<i>Centre</i>	Toscana	536	36.88	1.87	43.16
	Umbria	248	25.53	1.73	39.68
	Marche	340	52.39	2.10	25.64
	Lazio	480	28.74	1.56	33.66
<i>South and Islands</i>	Abruzzo	195	9.84	1.34	63.56
	Molise	101	13.60	1.10	78.08
	Campania	685	16.42	1.26	60.29
	Puglia	439	17.60	1.27	57.24
	Basilicata	119	31.90	1.71	42.77
	Calabria	197	5.50	0.97	63.49
	Sicilia	569	29.31	1.43	41.15
	Sardegna	314	23.55	1.77	21.52
No. of observations		7,421			

Source: author's elaboration from SHIW 2016 - Weighted data

Average scores and frequencies are not in percentages

The regions with the higher average financial literacy score are Friuli-Venezia Giulia (2.19), Marche (2.10) and Trentino-Alto Adige (2.01), all in North or Centre Italy. However, if we rank them by percentage of people answering correctly to all the three questions, Marche and Friuli swap their positions. Other regions in the upper part of the ranking are: Toscana (average score

1.87), Emilia-Romagna (1.85), Sardegna (1.77) and Umbria (1.73). Among these, Sardegna is the only one from South Italy. Moving at the bottom of the ranking, starting from the worst, we find Valle d'Aosta with the lowest average score (0.48), followed by Calabria (0.97), Molise (1.10), Campania (1.26), Puglia (1.27) and Abruzzo (1.34). Except Valle d'Aosta which is in North Italy, all the others belong to South Italy. Curiosity may well rise from the proportion of households in Valle d'Aosta answering correctly to all the questions. This percentage is equal to 0. However, if we observe the frequency of interviews sampled in Valle d'Aosta, we notice that it is extremely low. This might invalidate the estimators for this region.

It is important to notice that, even though the main difference in financial literacy is found between the South and the Centre–North, there is substantial variation across regions beyond the simple North–South divide. For example, in North Italy, beyond Valle d'Aosta which we have just doubted the validity, other much bigger regions such as Liguria and Veneto show a performance that cannot be considered very good. At the same time, as seen above, Sardegna performs better than several Northern regions.

Looking just at the aggregated macro area, however, a significant gap clearly exists between the financial literacy levels of North-Centre and South.

Since the geographical distribution of financial literacy resembles quite closely that of economic development and industrial activity, Fornero and Monticone (2011) set up an econometric model in which financial literacy depend on socio-demographics and some regional macro-economic indicators. What they found is that financial literacy is strongly correlated with the log of per capita GDP, the employment rate, and the share of employees working in small firms (up to 50 employees) at the regional level. A consistent result is obtained even by Jappelli (2010), who showed the existence of a positive link between economic literacy and economic development.

2.2 An International Comparison

Zooming out from Italy and its regions, we proceed now to a comparison of financial literacy levels among many countries, in order to see how good or bad Italy is doing in this context.

2.2.1 OECD's role in the creation of comparable indicators of financial literacy

The Organization for Economic Co-operation and Development (OECD) has been a pioneer in developing a methodology for measuring financial literacy and highlighting the lack

of it across countries. For example, already in 2005, an OECD report documented extensive financial illiteracy in Europe, Australia, and Japan, among others.

However, information on adult financial skills comparable across countries had been lacking until the development of the OECD International Network on Financial Education (INFE) harmonized methodology (OECD-INFE, 2015).

For the OECD financial literacy is “a combination of the awareness, knowledge, skills, attitude and behavior necessary to make sound financial decisions and ultimately achieve individual financial wellbeing” (OECD, 2011).

According to this definition, the INFE has developed a questionnaire in order to measure financial literacy with respect to three different areas: knowledge, behavior and attitudes. The first component is based on the three questions ideated by Lusardi and Mitchell, which have been widely discussed in the previous chapter. The second component assesses common behaviors held by the population, awarding the kind of actions that indicate a greater ability to manage financial resources properly. Some of these questions, for instance, evaluate whether people manage family financial resources by formulating a budget, are able to pay their debts and utilities with no concerns, and acquire information before making investments. Lastly, the attitudes component tries to carry out an assessment of personal traits such as preferences, beliefs and non-cognitive skills, which are likely to affect personal well-being. Attitudes towards precautionary saving and towards the long run in general are examples of what is tested inside this category.

The sum of these three components ranges between 1 and 21 and provides the overall level of financial literacy.

Following the OECD-INFE harmonized questionnaire, at the beginning of 2017 Bank of Italy conducted a survey to investigate financial literacy and inclusion among Italian adults. This sample survey, called *Italian Literacy and Financial Competence Survey* (IACOFI), was run on a sample of approximately 2,500 adult individuals.

The information collected by this survey, not only enriched the limited information available for Italy, but it also played an important role for Italy’s implementation of the National Strategy for Financial Education in 2017.

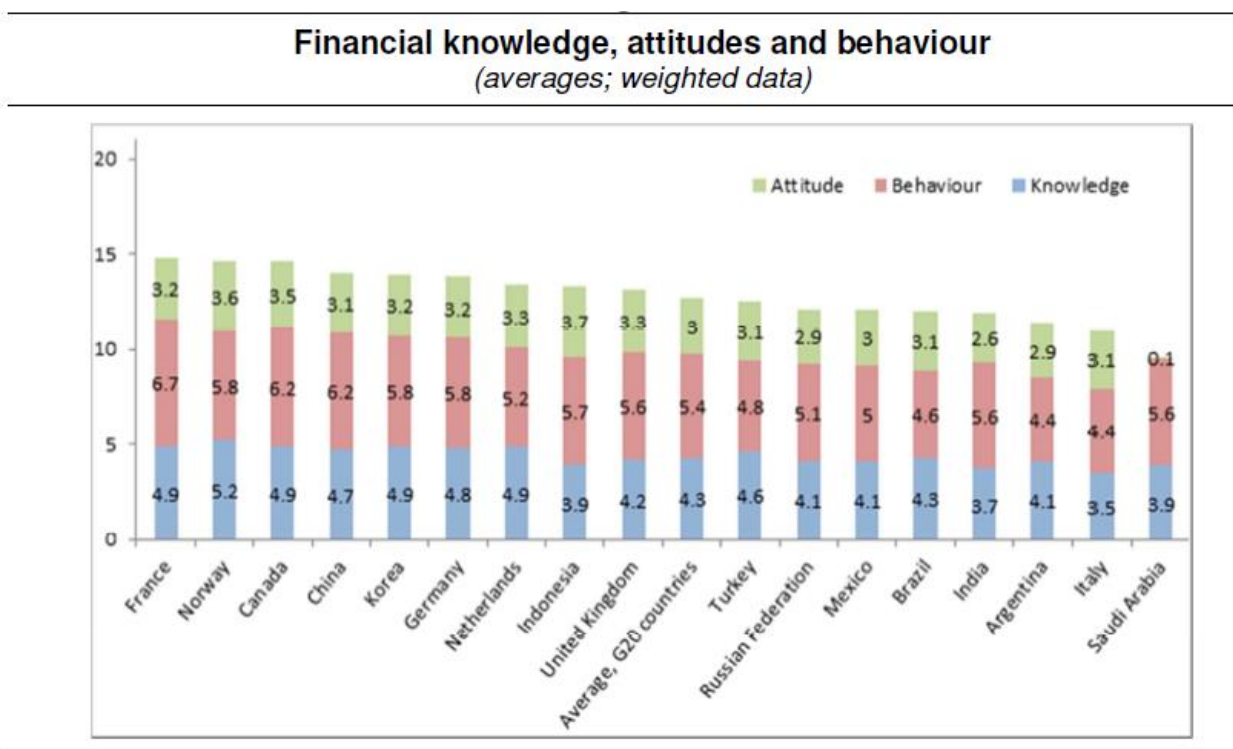
2.2.2 Italy’s position in the ranking

Even before this survey was conducted, the evidence available suggested that the level of financial skills of Italians was low when compared with other developed countries. For instance, another OECD’s survey called *Program for the International Assessment of Adult Competencies* (PIAAC) measures literacy, numeracy and problem-solving skills of populations

aged 16-65 across 24 different countries (OECD, 2013). Italy resulted at the bottom of the distribution both in literacy and numeracy. The last one in particular is a skill strongly linked to financial ability, as seen in the previous chapter.

The paper of Banca d'Italia “Measuring the financial literacy and inclusion among Italian adults” (2018), presents the main results from the IACOFI survey and their comparison with the other Nations implementing OECD-INFE harmonized questionnaire. This work confirms that there is a substantial financial literacy gap between Italy and the other G20 countries (Figure 1).

Figure 1



Source: Bank of Italy (2018), Measuring the financial literacy and inclusion among Italian adults: The experience of Banca d'Italia.

The financial knowledge average score for Italy is 3.5 out of a of 7 points, compared with a G20 average of 4.3. The proportion of respondents who achieved a minimum target score (5 or more, according to the OECD methodology) is slightly above 30 per cent, versus the G20 average of 48 per cent.

Moreover, Italy scores worse than the G20 average even in the behavioral area: 4.4 versus 5.4 out of a maximum of 9 points. The percentage of respondents who achieved a minimum target score (at least 6 out of 9, according to the OECD methodology) is less than 30 per cent, compared with a G20 average of 52 per cent. Just to mention a couple of bad habits, Italians have a low propensity to pursue long-term financial goals (only 27 per cent of respondents agree with the statement “I set long-term financial goals and strive to achieve them”) and they rarely

make use of budgeting (only 37 per cent of adults state that their family sets a budget to decide how much of their income will be spent to cover their living expenses and how much of it will be saved). The only behavior that Italians manage to conduct in a better way than the average of other countries regards borrowing: Italian households show a lower tendency to borrow (only 15 per cent of adults have been in a situation requiring borrowing to make ends meet in the last 12 months because family income was insufficient to cover their living costs).

Italy is instead close to the G20 countries' average in the attitude area, with a score around 3 out of 5. Providing some numerical data, 40 per cent of the Italian respondents show a positive saving orientation (they do not agree that it is more satisfying to spend than to save for the long term), 21 per cent disagree with the statement that "money is there to be spent" and 37 per cent disagree with the statement that "they tend to live for the day". The corresponding G20 average percentages are 43, 29 and 48 per cent, respectively.

One may wonder whether differences in socio-demographic composition among countries might contribute to different national performances in the survey scores. Italy for example is characterized by lower levels of schooling attainment: about 47 per cent of the adult Italian population has a primary level of education, while in Canada and UK this proportion does not reach 10 per cent.

In order to assess how much of the gap with other countries is attributable to the different socio-demographic compositions, the authors of the Bank of Italy paper recomputed the financial literacy scores rearranging sample weights so that the distribution of some socio-demographic features is equal to the corresponding ones in a set of other G20 countries.

The results of this counterfactual exercise suggest that diversity in the socio-demographic characteristics of countries play a role, although it is not enough to explain entirely the gaps in the financial literacy level between Italy and the other countries.

2.2.2 Different levels of overconfidence among countries and consequences

Another element that has become possible to study and geographically compare thanks to the OECD-INFE harmonized questionnaire is the level of self-confidence about financial abilities.

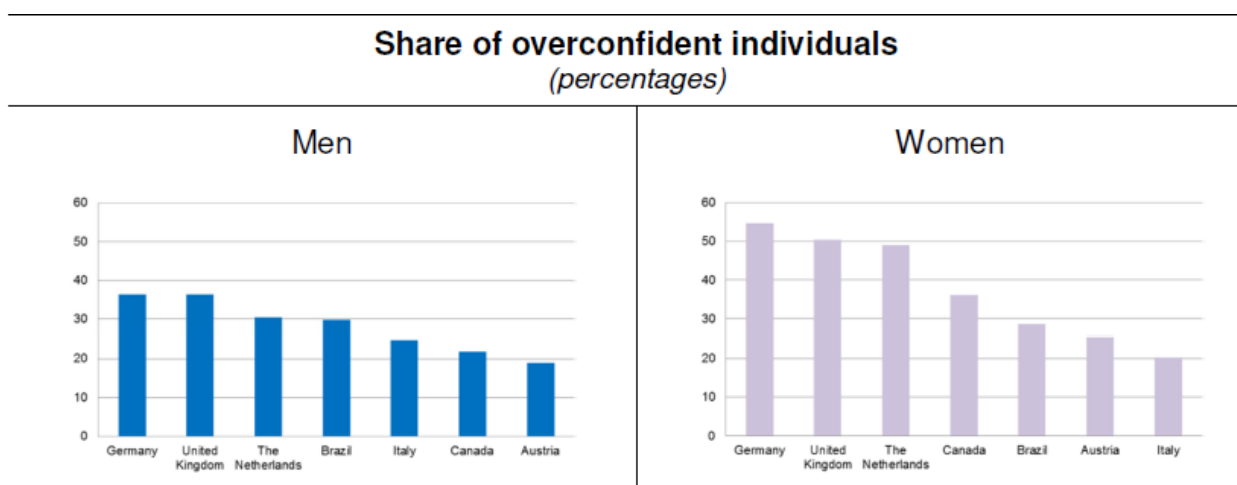
In the questionnaire we find the following direct question, which does not contribute to the final indicator of financial literacy: "How would you rate your level of financial knowledge on a scale of 1 to 5 compared with other adults in your country?" [1 = well below average, 5 = well above average].

More than half of Italians believe that their financial literacy is below average, compared to about 30 per cent in the G20 average. At the opposite side, only 5 per cent of Italians assess

their own knowledge above average, against to 25 per cent in G20 countries. Given these figures it looks that Italians are aware of their insufficient level of financial literacy.

What is more, Italy is, together with Austria, the nation that displays the lowest level of overconfident adults, where an individual is defined as overconfident when she believes that her financial literacy level is on average or above average when it is actually below. Overconfident Italians are 22 per cent, while overconfident individuals are about a third of the population on average in the comparable countries and the most overconfident countries turn out to be Germany and UK (Figure 2). Furthermore, in Italy women are more overconfident than men. This is in marked contrast with the comparable countries where the opposite happens.

Figure 2



Note: Estimates refer to the adult population (18-79 years old).

Source: Bank of Italy (2018), Measuring the financial literacy and inclusion among Italian adults: The experience of Banca d'Italia.

Another facet of this aspect is that Italians prove to be the most unconfident population. Almost a quarter of individuals believe that they have skills below average while achieving a score that is actually higher than average. In the comparison countries, the share of underconfident individuals amounts on average to 8 per cent.

The level of self-confidence also appears to have an impact on how confidently people answer knowledge questions or avoid them. The propensity to give a “Don’t Know” answer is indeed negatively associated with levels of self-confidence. Not by chance Italy has a high non-response rate for financial knowledge questions: only one in three individuals answers all 7 questions, versus two in three adults in Canada and more than half of the population in the Netherlands and Germany.

As seen above, levels of self-confidence vary across countries, thus a critique moved to the methodology of the OECD-INFE questionnaire is that it tends to reward individuals (and thus countries) with a higher propensity to answer questions. The reason of this remark lies on the

fact that if an agent tries to answer the queries even if she is not sure, rather than admitting not to know the answer, then she will increase the probability of guessing the right answer.

The authors of the paper at issue were also interested in testing that self-confidence might act as a bias in the financial decisions of agents. They discovered three different associations. Firstly, a low self-assessment is linked with lower participation rate in financial markets. In other words, who believe to have low financial abilities is less prone to hold investment products, to have private pension plans or to use debt instruments. Secondly, an overconfident individual has a higher probability of having borrowed money. Lastly, overconfident individuals are more exposed to specific kinds of financial risk, such as accidentally providing personal financial information, experiencing the unauthorized use of a personal payment card and investing in something that ends out worthless.

As overconfidence affects individuals' behavior, also financial literacy itself may have an impact on households' economic choices. Next chapter will be dedicated to discovering whether this statement is true.

3. How financial literacy matters in personal finance choices

The research question addressed in this work is whether financial literacy matters. As seen in section 1.3 (“literature on the impact of financial literacy”), recent studies from several countries have shown that financial literacy is associated with a wide range of financial decisions.

The aim of this chapter is to find the existence of new relations between financial literacy and economic and real outcomes. Furthermore, we will test whether the evidences already found internationally hold also in Italy. To do so, we will illustrate the empirical evidence drawn from the economic behavior of Italian households.

As already done in section 2.1, this section is based on Bank of Italy’s Survey on Household Income and Wealth (SHIW) conducted for the year 2016.

3.1 Behaviors under investigation

This section is used to describe the set of behaviors and outcomes that will be analyzed in the empirical analysis in order to study the impact of financial knowledge over economic choices.

The first group of variables is related to financial inclusion. These variables show the respondent affiliation with financial institutions; hence we use variables such as bank/postal account which indicates whether the household has a current/saving account held in a bank or post office, a variable which indicates the number of banks used and two variables checking the use of home-banking channels and online trading platforms.

Another group of variables investigate the use of electronic payment methods such as debit cards, prepaid cards and credit cards. Related to the last one we also want to check if households make use of instalment payments for paying back their debt accumulated with their credit card. The third set of variables regards the debt choices; therefore, we check if individuals resort to mortgages, overdraft facilities and informal debt.

The fourth and biggest group of variables is linked with investment instruments. Inside this pool of financial instruments, we find shares, mutual funds, ETFs, corporate bonds, government bonds, derivatives, foreign bonds, bonds issued by banks, certificates of deposit and managed savings. There is also a variable checking if households participate to the stock markets either directly (stock holding) or indirectly (holding of mutual funds and ETFs shares) and another one, more general, that tells us if households have any securities under administered account.

Another set of dummies concerns the insurance area, covering health and life insurance and private pensions plan participation.

After this wide range of financial choices, there is some room also for real outcomes related to households' personal finance. First, we see three variables checking whether households are late on the payment of bills, rent or mortgage instalments. Lastly, household are asked to self-assess first the degree of difficulty by which they make ends meet with their monthly income and, second, whether in the last year they were able to accumulate some savings.

Looking at Table 5, at the following page, we can see the complete list of variables and some summary descriptive statistics such as the mean, the standard deviations and the number of observations which compose the sample for every single variable.

What we can learn from this table is that the vast majority of Italians hold at least a bank/postal account (93%), while the average number of different banks in which households hold an account is 1.23. This number may be considered pretty high considered that among the individuals who hold at least one current/saving account, just one fifth of them hold more than an account in a different financial intermediary. Home-banking channels are employed by just one fifth of the population, and inside this category of "technological" savvy individuals, only 8.3% make use of online trading platforms. As far as electronic payment instruments are concerned, the most common card is the debit card (in Italy known as "Bancomat"), with a diffusion of 73%, while the least spread is the prepaid card, with only 20% of households possessing one. Credit card is slightly more common, with a diffusion rate of 28%, and among credit card holders, less than 6% make use of instalments method for paying back the debt accumulated with the card.

Moving to the liabilities side of household balance sheet, the summary statistics tell us that less than 3% of households resort to informal debt, where it is defined as debt held toward friends or relatives not living with the household. Formal debt is instead debt due to financial institutions. More than one out of four families own overdraft facilities, even if just 20% of this group of households actually uses this available line of credit. About 12.4% of households in 2016 had outstanding debt, meant as loans for real properties or consumption. In the insurance field we discover that very few people cover their health and life risks with an insurance contract (5.6% and 6.7% respectively), while 20% of working household heads participate to the private pension plans market.

	Observations	Mean	Standard Deviation
bank/postal account	7,421	0.932	0.251
more than one bank	6,899	0.197	0.398
number of banks	6,899	1.226	0.493
home-banking	7,421	0.258	0.438
online trading	1,915	0.083	0.275
credit card	7,421	0.285	0.452
instalments in credit card use	2,117	0.058	0.234
debit card	7,421	0.730	0.444
prepaid card	7,421	0.205	0.404
informal debit	7,421	0.026	0.158
overdraft facilities	6,462	0.215	0.411
use of overdraft facilities	1,389	0.197	0.398
outstanding debt	7,421	0.124	0.330
life insurance	7,421	0.067	0.250
pension plan	2,789	0.203	0.402
health insurance	7,421	0.056	0.231
securities under administered account	6,462	0.102	0.302
certificates of deposit	6,462	0.027	0.163
Italian government bonds	7,421	0.066	0.249
corporate bonds	7,421	0.057	0.231
bank bonds	7,421	0.046	0.210
funds or ETFs	7,421	0.063	0.244
shares	7,421	0.036	0.186
direct or indirect shares holding	7,421	0.086	0.280
managed savings	7,421	0.010	0.099
foreign securities	7,421	0.007	0.083
derivatives	7,421	0.002	0.043
late on bills	7,421	0.074	0.262
late on rent	1,345	0.119	0.324
late on instalment payment	927	0.038	0.191
income sufficient to make ends meet	7,421	3.030	1.241
with great difficulty		0.151	0.358
with difficulty		0.160	0.366
with some difficulty		0.320	0.467
fairly easily		0.268	0.268
easily		0.080	0.272
very easily		0.021	0.143
relationship income-savings	7,421	2.238	0.599
spent more than the entire income		0.089	0.284
spent the entire income		0.585	0.493
spent less than the entire income		0.327	0.469

Source: author's elaboration from SHIW 2016

Analyzing the asset side of household balance sheet, and in particular the financial instruments employed in the investing activities, we discover that overall the participation in financial markets is substantially low. Among all the households that own a bank account, only one out of ten own securities under administered account. The most used group of instruments belongs to the sovereign bonds category: Italian government bonds with a participation rate equal to

6.6% of all the sampled households. Staying inside the fixed income securities world, corporate bonds and bank bonds are held by 5.7% and 4.6% of families respectively.

As far as stock market is concerned, it is possible to make two different analysis. Considering households who own shares directly, we talk of direct participation in shares market and what you can see from the table is that only 3.6% of households choose this direct investment strategy. A relatively much higher proportion of individuals (6.3%) choose instead to invest in stock in an indirect way, which is through mutual funds or ETFs (i.e. exchange traded funds). Overall, less than 9% of households participate to the stock market, either directly or indirectly. Almost 3% of households with a bank account hold certificates of deposit and, at last, instruments such as derivatives, managed savings, and foreign securities are held by less than 1% of households.

At the bottom of the Table 5 we can also see the statistics related to real outcomes. What it is possible to learn is that 7.4% of the all sampled household has been late on bills payment during 2016, 12% of rent payers has been late on the amount due for rent services, and about 4% of household which were currently paying back any kind of loan, has fallen behind with instalment payments by more than 90 days.

Finally, there are the data of households' self-assessment on their incomes. A combined 31% of families believes that their monthly income is not enough to make ends meet. 32% say that their income allows to see through the end of the month with "some difficulty". Just 2% of households consider their income very high compared to the amount needed monthly. 27% say they can make the ends meet "fairly easily". The data related to the last question concerning the relationship between annual income and savings tell us that 9% of Italians in 2016 spent more than its entire yearly income, drawing on savings or borrowing. 58.5% spent almost what allowed by their income and almost one out of three households spent less than their entire income and succeeded in saving.

The next sections of this chapter will investigate whether and how financial literacy affects Italian households' economic choices and real outcomes which have been listed in this first part of the chapter.

3.2 Does financial literacy matters? Univariate analysis and correlations

In order to assess the impact of financial knowledge on households' economic behavior, a first step is performing a univariate analysis that links the financial or real variable with the level of financial literacy.

In this chapter, financial literacy is measured from the answers to the module devoted to this topic inside SHIW 2016. The indicators we are interested in are: the number of correct answers -which ranges from 0 to 3-, the proportion of respondents answering correctly to all the questions and the proportion of respondents who answered DK (“don’t know” or “no answer provided”) to at least one question.

A remark regarding these indicators is worth to be mentioned. In section 2.2, dedicated to the international comparison, the financial literacy index was meant to measure financial knowledge, behavior and attitude as a whole. From this chapter on, as in section 2.1, financial literacy will be meant with a narrower scope, which correspond with the only concept of financial knowledge.

As a first evidence of the effect of financial literacy, Table 6 situated in the next two pages provide some statistics on financial knowledge of Italian household heads divided by economic choice. In order to clarify the interpretation of the table, we will now focus on the first rows of it, the ones related to the variable “bank/postal account”. What we learn from these data is that households which hold a current or saving account in a financial intermediary, have on average a higher level of financial literacy compared to households who do not hold any bank or postal account. Indeed, the average proportion of respondents answering correctly to all the question among owners of a current account is more than three times higher than among people who do not hold an account. What is more, even the average score (which is the average number of correct answers) is higher among account holders, while the proportion of people who answer DK to at least one question is 28 percentage points higher among people who do not hold any bank account. The difference in the statistics among these two groups of respondents which differ by their financial choice (holding or not a bank/postal account in this case), is significantly different from zero at a 0.01% level, as the stars tell us.

Significant differences in the financial literacy levels are found even with regard to most of the financial and real variables controlled. However, it is not the case of variables such as the use of online trading, instalment payment in credit card debt, informal debt and being late on loan instalment payment. In all these cases mentioned, the levels of financial literacy are not found to be statistically different among the groups created by the variables.

Table 6

Financial literacy by economic/real outcome (percent)

		Three correct	Average score	At least one DK
bank/postal account	no	8.15	0.913	70.97
	yes	27.98	1.650	43.39
	t-test	***	***	***
number of banks	1	24.61	1.555	46.70
	2	40.51	1.999	31.53
	3	50.63	2.335	18.35
	4	50.00	2.357	35.71
	5	75.00	2.750	0.00
	6	100.00	3.000	0.00
home-banking	no	19.42	1.381	53.52
	yes	47.42	2.230	21.51
	t-test	***	***	***
online trading	no	46.90	2.224	22.14
	yes	53.16	2.297	14.56
	t-test			**
credit card	no	19.61	1.377	54.32
	yes	44.26	2.159	22.58
	t-test	***	***	***
instalments in credit card use	no	44.58	2.164	22.32
	yes	39.02	2.073	26.83
	t-test			
debit card	no	9.15	0.984	68.60
	yes	33.09	1.828	36.65
	t-test	***	***	***
prepaid card	no	22.32	1.470	50.76
	yes	43.34	2.104	24.00
	t-test	***	***	***
informal debt	no	26.68	1.604	45.03
	yes	25.13	1.482	53.93
	t-test			**
overdraft facilities	no	25.39	1.583	46.03
	yes	43.12	2.140	24.48
	t-test	***	***	***
use of overdraft facilities	no	44.48	2.174	23.14
	yes	37.59	2.004	29.93
	t-test	**	***	**
outstanding debt	no	24.85	1.534	47.58
	yes	39.22	2.065	28.93
	t-test	***	***	***
life insurance	no	25.19	1.557	46.97
	yes	46.79	2.201	21.49
	t-test	***	***	***
pension plan	no	32.34	1.833	35.00
	yes	46.47	2.200	22.08
	t-test	***	***	***
health insurance	no	25.09	1.556	47.05
	yes	52.63	2.330	15.31
	t-test	***	***	***
securities un. administered account	no	25.96	1.621	44.07
	yes	57.73	2.423	17.88
	t-test	***	***	***

certificates of deposit	no	25.94	1.582	45.69
	yes	51.72	2.246	30.05
	t-test	***	***	***
Italian government bonds	no	26.05	1.586	45.96
	yes	34.89	1.801	35.50
	t-test	***	***	***
corporate bonds	no	25.27	1.560	46.54
	yes	49.52	2.271	24.05
	t-test	***	***	***
bank bonds	no	25.49	1.568	46.22
	yes	50.29	2.273	25.58
	t-test	***	***	***
funds or ETFs	no	24.26	1.543	47.41
	yes	61.78	2.450	13.59
	t-test	***	***	***
shares	no	25.46	1.570	46.56
	yes	58.49	2.426	10.19
	t-test	***	***	***
direct or indirect shares holding	no	23.54	1.524	48.24
	yes	59.75	2.420	13.52
	t-test	***	***	***
managed savings	no	26.37	1.594	45.48
	yes	53.42	2.288	23.29
	t-test	***	***	***
foreign securities	no	26.43	1.595	45.51
	yes	56.86	2.333	9.80
	t-test	***	***	***
derivatives	no	26.54	1.598	45.35
	yes	78.57	2.786	0.00
	t-test	***	***	***
late on bills	no	27.60	1.635	43.82
	yes	14.57	1.164	63.39
	t-test	***	***	***
late on rent	no	22.62	1.448	52.24
	yes	13.12	1.169	63.13
	t-test	***	***	***
late on instalment payment	no	39.01	2.071	29.04
	yes	42.86	1.886	31.43
	t-test			
income sufficient to make ends meet	With great difficulty	14.48	1.229	62.38
	With difficulty	16.71	1.291	59.07
	With some difficulty	23.60	1.499	48.42
	Fairly easily	35.68	1.895	32.56
	Easily	44.03	2.138	23.36
	Very easily	54.19	2.361	14.84
relationship income-savings	Spent more than the entire income	25.72	1.560	48.25
	Spent the entire income	22.44	1.465	50.62
	Spent less than the entire income			
	income	34.41	1.854	34.86

Source: author's elaboration from SHIW 2016 - Weighted data. Average score is not in percentage terms. T-test significance levels: * p < 0.1, ** p < 0.05, *** p < 0.01

Notice that the variables “number of banks”, “income sufficient to make ends meet” and “relationship income savings” do not show the t-test significance levels. In fact, this kind of test can compare the averages just from two different groups and the variables just mentioned are the only non-dummy variable. “Number of banks” is a discrete numeric variable, while the remaining two are ordinal categorical variables. In all these cases we have to compare averages from more than two groups and thus we cannot perform t-test. Looking at the statistics it is however clear that financial literacy increases with the number of banks, with the ease in making ends meet and in accumulating savings.

Similar evidence is found also calculating the pairwise correlation between economic/real outcomes and financial knowledge indicators, as done in Table 7 presented at the following page. Consistently with what seen in the previous table, the financial literacy measures are not significantly correlated with the variables “online trading”, “instalments in credit card use”, “informal debt” and “late on instalments”.

The first two columns show the correlations within the various variables and two positive measures of financial literacy: the higher the level of financial knowledge the higher the proportion of respondents’ proportion answering correctly all the questions and the number of correct answers on average. At the opposite, the third column represent a negative measure of financial literacy: the higher the level of financial literacy, the lower the proportion of respondents providing a DK answer. Considering only the significant correlations and disregarding the obvious negative correlation between the first two indicators of financial knowledge and the third one, the only negative numbers we see in the first two columns concern the use of overdraft facilities (conditioned on the fact that the household hold this line of credit), being late on bills and being late on rent payment. Of course, in the third column the opposite happens.

In the interpretation of the tables of this subchapter it is very important to assert two points. First, there is no claim on the direction of causality between financial literacy and financial decision making or real outcomes. So far, we have been dealing with descriptive statistics. Second, both the univariate analysis and the pairwise correlations do not take into account several other characteristics which may well affect both financial capabilities and economic or real outcomes, ending up misleading our conclusions.

If we want to understand if financial literacy has a positive impact on economic behavior of households, we must not limit ourselves to descriptive statistics. We need to start exploring a multivariate environment through the use of some regression models. That is what we do in the next subsections.

Table 7 *Pairwise correlation between financial literacy scores and economic/real outcomes*

	# of correct answers	three correct answers	at least one DK
three correct answers	1		
# of correct answers	0.755*	1	
at least one DK	-0.548*	-0.725*	1
bank/postal account	0.113*	0.166*	-0.139*
number of banks	0.157*	0.181*	-0.137*
home-banking	0.277*	0.333*	-0.281*
online trading	0.035	0.023	-0.051*
credit card	0.252*	0.316*	-0.288*
instalments in credit card use	-0.026	-0.023	0.025
debit card	0.240*	0.335*	-0.285*
prepaid card	0.192*	0.229*	-0.217*
Informal debit	-0.006	-0.017	0.028*
overdraft facilities	0.160*	0.209*	-0.180*
use of overdraft facilities	-0.055*	-0.074*	0.063*
outstanding debt	0.107*	0.157*	-0.124*
life insurance	0.122*	0.144*	-0.128*
pension plan	0.119*	0.144*	-0.111*
health insurance	0.144*	0.160*	-0.147*
securities un. administered account	0.212*	0.222*	-0.161*
certificates of deposit	0.095*	0.097*	-0.051*
Italian government bonds	0.050*	0.048*	-0.052*
corporate bonds	0.127*	0.147*	-0.104*
bank bonds	0.118*	0.133*	-0.087*
funds or ETFs	0.207*	0.198*	-0.166*
shares	0.139*	0.142*	-0.136*
direct or indirect shares holding	0.229*	0.225*	-0.195*
managed savings	0.060*	0.061*	-0.044*
foreign securities	0.057*	0.055*	-0.059*
derivatives	0.051*	0.046*	-0.040*
late on bills	-0.077*	-0.110*	0.103*
late on rent	-0.075*	-0.081*	0.071*
late on instalment payment	0.015	-0.037	0.01
income sufficient to make ends meet	0.222*	0.270*	-0.262*
relationship income-savings	0.099*	0.129*	-0.123*

Source: author's elaboration from SHIW 2016

* shows significance at the 0.05 level

3.3 Does financial literacy matter? Model set up of multivariate analysis

The multivariate analysis of the impact of financial literacy on the set of outcomes is conducted estimating different specifications of a linear probability model.

As a first step, we employ ordinary least squares (OLS) regressions modeled as follows:

$$Y = \alpha FL + \beta X + u \quad (1)$$

In Equation 1, Y is a vector representing in turn the different economic or real outcomes, with a value equal to 0 or 1 when the dependent variable is dummy, or with a value which correspond to a natural number when the dependent variables are categorical or numeric. Financial literacy FL is included in the model in three different ways: first, with a variable counting the number of total correct answers to the three questions (taking values from 0 to 3); second, with a dummy that takes the value of one when the respondent is able to answer all three questions correctly; third, with three dummy variables indicating whether each financial literacy question was answered correctly. The last specification of FL is important because the financial literacy questions are distinct and measure different financial concepts. Thus, it may be of interest to examine whether understanding some concepts is more important than understanding others for the outcomes under analysis. X is a vector of covariates, including a gender dummy for females, a second-order polynomial in age, two macro-region dummies, a dummy equal to one if the household lives in an urban area, three dummies indicating the highest level of education attained by the respondent, three working status dummies, three income quartiles dummies and a dummy equal to one if the household own their house (as a proxy for household wealth). At the end, u represents the vector of error terms. Since we have seen in chapter 2.1.4 (“Geographic disparities in financial literacy”) that inside the macro-areas there is still heterogeneity in financial literacy levels arising from different regional characteristics, we compute standard errors robust to heteroskedasticity and to clustering on regions.

As a second step, we allow for the possibility that financial literacy may be an endogenous variable. Financial literacy endogeneity may derive from an unobserved factor, for instance time preferences or a taste for financial issues, that simultaneously drives both the economic choice and the decision to acquire better financial knowledge. Another source of endogeneity might also be inverse causality. Individuals may get financial savvy thanks to the economic choices they make. Said in other words, agents can get more knowledgeable in financial topics thanks to the experience they acquire if they attain some financial behaviors. Households’ heads, for example, may learn financial concepts while they are investing in determined financial instruments or repaying back a mortgage. Yet, another possible cause of the endogeneity of financial literacy might be measurement error, since as we have seen it is a difficult skill to be assessed.

Working on Eq. (1) and employing the instrumental variable (IV) approach, it is possible to estimate linear probability model which takes into account the potential endogeneity of

financial literacy. Furthermore, using generalized method of moments (GMM), we obtain estimates robust to heteroskedasticity and clustering on regions. The model is the following:

$$Y = \alpha FL + \beta X + u$$
$$FL = \beta X + \gamma Z + v$$

(2)

where X is the same vector of independent variables defined in Eq. (1) and Z is the vector of financial literacy instruments. The two instruments proposed are: a dummy taking the value of one if at least one household member has a degree in economics or statistics and the number of bank branches every 100,000 inhabitants per region. These two variables are related to the cost of learning and acquiring financial knowledge and information, or in other words they are correlated with financial literacy in terms of exposure to information and economic knowledge, either through family members graduated in economics or statistics or through bank branches employees. The validity of these instruments rests on the hypothesis that the presence of an economist or statistician in the household and/or a higher number of bank branches every 100,000 inhabitants in the region makes it easier for the respondent to acquire knowledge and information about financial topics, while not being determined by respondents' economic choices. The experience of others is not under the control of the respondent and is thus exogenous with respect to his or her actions, but respondents can learn from those around them, thus increasing their own literacy. Indeed, several other studies mentioned in the literature review have documented that individuals learn about financial matters from peers.

The summary statistics related to these instruments are reported in Table 8 at the next page.

One may argue that in this digitalized era a variable like the number of bank branches is not a good instrument since nowadays many information are retrieved online and many operations which were used to be carried out in a physical bank branch are now easily performed through home-banking platforms on households' desktops or mobile devices. However, Italy does not appear at the top of the tables of the most tech countries and this change in the relationship bank-customers is probably happening more slowly than in other more developed nations. Many people still physically go into a bank branch when they need to obtain a loan or when they have some savings to invest.

Table 8		<i>Summary statistics of instruments</i>	
		Mean	Standard Deviation
graduate in economics or statistics in the household		0.030	0.170
		# of bank branches every 100,000 inhabitants	
<i>North</i>	Piemonte	54	
	Valle d'Aosta	75	
	Lombardia	58	
	Trentino	78	
	Veneto	60	
	Friuli	67	
	Liguria	52	
	Emilia-Romagna	68	
<i>Centre</i>	Toscana	58	
	Umbria	55	
	Marche	66	
	Lazio	42	
<i>South and Islands</i>	Abruzzo	46	
	Molise	41	
	Campania	24	
	Puglia	31	
	Basilicata	40	
	Calabria	22	
	Sicilia	30	
	Sardegna	36	

Source: author's elaboration from SHIW 2016; and Banks and Financial Institutions: Branch Network 2016

In order to show that this combination of instruments is not weak, below is reported a table illustrating the first stage regression computed for the whole sample in different specifications which consider alternative instruments. In Table 9 the variable employed as measure of financial literacy is the “number of correct answers” to the questionnaire, but the results are similar when this variable is the dummy “three correct answers”. The alternative instruments proposed in the table are: a dummy equal to one if at least one household member works in the financial sector and the percentage of households with broadband connection by region, which illustrate the digital divide among Italian regions.

Table 9. First Stage regressions with alternative instruments

First Stage - Dependent variable: Financial Literacy (number of correct answers)

	(1)	(2)	(3)	(4)	(5)	(6)
Household's member graduated in economics/statistics	0.1230*** (0.0612)			0.0973 (0.0620)	0.0612** (0.0640)	
# of bank branches every 100,000 inhabitants by region	0.0144** (0.0015)	0.0145*** (0.0015)	0.0135*** (0.0016)			
Household's member works in financial sector		0.1555*** (0.0527)		0.1347** (0.0532)		0.1453*** (0.0528)
% of households with broadband connection by region			0.0088** (0.0041)		0.0179*** (0.0039)	0.0180*** (0.0039)
Observations	7421	7421	7421	7421	7421	7421
F test	44.21	46.29	45.04	4.01	11.61	13.43

Source: author's elaboration from SHIW 2016

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The coefficients of included instruments are not reported

If we look at the F statistics, which measure the predictive power of the instruments in the different specifications of the first stage regression, we notice that it is relatively higher in the first three columns, which is in all the cases when the number of bank branches is considered. For being considered strong a combination of instruments must have a F statistic higher than 10. In the first three specifications it is around 45 and all the instruments singularly considered have a positive and statistically significant impact on financial literacy.

After having checked the strength of the instruments, the next step is to check for their validity through the Hansen J test. However, this test will have different results depending on the dependent variable we are considering. What we can easily imagine even without having seen any Hansen J statistic is that the instruments "household member working in the financial sector" cannot be an exogenous instrument for financial literacy in many of the financial behaviors considered as dependent variables. This is because employees working for financial intermediaries often have economic incentives in receiving credit cards of partner banks, in investing in specific financial instruments or in obtaining line of credits. Therefore, working in the financial sector have an impact on economic choices not only through its impact on financial literacy. At this point we still have two combination of instruments among which we need to choose: household member graduated in economics or statistics and number of branches or

number of branches and percentage of people per region with broadband connection. We end up preferring the first combination since in the second combination both the variables are at a regional level, while the first combination has one variable at regional level and one variable at household level and the coefficient of economist/statistician in household is significantly different from zero at a safer level than the internet connection coefficient.

3.4 Empirical evidence from the multivariate analysis

In this section we report all the empirical estimates of the multivariate analysis. Looking at the coefficients -and their significance levels- of financial literacy indicators it is possible to understand whether they have an impact on the financial or real outcome considered from time to time, even after controlling for the effect of all the other socio demographic variables. This part of chapter 3 will be divided in subsections which gather the dependent variables of the regressions by their economic category.

3.4.1 Financial inclusion variables

The first set of variables concerns financial inclusion. The first estimated model has “bank/postal account” as dependent variable, which takes the value of 1 in the household has a bank or postal account and 0 otherwise. The regression table for this dependent variable is situated in the next page (Table 10). However, for all the next models the regression tables will be placed in the Appendix, so that not to make the framework of this paper too cumbersome. Table 10 and most tables in the Appendix have the same structure: the title of the table reports the dependent variable, column 1 to 3 report the estimates obtained from OLS regressions, while column 4 and 5 report the estimates from the second stage regression, obtained with GMM method.

The first and second columns show that an additional correct answer to the financial literacy questions raises the probability of having a bank account by 1.9 percentage points, while being able to answer all three questions correctly increases the chance holding a current account by 2.4 percentage points (but its effect is significant at 5% level). The third column shows that answering correctly to the singular question on financial concepts has a positive effect of 2%, 1.6% and 1.9% respectively, but knowing the risk diversification concept is significant just at 10% level.

Moreover, having a bank/postal account is positively associated with being female, with being in income quartiles higher than the lowest one and with being homeowner. It is instead less

likely that a household has a current account if it is from Centre Italy (w.r.t North Italy) and if the household head result to be not-employed.

Table 10. BANK/POSTAL ACCOUNT

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0187*** (0.005)			0.0949 (0.075)	
three correct answers		0.0238** (0.009)			0.3657 (0.302)
correct on interest			0.0203** (0.009)		
correct on inflation			0.0165** (0.007)		
correct on diversification			0.0195* (0.010)		
female	0.0290** (0.012)	0.0268** (0.012)	0.0290** (0.012)	0.0371* (0.021)	0.0417* (0.024)
age (years)	0.0014 (0.001)	0.0019 (0.001)	0.0014 (0.001)	-0.0006 (0.003)	0.0005 (0.002)
age2	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)
Centre (ref. North)	-0.0306** (0.013)	-0.0296** (0.013)	-0.0306** (0.013)	-0.0336** (0.015)	-0.0497* (0.026)
South and Islands	-0.0417 (0.026)	-0.0432 (0.025)	-0.0417 (0.025)	-0.0179 (0.024)	-0.0218 (0.027)
city	-0.0110 (0.007)	-0.0112 (0.007)	-0.0111 (0.007)	-0.0152 (0.014)	-0.0148 (0.016)
secondary (ref. none/primary)	-0.0068 (0.012)	-0.0031 (0.013)	-0.0067 (0.013)	-0.0282 (0.018)	-0.0207 (0.015)
high school	0.0215 (0.024)	0.0280 (0.024)	0.0215 (0.024)	-0.0220 (0.030)	-0.0226 (0.034)
college and more	0.0350 (0.022)	0.0430* (0.021)	0.0350 (0.022)	-0.0202 (0.039)	-0.0337 (0.055)
employee (ref. retired)	-0.0016 (0.012)	-0.0029 (0.012)	-0.0017 (0.012)	0.0006 (0.014)	-0.0011 (0.014)
self employed	-0.0047 (0.018)	-0.0049 (0.018)	-0.0048 (0.018)	-0.0060 (0.018)	-0.0025 (0.016)
not-employed	-0.0965*** (0.021)	-0.0974*** (0.021)	-0.0965*** (0.021)	-0.0882*** (0.020)	-0.0807*** (0.024)
2nd quartile (ref. 1st quartile-lowest)	0.1391*** (0.024)	0.1420*** (0.024)	0.1391*** (0.024)	0.1187*** (0.019)	0.1212*** (0.020)
3rd quartile	0.1523*** (0.032)	0.1574*** (0.032)	0.1523*** (0.032)	0.1143*** (0.025)	0.1159*** (0.025)
4th quartile-highest	0.1444*** (0.030)	0.1512*** (0.031)	0.1444*** (0.030)	0.0935** (0.037)	0.0787 (0.048)
homeowner	0.0242** (0.011)	0.0250** (0.011)	0.0242** (0.011)	0.0182 (0.013)	0.0188* (0.011)
Constant	0.7063*** (0.056)	0.7137*** (0.057)	0.7060*** (0.056)	0.6673*** (0.083)	0.6986*** (0.085)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.161	0.157	0.161	0.070	-0.165
F of instruments				44.219	22.656
Hansen's J P-value				0.187	0.238
endogeneity test P-value				0.424	0.370

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parenthesis, standard errors robust to heteroskedasticity and to clustering on regions. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

The fourth and fifth column which account for the potential endogeneity of financial literacy with the instrumental variable approach, show that financial literacy indicators are not significant. The Hansen J test reported at the bottom of Table 10 accept the null hypothesis that instruments are valid. However, the endogeneity test (also reported at the bottom of Table 10) accept the null hypothesis that financial literacy is exogenous, hence OLS estimates in the first three columns are consistent and more efficient than with the IV approach.

These results are consistent with evidence of the international literature. For example, Klapper and Panos (2011) showed that in Russia having a higher level of financial literacy increases the probability for a household to have a bank account.

In Table A1, we examine the impact of financial literacy on the number of banks in which households hold an account. This time the sample is not composed by 7,421 households, but by a slightly lower number (6,899) corresponding to the amount of families which hold at least a bank account.

What we learn from the OLS regressions is that financial knowledge has an impact even on the number of banks used by a household. Even if the coefficients of the indicators of financial literacy may appear like small numbers (0.026 in the first specification and 0.07 in the second), they are significantly positive at 0.01 level. The third specification shows that the effect of the two aggregate financial literacy measures reported in columns 1 and 2 is mostly driven by being able to correctly answer the interest question (increasing the average number of banks of 0.06 units), while the dummy measuring knowledge of inflation and risk diversification are not significant. This is consistent with the fact that the interest question has the lowest proportion of correct answers (see Table 2) and is therefore more likely to differentiate between individuals with low or high literacy. Other socio demographic characteristics that affect the number of banks are income and gender: being in a higher income quartile increases the number of banks in which families hold an account, while being female decreases it. This last fact appears at odds with the finding in Table 10 where being female increased the probability of having a bank/postal account. The interpretation of this results is that females hold more easily a bank account, but among people who hold at least one bank account, males are more likely to hold more than one account. Being self-employed and graduated increases the number of banks too, even if having attended college is significant just at 0.10 level. The F statistic of the first stage regression of the IV specifications is different from the F statistic reported in Table 9 because the number of observations -and the sample composition- in this model is different. However, both in column 4 and 5 it is higher than 10, demonstrating that instruments are not weak. The Hansen J test does not reject the null hypothesis; therefore, the instruments can be considered strong and valid. The endogeneity test accepts the null hypothesis that the instrumented variable

(financial literacy) is exogenous, hence the OLS specifications are better than the IV ones where the financial literacy coefficients were not significantly different from 0.

In Table A2 the dependent variable is a dummy equal to 1 if the family makes use of the home-banking instruments and 0 otherwise. From the OLS specifications it looks that higher levels of financial literacy have a positive impact on home-banking use. From column 1, answering correctly to a question more of financial literacy questionnaire increases the probability of using home-banking channels by almost 5 percentage points. From column 2, answering correctly to all the questions increases the likelihood by 11.6 percentage points. From column 3 we learn that the knowledge of interest, inflation and risk diversification concepts are all important and significant for the use of home-banking. Moving to the other independent variables, we see that living in South or Islands the probability decreases by more than 9% points, while having a job has a positive impact. Higher levels of education and income increase the likelihood of using home-banking channels, as well as owning a home. Moving to the IV models, we see that unluckily our instruments are not valid in this case: the Hansen J test reject the null hypothesis at a 0.01 level. As a consequence, we cannot rely on the IV estimates and we cannot even perform the test of endogeneity of financial literacy. Not knowing if financial literacy is exogenous, relying just on the OLS estimates would be hazardous. Therefore, more research is needed to test whether financial literacy affects the use of home-banking systems.

Table A3 reports the regression table in which the dependent variable is a dichotomic variable which takes the value of 1 if somebody in the household uses online trading platforms. In this case the sample is restricted to the 1915 households who make use home-banking channels. In all the columns the financial literacy coefficient is not significantly different from zero. However, before drawing any other conclusion, we must notice that the instruments are weak ($F < 10$) and endogenous (reject Hansen J test). The implication is that from Table A3 we cannot tell much about the effect of financial literacy on the household online trading activities. Further research with better instruments is needed also in this field.

3.4.2 Electronic cards use

The second set of dependent variables on which we worked concerns payment cards use.

First of all, we study the factors determining the use of credit cards in Table A4. Starting from the IV specifications we see that the instruments result to be strong and exogenous, since F statistic is higher than 10 and Hansen J test accept the null hypothesis. It is thus possible to perform the endogeneity test on financial literacy. We accept the null hypothesis of exogeneity of the variable of interest and conclude that OLS estimates are consistent. The first column

shows that answering correctly to an additional financial literacy question increases the probability of having a credit card by 3.45 percentage points. The second column tell us that answering correctly to all the questions make the household 7.6 percentage points more likely to own a credit card. The third column shows that the knowledge of compound interest and risk diversification has a positive impact on the probability of having a credit card, while the knowledge of the inflation concept is not significant. Moreover, being female and living in the Centre or South and Islands is negatively associated with possessing a credit card. Age profile is slightly concave. Living in an urban area and being homeowner are positively linked to having a card, as well as having a job (either as employee or as self-employer), being more educated and having a higher income.

Next, in Table A5 we tried to see if there is a correlation between financial knowledge and the use of instalments in the repayment of credit card debt. The dependent variable in this case is a dummy equal to 1 if the monthly balance due on credit card is paid off in instalments. From the OLS specifications, the only coefficient related to financial literacy which appears to be significantly different from zero is the coefficient of being correct on compound interest question, by the way with a significance level of just 0.10. The second stage regression confirm the non-significance of coefficients related to the aggregate measurements of financial literacy. The instruments are however showed to be weak, therefore we cannot rely on IV regression and we cannot assert that the OLS estimators are consistent for sure. Nevertheless, if they were consistent, financial literacy would not have an impact on the choice of paying back the credit card debt with instalments.

The next card we consider is debit card, in Italy better known as “Bancomat”. Table A6 illustrates the estimates of the model with debit card as dependent dummy variable. Starting from columns 4 and 5, we see that in the second stage regressions the coefficient related to financial literacy are not significant. However, instruments are strong and valid, and the endogeneity test on financial literacy variables accept the null hypothesis. Financial literacy can therefore be considered an exogenous variable and OLS is consistent. OLS estimates of the financial literacy variables in the first columns tell us that being financial savvier increases the likelihood of having a debit card. In particular, what matters the most is knowing interest compounding (it increases the probability of holding a debit card of 8.6 percentage points), while knowing inflation and risk diversification concepts have significantly positive coefficient just at 10% level. Among socio demographic variables, belonging to a higher income quartile and having attained higher level of schooling have a positive impact on the likelihood of owning a debit card, such as living in the North. Age has a slightly concave profile. What might be surprising is that retired people have a higher probability of having a debit card not only of non-

employed, but also of people with a job (employees and self-employed). A possible explanation might be that, as seen in the regressions relative to credit card, people with a job are more likely to have a credit card than retired people. Since having a credit card fulfills all the services offered by a debit card, it may be that many workers substitute the debit card with a credit card because they spend more for consumption, hence workers more likely need the credit provided by credit cards with respect to retired people.

The last card examined is the prepaid one. Columns 4 and 5 in Table A7 show the second stage regression with the “prepaid card” dummy as dependent variable. The first thing to do is to notice that the instruments are endogenous, since we reject the Hansen J test of validity of the instruments. This might sound weird since the same test accepted the null hypothesis with the other cards as dependent variables. With this result it is impossible to establish whether financial literacy is exogenous. If it was true, as appears plausible since it held in the models with credit card and debit card, OLS estimates would be consistent; and what these estimates would indicate is that financial literacy has a positive and significant impact on the probability of holding a prepaid card. However, knowing the concept of inflation appear to be not important in the decision of holding this kind of card. One difference with respect to the other cards is that the probability of possessing a prepaid card declines linearly. This might mean that usually prepaid card is held by young adults, and they tend to be substituted by other types of card as time goes by.

3.4.3 Liabilities side variables

The third pool of variables on which the multivariate analysis is performed is related to households’ debt.

The aim of Table A8 is to understand whether financial literacy matters in the choice of accumulating informal debt. Informal means that it is not obtained from a financial intermediary. The dependent variable is a dummy equal to 1 if the household had debts toward friends or relatives not living with the household during 2016. Looking at the first three columns, from the OLS estimates we learn that the only variables that matter are some socio demographic characteristics, such as gender and income, unemployment and housing tenure. Financial literacy coefficients are never significant. From column 4 and 5 we learn that instruments are strong and valid. What is more financial literacy is tested to be exogenous, as a consequence we can stick to the interpretation given by OLS specification: financial literacy has no effect on informal debt choice. This result appears to be in contrast with the evidence of the literature. Klapper and Panos (2011) found that in Russia financial knowledge did have an impact on household choice to get debt from informal sources. However, in that paper the

dependent variable is defined as equal to one when individuals reported currently having debt but admitted not having any bank account. This different definition of informal debt is likely to be determinant in the different evidence obtained.

Next, we study the determinants of formal debt. Table A9 has as dependent variable “outstanding debt”: a dummy that takes the value of 1 if the household is currently repaying loans for real properties or for consumption. Starting from the OLS estimates, column 1 shows us that the coefficient of the number of correct answers to the financial literacy questionnaire is significantly positive: answering correctly to a question more increases the likelihood of being holding debt of 1.7 percentage points. Column 2 confirms this result, but with a significance level of just 0.10. Finally, column 3 shows that the only financial concept that has an impact is the knowledge of compound interest. The direction of the causality in this case is arguable. It might be that the knowledge of the interest rate concept is originated by the fact that a household with an outstanding loan learns from this experience what is the compound interest rate. However, from the bottom of columns 4 and 5 we see that instruments are strong and valid. Moreover, the endogeneity test of financial literacy accepts the null hypothesis that this variable is exogenous. This last test appears to tell us that the direction of causality is from financial knowledge toward having an outstanding debt and not the opposite. Maybe because households first get information about interest rates, and, only after, ask for a loan.

Table A10 investigates a specific kind of line of credit: the overdraft facilities. The dependent variable is a dummy equal to 1 if the household has this kind of line of credit and 0 otherwise. We need to be careful on this definition, though. Having an overdraft facility does not mean using it. Once a household has it, it has the possibility to use the services it provides, but it can also choose not to use it. What the first three columns show about the effect of financial literacy on the choice of having an overdraft facility is very similar to the previous case in which the dependent variable was “outstanding debt”. Now knowing the answer on inflation is significant too, but just at a 0.10 level. Moreover, having finished at least high school, living in a city, having a job, living in the Centre of Italy, owning a house and being in income quartiles other than the lowest have a positive impact on the probability of having an overdraft facility. Age profile is slightly concave. Once we take into account endogeneity issues, we see from the Hansen J test p-values at the bottom of the table that instruments are on the hedge between being considered valid or invalid. If we consider them valid, the endogeneity test on financial literacy accept the null hypothesis and we can stick to the OLS estimates. If we consider the instruments invalid, it is impossible to tell if OLS is consistent.

When we consider the actual use of overdraft facilities (and not just the availability of this debt instrument), we have to run another set of regressions which you can find at table A11.

In this case the sample is much smaller since it comprehends just household which have an overdraft facility. This reduction in the sample causes a problem in the IV model since the instruments become now extremely weak ($F=1.9$ in column 4 and $F=0.8$ in column 5). It is thus not possible to tell if financial literacy variables are endogenous. We discuss anyway the results of the OLS estimates, despite we cannot know if they are consistent or not. If we trusted this coefficients, columns 1 and 2 would tell us that the higher the financial literacy, the lower the probability to use the overdraft facility. One could believe the opposite to happen. Indeed, since an individual with higher financial skills should better know her financial needs, if she expected that she did not need to use an overdraft facility, she should cancel it; also because keeping an open line of credit is expensive even if you do not use it, given that there are fees to pay. However, the empirical evidence appears to tell us that there are other factors to be considered, such as prudence which may well play a role in this context.

3.4.4 Insurance coverage and pension plans

The fourth group of dependent variables examined concerns insurance contracts. We include pension plans inside the insurance area because participating to the pension plan market has the purpose to cover the risk of outliving the financial needs once a worker has retired. We start our multivariate analysis taking the “life insurance” as dependent dummy variable. From the OLS specifications in Table A12 we can see that achieving higher scores in the financial literacy questionnaire has a positive impact on the probability of buying a life insurance contract. In particular, answering correctly to the compound interest has a significantly positive coefficient. Knowing the concept of risk diversification has an effect too, but it is significant just at 10% level. Other socio demographic variables have a positive impact, such as being graduated, having a job, being in the two highest income quartiles and being homeowners. Being female is slightly negatively associated with this dependent variable. Watching at the IV models in column 4 and 5 we can see that instruments can be considered strong and valid. Moreover, the endogeneity test tells us that the OLS estimates are consistent.

We can see extremely similar results from Table A13 related to health insurance. The main difference is in the significance of the macro area coefficient: living in the North has a positive effect on the likelihood to have a health insurance contract.

A special focus is required by the investigation of the role of financial literacy on pension plan participation: an issue that the large cuts in public pension benefits due to pension reforms has brought to the fore. The analysis is restricted to the sample of employees and self-employed individuals aged 25–68, excluding the unemployed and other respondents out of the labor force (e.g., retirees, students, and homemakers). These restrictions reduce the size of the

sample from 7,421 observations (all household heads) to 2,789. Table A14 reports the estimation results. Starting from the OLS regressions, columns 1 and 2 show that an additional correct answer to the financial literacy questions raises the probability of pension plan participation by 3.4 percentage points, while being able to answer all three questions correctly increases the chance of participation by 6.1 percentage points. The third column shows that the effect of the two aggregate financial literacy measures reported in columns 1 and 2 is mostly driven by being able to correctly answer the inflation question (increasing the probability of participation by 6.7 percentage points), while knowing the other concepts asked in the interview results to be not significant. This may be due to the fact that investing in pension plan has a very long time horizon and in the very long run inflation ends up being a very important cost component for investments. Therefore, if an individual knows this it is more likely that she will participate in the private pension plans market. Furthermore, pension plan participation is positively associated with having attained levels of schooling higher than the primary one, and with being in the two highest income quartiles. Being self-employed has a big negative effect: it decreases pension plan participation probability of more than 10 percentage points. This is probably due to the tax incentives employees get for participating and to the fact the employers of big companies offer their employees this opportunity (often it is the default option). Lastly, age has a concave profile.

Columns 4 and 5 report the GMM estimation results. We start as usual from the bottom of the table to discover the instruments are exogenous and strong, and this time the endogeneity test rejects the null of financial literacy exogeneity. We conclude that OLS estimates are inconsistent and we have to focus on the IV specifications. From the fourth column we see that giving an additional correct answer raises the probability of participation by almost 34 percentage points and is significant at 0.05 level. From the fifth column, providing 3 correct answers increases the probability by 88 percentage points, even if this coefficient is significant just at 0.10 level. The impact of financial literacy is huge: it has increased by ten times or even more compared to the OLS coefficients. At the opposite the significance of the impact of many other variables (except the self-employed dummy) vanishes with respect to OLS specification. Fornero and Monticone (2011) performed a very similar study using data from SHIW 2006. Even in their paper the effect of financial literacy skyrocketed in the IV approach with respect to their OLS regressions. However, the coefficients of financial literacy indicators stayed below 0.4. Moreover, the coefficients of many socio demographic variables kept being significant even in the second stage regressions. It appears then, that 10 years later financial literacy plays a more important role in pension plan participation than the role it used to play.

3.4.5 Investment instruments

This subsection examines if and how financial literacy affect a wide series of investment instruments. As seen in the literature review, many papers showed that individuals with greater numeracy and financial literacy are more likely to invest in stocks and to take part in financial markets. We want to see if these results are confirmed even in the Italian case.

We start from a very simple financial product: certificates of deposit. Column 1 of Table A15 shows that an additional correct answer in the financial literacy questionnaire does not raise the probability of owning certificates of deposit. In column 2 the coefficient of the variable “3 correct answers” is significant just at 10% level. Column 3 shows that knowing the concept of compound interest is significant at 5% level, while the knowledge of inflation and risk diversification has no effect on the choice of investing through certificates of deposit. At the bottom of columns 4 and 5, with the IV specifications, we see that instruments are valid and strong. What is more, financial literacy is tested to be exogenous. Therefore, we can consider consistent the OLS estimation of the first three columns which show weak or no association between financial knowledge and the probability of investing in certificates of deposit.

Table A16 has as dependent variable a dummy equal to 1 if the household has securities under administered account and 0 otherwise. From the OLS estimates in the first three specifications we see that all financial literacy coefficients (except responding correctly to risk diversification) are significantly higher than zero at 1% level. The IV model have strong but not-valid instruments. Unless we find valid instruments, it is impossible to perform the endogeneity test on financial literacy variables in order to understand if the OLS estimates seen before are consistent. Building on the intuition already explained before that households having an outstanding debt may become financial savvier thanks to experience, we substituted the instrument “household member graduated in economics or statistics” with the instrument “household having an outstanding debt”. Column 1 of Table A26 show the second stage regression run with the new combination of instruments. In this case the Hansen J test accept the null that instruments are exogenous. It is possible to perform the test of endogeneity of our variable of interest which is rejected, meaning that financial literacy is endogenous. The only consistent estimates are the GMM ones on the IV specification of Table A26, which shows that financial literacy coefficient does not have any significant impact on the choice of having securities under administered account.

The dummy “managed savings” is the dependent variable in Table A17. Starting from the bottom of IV columns, we learn that instruments are strong and exogenous and financial literacy variable can be considered exogenous, as a consequence we can trust the OLS estimates that tell us that the coefficient of financial knowledge indicators in columns 1 and 2 are

significantly positive. Higher levels of financial literacy increase the probability for a household to have managed savings. Column 3 shows that the only financial concept which has an impact on this choice is the knowledge of inflation. However, it is significant just at 10% level.

We move now to the holding of Italian government bonds in Table A18. Also in this case OLS estimates prove to be consistent (see the F statistic and the p-values at the bottom of column 4 and 5). Columns 1 to 3 tell us that financial literacy has no impact on the choice of households to hold Italian government bonds. This is probably due to the fact that this kind of instrument is the most diffused in Italy. It is among the first investments solution that banks offer to their customers and often there are tax incentives for buying your own country's sovereign bonds. For all these reasons, being financial savvier has no impact on this decision.

At the opposite, higher levels of financial literacy positively affect the behavior of holding corporate bonds, as we can understand from Table A19. Column 3, illustrating disaggregated financial literacy questions, shows that answering correctly to the compound interest question increases the probability of holding corporate bonds by 3.5 percentage points. Corporate bonds are generally much riskier than Italian government bonds, hence their return is higher. People with higher financial literacy know this, making them more likely to invest using this instrument. Also in this case we can consider OLS estimates consistent after having seen the statistics at the bottom of columns 4 and 5.

We consider now a specific kind of corporate bonds, which were excluded from the previous analysis: bank bonds. OLS specifications of Table A20 (which are consistent given the results of endogeneity test and the proved strength and validity of the instruments) show that financial literacy positively impacts on the probability of holding this kind of instruments. Only answering correctly to the question about risk diversification has no significant effect. These results may sound surprisingly given the recent scandals that hit many Italian banks. One could indeed think that banks have big incentives to sell to their own customers the bonds issued by the banks themselves; and the customers who would more easily accept are the ones with lower level of financial literacy since they are less likely to understand that there could be a conflict of interest. However, this reasoning is not confirmed by the empirical evidence. A more specific analysis on a bank by bank case would perhaps provide us more intuitions on this particular topic.

We move now to the participation in the stock market. Investors can decide to hold shares in two ways: directly, buying shares of specific companies, and indirectly, buying shares of mutual funds or ETFs that usually track indices or anyway have a variety of stock of different companies in their portfolios. We start our investigation from the general and later move to the particular.

Table A21 has as dependent variable a dummy which takes the value of 1 if the household participate in the stock market either directly or indirectly. We start from the last two columns on the right to see that instruments are not exogenous. As we did when we considered the variable “securities under administered account”, we run again the two steps regressions using as instruments the dummy “outstanding loan” and the number of bank branches per region every 100,000 inhabitants. As seen in the third column of Table A26 the instruments appear to be strong and exogenous. What is more the endogeneity test on financial literacy variable accept the null hypothesis, making the OLS estimates consistent. We can thus go back to Table A21 to see that the OLS estimates of the financial literacy coefficients are all significantly positive, except the coefficient related to the knowledge of inflation. Answering correctly to one additionally question increases the probability of participating in the stock market by 3 percentage points (column 1) and answering correctly to all the questions raises it by 9.2 percentage points (column 2). It is interesting to give a look at the other explicative variables. Being female and living in the Centre and South or Islands is negatively associated with the participation in the stock market, while living in a city, being self-employed, having finished at least high school, being homeowner and being in the higher income quartiles positively affect the participation probability. Moreover, the likelihood increases linearly with age.

With Tables A22 and A23 we move to the specificity of direct and indirect participation. Starting from direct shares holding, we see at the bottom of columns 4 and 5 of Table A22 that also in this case instruments are not valid. We resort again to the alternative set of instruments, finding out (see column 2 Table A26) that they are strong and exogenous and that we can trust OLS estimates at table A22. Aggregate financial literacy coefficients of the first two specifications are significantly positive, even if the values are lower than in the case when we considered overall stock participation. Another difference lies on the significance of the answer to the specific question: now knowing the inflation concept has a slightly significant effect and knowing compound interest loses its significance. The other socio demographic variables have very similar impact with what was seen in Table A21.

Table A23 analyses indirect stock market participation: the dependent variable is a dummy equal to 1 if households buy shares of mutual funds or ETFs. This time our usual instruments are strong and valid, hence we do not need to search for other instruments. The endogeneity test on financial literacy accept the null. We can stick to the OLS estimates that provide results incredibly similar to the model with general stock market participation as dependent variable (table A21).

Before concluding the section on investment products, we analyze two kind of instruments which have very little diffusion in Italy: foreign securities and derivatives.

In table A24 you find a multivariate analysis where the dependent variable is a dummy equal to 1 if households have any instrument that was issued abroad. In all the sample it happens just in 51 cases. Looking at the OLS estimates, which prove to be consistent in the statistics reported at the bottom of columns 4 and 5, financial literacy appears to have a positive impact, even if the effect is very small, on the probability of having investment instruments issued abroad.

The same is true even for derivatives contracts as is illustrated in Table A25. This time we must look at the IV specifications because the endogeneity test rejects the null hypothesis that financial literacy is exogenous. Considering that we are looking at the IV specification coefficients, where the coefficients increases even more than ten times compared to the OLS estimates (as seen in other cases above), we can say that although coefficients are significantly positive, they are very low. For instance, answering correctly to an additional question, raises the probability of investing in derivatives of just 1 percentage points. These small effects are probably due to extremely low rate of participation in these markets by common households. Out of a sample of 7,421 observations, only 14 invest using derivatives contracts. Despite this very scant numbers and an adjusted R^2 of the regression model close to 0, the coefficients turn out to be highly significantly different from zero probably because derivative contracts are so complex that an individual invests with them only if she has an extremely high level of financial literacy.

3.4.6 Real outcomes

Our last set of dependent variables is composed of real outcomes and financial vulnerability indicators rather than economic choices as seen so far.

The first three dependent variables we are going to examine are the dummies equal to one if the household is late on the payments of, respectively, bills, rent and loan instalments. In the three cases the sample sizes differ from each other. With bills payment as dependent variable the sample is composed by all the observations; with rent payment variable it is composed by the number of households which are paying the rent for getting the housing service; with loan instalments payment the sample is made just by the households who in 2016 had outstanding loans.

Table A27 shows the regressions on the “being late on bills” dependent dummy. The usual instruments result to be strong and exogenous, moreover OLS seems to be consistent since the endogeneity test on the financial literacy variable accepts the null hypothesis. Column 1 and 2 provide contrasting results: the first shows that answering correctly to an additional question decreases the probability of being late on bills payment by 1.1 percentage points, while the second column shows that answering correctly to all the question has no impact at all. Third

column shows that knowing the concept of compound interest rate has no effect, while knowing inflation and risk diversification concepts significantly matters at 5% level. The interpretation of these results is not easy. It may be that having higher levels of financial literacy makes people more prone to assuming good behaviors such as making use of financial budgeting, therefore it is less likely that a financially literate household forgets to pay the bills.

On the contrary, we cannot say anything about being late on rent and on loans instalments because the instruments are weak (see Tables A28 and A29), and we cannot know if the OLS estimates are invalidated by endogeneity issues.

In Table A30 are illustrated the results of the regression where the dependent variable is an ordinal categorical variable reporting the answer to the question asking: with which level of difficulty is your household's income sufficient to see you through to the end of the month? The instruments are strong, but they are just on the threshold level for being considered exogenous. If we choose to consider them exogenous, then we can run the endogeneity test which reject the null hypothesis. Financial literacy is endogenous and we must not look at the OLS estimates, but at the second stage of the IV regressions, which clearly show that having a higher level of financial literacy helps to make the ends meet. This is true after controlling for all the other socio demographic variables such as income and housing tenure which have a significant positive impact too. This means that financial knowledge helps facing financial needs, maybe for the same reason of financial planning attitude explained above. Looking at the remaining explicative variables, we see that being female, being younger, not living in an urban area helps as well, whereas being not employed has a negative effect.

Different results come from Table A31, which uses as dependent another ordinal categorical variable which reports whether households in 2016 got an income inferior/equal/superior than their needs. Unluckily, given the endogeneity of instruments, it is impossible to tell if the OLS estimates are consistent or not. However, if they were, Financial literacy would have no impact on the relationship income-savings of households.

Conclusions

The recent historical period has been characterized by fast financial innovation which has led on the one hand to more integrated and accessible financial markets, on the other hand to a greater level of complexity of financial instruments. At the same time, reforms related for example to the pension landscape are relocating the responsibility for saving, investment and wealth decumulation decision from the State level to an individual level. Therefore, this trend toward disintermediation is increasingly requiring people to take important financial decision on their own. This prompts concerns about household's competences in this area, their level of financial knowledge and their ability to deal with financial choices.

The present work tries to measure the level and distribution of financial literacy among the Italian population, and investigates its determinants and its effects on a series of economic outcomes.

Using the 2016 wave of the Bank of Italy's Survey on Household Income and Wealth (SHIW), the empirical analysis shows that many individuals lack knowledge of basic financial concepts such as interest rates, inflation and risk diversification. Like findings in other countries, the subgroups displaying the lowest level of financial capabilities are females, the young and the old, inhabitants of rural areas, unemployed, people with low education level and low income. A peculiarity of the Italian is the geographic disparity in financial knowledge levels between the Centre-North and the South.

This study contributes to the literature by examining the effects of financial literacy on both financial and real outcomes in a country like Italy. Employing a multivariate regression model, the empirical evidence confirms many of the results already found by the literature and show the existence of new associations between financial literacy and economic outcomes. Among financial inclusion variables, financial literacy is found to have an impact on the choice of having a current/saving account and in the number of banks in which households hold an account, while it is not clear whether it affect the use of home-banking channels and online trading platforms. Higher levels of financial knowledge are also found to increase the use of some electronic cards such as credit and debit cards. It also appears that financial literacy could increase the probability to use prepaid cards, while it would have no effect on the choice of using instalments for paying back credit card debt. However, further research is needed to confirm these last two results. Financial literacy is also tested to have a positive effect on the holding of formal debt such as mortgages and consumer loans. This is true also for overdraft facilities, but it is not clear how financial knowledge impact on the actual use this kind of line of credit. According to this study, financial literacy is found to have no impact on the choice to

resort to informal sources of credit. We also find that financial literacy has a positive and significant impact on pension plan participation and on the use of health and life insurances. The empirical results also show that financial literacy have a positive effect on the use of many investment instruments such as corporate bonds, bank bonds, stocks, mutual funds, ETFs and derivatives. It increases the overall stock market participation and the use of managed portfolios, while it is found to have no effect on instruments such as certificates of deposit, Italian sovereign bonds, foreign issued securities and, more generally, on the holding of an account for administered securities. Moreover, financial literacy is found to affect a real outcome of being late on the payment of bills, and it appears to affect a financial vulnerability indicator such as the ease by which households make ends meet with their monthly income.

What is more, one common feature of many of the regressions analyzed is that financial literacy has an effect which adds on the effect given by standard education. Evidently, general knowledge (education) and more specialized knowledge (financial literacy) both contribute to more informed financial decision making. In other words, investment in financial knowledge appears to be a specific form of human capital, rather than being simply associated with more years of schooling.

These findings confirm and reinforce previous results about the positive impact of financial literacy on financial behavior. Though it is challenging to establish a causal link between financial literacy and economic behavior, the instrumental variables approach suggests that the causality goes from knowledge to behavior. It seems clear that there are likely to be important benefits of greater financial knowledge, including savvier saving and investment decisions, increased use of electronic payments, more retirement planning, higher participation in the stock market, and greater wealth accumulation. Therefore, this study provides further rationale for public intervention to improve the level of financial literacy in the Italian population. This intervention is likely to be more effective if directed toward the population sub-groups at higher risks of possessing insufficient financial knowledge and skills to adequately face the challenges posed by the shift to individual responsibility for personal finance choices.

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Appendix

Table A1. NUMBER OF BANKS

	(1) OLS	(2) OLS	(3) OLS	(4) IV	(5) IV
number correct answers	0.0258*** (0.006)			0.2465 (0.166)	
three correct answers		0.0700*** (0.022)			0.7746 (0.537)
correct on interest			0.0612*** (0.020)		
correct on inflation			0.0088 (0.013)		
correct on diversification			0.0089 (0.013)		
female	-0.0456*** (0.014)	-0.0462*** (0.014)	-0.0451*** (0.013)	-0.0036 (0.038)	-0.0037 (0.040)
age (years)	0.0028 (0.003)	0.0033 (0.003)	0.0029 (0.003)	-0.0025 (0.005)	0.0021 (0.003)
age2	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	0.0000 (0.000)	-0.0000 (0.000)
Centre (ref. North)	0.0086 (0.047)	0.0083 (0.048)	0.0089 (0.048)	-0.0255 (0.056)	-0.0311 (0.062)
South and Islands	-0.0295 (0.029)	-0.0294 (0.028)	-0.0297 (0.029)	0.0020 (0.043)	0.0145 (0.049)
city	0.0081 (0.021)	0.0075 (0.021)	0.0067 (0.021)	0.0110 (0.024)	0.0032 (0.029)
secondary (ref. none/primary)	-0.0168 (0.016)	-0.0135 (0.015)	-0.0167 (0.016)	-0.0786 (0.054)	-0.0558 (0.035)
high school	0.0096 (0.017)	0.0131 (0.016)	0.0102 (0.017)	-0.1099 (0.101)	-0.0958 (0.089)
college and more	0.0367* (0.021)	0.0392* (0.020)	0.0370* (0.021)	-0.1249 (0.123)	-0.1254 (0.123)
employee (ref. retired)	-0.0022 (0.021)	-0.0031 (0.021)	-0.0021 (0.021)	0.0170 (0.026)	0.0110 (0.022)
self employed	0.1208*** (0.030)	0.1203*** (0.030)	0.1204*** (0.030)	0.1204*** (0.029)	0.1147*** (0.029)
not-employed	0.0229 (0.016)	0.0233 (0.016)	0.0245 (0.016)	0.0409* (0.022)	0.0515** (0.024)
2nd quartile (ref. 1st quartile-lowest)	0.0456*** (0.013)	0.0482*** (0.013)	0.0463*** (0.012)	0.0228 (0.021)	0.0485*** (0.014)
3rd quartile	0.1295*** (0.019)	0.1333*** (0.019)	0.1298*** (0.019)	0.0599 (0.050)	0.0935*** (0.033)
4th quartile-highest	0.3396*** (0.023)	0.3428*** (0.024)	0.3396*** (0.023)	0.2283*** (0.078)	0.2482*** (0.072)
homeowner	0.0053 (0.012)	0.0054 (0.012)	0.0056 (0.012)	-0.0191 (0.015)	-0.0217 (0.015)
Constant	1.0007*** (0.104)	1.0080*** (0.103)	0.9978*** (0.105)	0.8285*** (0.155)	0.8873*** (0.137)
Observations	6899	6899	6899	6899	6899
Adjusted R ²	0.120	0.121	0.121	-0.075	-0.247
F of instruments				37.397	18.734
Hansen's J P-value				0.356	0.413
endogeneity test P-value				0.149	0.132

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A2. HOMEBANKING

	(1) OLS	(2) OLS	(3) OLS	(4) IV	(5) IV
number correct answers	0.0494*** (0.006)			0.0071 (0.087)	
three correct answers		0.1163*** (0.016)			0.0985 (0.288)
correct on interest			0.0671*** (0.015)		
correct on inflation			0.0455*** (0.012)		
correct on diversification			0.0362*** (0.012)		
female	-0.0007 (0.010)	-0.0032 (0.011)	-0.0004 (0.010)	-0.0095 (0.016)	-0.0059 (0.017)
age (years)	-0.0044* (0.002)	-0.0033 (0.002)	-0.0044* (0.002)	-0.0037 (0.003)	-0.0037 (0.003)
age2	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)
Centre (ref. North)	-0.0522 (0.032)	-0.0521 (0.032)	-0.0520 (0.032)	-0.0358 (0.026)	-0.0360 (0.026)
South and Islands	-0.0902*** (0.031)	-0.0912*** (0.032)	-0.0906*** (0.031)	-0.1006*** (0.036)	-0.0939** (0.038)
city	0.0211 (0.016)	0.0200 (0.017)	0.0206 (0.016)	0.0298** (0.015)	0.0275* (0.017)
secondary (ref. none/primary)	-0.0376*** (0.007)	-0.0307*** (0.006)	-0.0379*** (0.007)	-0.0298 (0.023)	-0.0329** (0.015)
high school	0.0729*** (0.016)	0.0827*** (0.015)	0.0733*** (0.016)	0.0881* (0.050)	0.0776* (0.045)
college and more	0.2058*** (0.020)	0.2151*** (0.020)	0.2060*** (0.020)	0.2357*** (0.067)	0.2183*** (0.069)
employee (ref. retired)	0.0712*** (0.016)	0.0687*** (0.016)	0.0714*** (0.016)	0.0759*** (0.017)	0.0765*** (0.016)
self employed	0.1450*** (0.019)	0.1437*** (0.020)	0.1450*** (0.019)	0.1297*** (0.019)	0.1299*** (0.018)
not-employed	-0.0173 (0.013)	-0.0177 (0.014)	-0.0168 (0.014)	-0.0194 (0.016)	-0.0160 (0.017)
2nd quartile (ref. 1st quartile-lowest)	0.0383*** (0.012)	0.0446*** (0.012)	0.0387*** (0.012)	0.0385 (0.025)	0.0359** (0.017)
3rd quartile	0.1161*** (0.020)	0.1252*** (0.021)	0.1162*** (0.020)	0.1270*** (0.047)	0.1199*** (0.038)
4th quartile-highest	0.2800*** (0.021)	0.2894*** (0.022)	0.2801*** (0.021)	0.2941*** (0.063)	0.2807*** (0.059)
homeowner	0.0228** (0.010)	0.0239** (0.011)	0.0229** (0.011)	0.0314*** (0.012)	0.0300** (0.012)
Constant	0.3057*** (0.079)	0.3190*** (0.077)	0.3042*** (0.080)	0.3497*** (0.101)	0.3366*** (0.092)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.318	0.317	0.318	0.308	0.316
F of instruments				44.219	22.656
Hansen's J P-value				0.005	0.006
endogeneity test P-value				0.844	0.929

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A3. ONLINE TRADING

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	-0.0029 (0.007)			0.0692 (0.160)	
three correct answers		0.0035 (0.017)			0.0298 (0.179)
correct on interest			-0.0106 (0.021)		
correct on inflation			0.0218 (0.019)		
correct on diversification			-0.0176 (0.011)		
female	-0.0555*** (0.012)	-0.0547*** (0.012)	-0.0555*** (0.012)	-0.0336 (0.026)	-0.0427** (0.021)
age (years)	-0.0012 (0.003)	-0.0012 (0.003)	-0.0010 (0.003)	-0.0046 (0.004)	-0.0041 (0.003)
age2	0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)	0.0001 (0.000)	0.0000* (0.000)
Centre (ref. North)	-0.0143 (0.009)	-0.0152 (0.010)	-0.0152 (0.010)	-0.0280 (0.036)	-0.0168 (0.023)
South and Islands	-0.0241** (0.011)	-0.0235** (0.011)	-0.0248** (0.011)	-0.0074 (0.024)	-0.0153 (0.013)
city	0.0162 (0.012)	0.0166 (0.011)	0.0175 (0.012)	0.0101 (0.016)	0.0203** (0.010)
secondary (ref. none/primary)	-0.0326 (0.037)	-0.0326 (0.036)	-0.0341 (0.037)	-0.0306 (0.034)	-0.0193 (0.032)
high school	0.0027 (0.037)	0.0014 (0.037)	0.0032 (0.037)	-0.0150 (0.067)	0.0130 (0.039)
college and more	0.0211 (0.035)	0.0192 (0.035)	0.0222 (0.035)	-0.0240 (0.081)	0.0056 (0.047)
employee (ref. retired)	0.0132 (0.023)	0.0135 (0.023)	0.0116 (0.022)	0.0186 (0.027)	0.0182 (0.023)
self employed	0.0246 (0.034)	0.0249 (0.034)	0.0234 (0.034)	0.0352 (0.033)	0.0388 (0.032)
not-employed	0.0425* (0.024)	0.0431* (0.024)	0.0391 (0.024)	0.0476 (0.030)	0.0437* (0.026)
2nd quartile (ref. 1st quartile-lowest)	-0.0051 (0.017)	-0.0055 (0.017)	-0.0070 (0.017)	-0.0072 (0.026)	-0.0022 (0.018)
3rd quartile	0.0039 (0.020)	0.0032 (0.020)	0.0036 (0.020)	0.0018 (0.031)	0.0169 (0.019)
4th quartile-highest	0.0503** (0.023)	0.0493** (0.023)	0.0499** (0.023)	0.0585 (0.048)	0.0762*** (0.019)
homeowner	-0.0063 (0.017)	-0.0071 (0.016)	-0.0067 (0.016)	-0.0278 (0.030)	-0.0232 (0.024)
Constant	0.0699 (0.083)	0.0651 (0.081)	0.0642 (0.086)	0.0248 (0.237)	0.1033 (0.093)
Observations	1915	1915	1915	1915	1915
Adjusted R ²	0.022	0.022	0.022	-0.030	0.017
F of instruments				3.088	3.754
Hansen's J P-value				0.015	0.017
endogeneity test P-value				0.943	0.966

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A4. CREDIT CARD

	(1) OLS	(2) OLS	(3) OLS	(4) IV	(5) IV
number correct answers	0.0345*** (0.007)			0.1633 (0.110)	
three correct answers		0.0761*** (0.013)			0.5330 (0.336)
correct on interest			0.0470*** (0.011)		
correct on inflation			0.0110 (0.013)		
correct on diversification			0.0468*** (0.009)		
female	-0.0264*** (0.007)	-0.0284*** (0.007)	-0.0261*** (0.006)	-0.0028 (0.024)	-0.0023 (0.023)
age (years)	0.0052* (0.003)	0.0060** (0.003)	0.0053* (0.003)	0.0024 (0.004)	0.0055** (0.003)
age2	-0.0001** (0.000)	-0.0001*** (0.000)	-0.0001** (0.000)	-0.0000 (0.000)	-0.0001** (0.000)
Centre (ref. North)	-0.0697*** (0.024)	-0.0694*** (0.024)	-0.0695*** (0.024)	-0.0872*** (0.032)	-0.0939*** (0.034)
South and Islands	-0.1012*** (0.023)	-0.1021*** (0.023)	-0.1002*** (0.023)	-0.0765*** (0.017)	-0.0718*** (0.017)
city	0.0490*** (0.015)	0.0483*** (0.015)	0.0480*** (0.015)	0.0426*** (0.015)	0.0358** (0.017)
secondary (ref. none/primary)	0.0081 (0.013)	0.0132 (0.013)	0.0090 (0.013)	-0.0292 (0.032)	-0.0142 (0.021)
high school	0.1370*** (0.020)	0.1446*** (0.020)	0.1370*** (0.019)	0.0669 (0.064)	0.0768 (0.052)
college and more	0.2711*** (0.020)	0.2788*** (0.020)	0.2708*** (0.020)	0.1794** (0.082)	0.1773** (0.078)
employee (ref. retired)	0.0430** (0.017)	0.0411** (0.017)	0.0428** (0.017)	0.0629*** (0.020)	0.0562*** (0.017)
self employed	0.1289*** (0.023)	0.1281*** (0.023)	0.1286*** (0.023)	0.1387*** (0.020)	0.1317*** (0.020)
not-employed	-0.0298** (0.013)	-0.0303** (0.013)	-0.0290** (0.013)	-0.0151 (0.017)	-0.0103 (0.017)
2nd quartile (ref. 1st quartile-lowest)	0.0387*** (0.011)	0.0432*** (0.011)	0.0393*** (0.011)	0.0160 (0.024)	0.0336** (0.014)
3rd quartile	0.1382*** (0.014)	0.1450*** (0.015)	0.1385*** (0.014)	0.0932** (0.043)	0.1129*** (0.030)
4th quartile-highest	0.3470*** (0.020)	0.3544*** (0.021)	0.3463*** (0.020)	0.2731*** (0.062)	0.2823*** (0.055)
homeowner	0.0361** (0.017)	0.0369** (0.017)	0.0362** (0.017)	0.0215 (0.017)	0.0219 (0.017)
Constant	-0.0616 (0.081)	-0.0517 (0.082)	-0.0641 (0.081)	-0.1612* (0.085)	-0.1261 (0.078)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.337	0.336	0.337	0.257	0.158
F of instruments				44.219	22.656
Hansen's J P-value				0.115	0.146
endogeneity test P-value				0.238	0.182

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A5. INSTALMENTS FOR PAYING BACK CREDIT CARD DEBT

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	-0.0007 (0.009)			-0.1298 (0.240)	
three correct answers		-0.0052 (0.018)			-0.2504 (0.407)
correct on interest			0.0216* (0.012)		
correct on inflation			-0.0199 (0.016)		
correct on diversification			-0.0055 (0.017)		
female	-0.0100 (0.009)	-0.0103 (0.010)	-0.0107 (0.010)	-0.0299 (0.046)	-0.0302 (0.040)
age (years)	0.0025 (0.002)	0.0026 (0.002)	0.0026 (0.002)	0.0042 (0.004)	0.0042 (0.004)
age2	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)
Centre (ref. North)	0.0120 (0.029)	0.0123 (0.029)	0.0122 (0.028)	0.0287 (0.052)	0.0325 (0.051)
South and Islands	0.0664** (0.027)	0.0661** (0.027)	0.0658** (0.027)	0.0387 (0.063)	0.0442 (0.049)
city	-0.0180 (0.011)	-0.0180 (0.010)	-0.0196* (0.011)	-0.0225* (0.014)	-0.0174 (0.012)
secondary (ref. none/primary)	0.0044 (0.018)	0.0044 (0.018)	0.0037 (0.018)	0.0204 (0.040)	0.0089 (0.026)
high school	0.0082 (0.021)	0.0083 (0.021)	0.0066 (0.021)	0.0481 (0.084)	0.0267 (0.047)
college and more	-0.0235 (0.019)	-0.0231 (0.018)	-0.0249 (0.019)	0.0324 (0.110)	0.0133 (0.071)
employee (ref. retired)	0.0125 (0.014)	0.0126 (0.014)	0.0127 (0.014)	0.0129 (0.019)	0.0187 (0.023)
self employed	0.0360* (0.017)	0.0361* (0.017)	0.0354* (0.017)	0.0372** (0.017)	0.0405** (0.018)
not-employed	-0.0027 (0.026)	-0.0027 (0.026)	-0.0010 (0.026)	-0.0089 (0.025)	-0.0056 (0.027)
2nd quartile (ref. 1st quartile-lowest)	-0.0705 (0.042)	-0.0705 (0.042)	-0.0701 (0.043)	-0.0793* (0.047)	-0.0720 (0.048)
3rd quartile	-0.0739* (0.040)	-0.0739* (0.040)	-0.0751* (0.040)	-0.0680 (0.043)	-0.0733* (0.043)
4th quartile-highest	-0.0723 (0.043)	-0.0722 (0.043)	-0.0735 (0.043)	-0.0593 (0.054)	-0.0661 (0.049)
homeowner	-0.0350** (0.015)	-0.0347** (0.015)	-0.0345** (0.015)	-0.0216 (0.020)	-0.0194 (0.020)
Constant	0.0879 (0.091)	0.0874 (0.094)	0.0916 (0.091)	0.2676 (0.328)	0.1158 (0.096)
Observations	2117	2117	2117	2117	2117
Adjusted R ²	0.024	0.024	0.026	-0.217	-0.239
F of instruments				1.770	1.750
Hansen's J P-value				0.928	0.949
endogeneity test P-value				0.634	0.632

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A6. DEBIT CARD

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0568*** (0.010)			-0.0017 (0.084)	
three correct answers		0.0995*** (0.017)			-0.0107 (0.253)
correct on interest			0.0863*** (0.023)		
correct on inflation			0.0408* (0.020)		
correct on diversification			0.0450* (0.022)		
female	-0.0002 (0.016)	-0.0051 (0.016)	0.0003 (0.016)	-0.0130 (0.022)	-0.0133 (0.020)
age (years)	0.0133*** (0.002)	0.0147*** (0.002)	0.0135*** (0.002)	0.0151*** (0.003)	0.0150*** (0.002)
age2	-0.0002*** (0.000)	-0.0002*** (0.000)	-0.0002*** (0.000)	-0.0002*** (0.000)	-0.0002*** (0.000)
Centre (ref. North)	-0.0426* (0.022)	-0.0409* (0.022)	-0.0423* (0.023)	-0.0346** (0.018)	-0.0345* (0.018)
South and Islands	-0.0965** (0.040)	-0.0996** (0.040)	-0.0966** (0.040)	-0.1025*** (0.039)	-0.1030** (0.040)
city	0.0075 (0.014)	0.0066 (0.014)	0.0063 (0.014)	0.0070 (0.013)	0.0072 (0.014)
secondary (ref. none/primary)	0.0936*** (0.020)	0.1033*** (0.020)	0.0936*** (0.020)	0.1083*** (0.024)	0.1082*** (0.019)
high school	0.1323*** (0.019)	0.1483*** (0.018)	0.1328*** (0.019)	0.1618*** (0.042)	0.1623*** (0.034)
college and more	0.1513*** (0.022)	0.1695*** (0.020)	0.1514*** (0.022)	0.1912*** (0.059)	0.1923*** (0.056)
employee (ref. retired)	-0.0317* (0.016)	-0.0351** (0.017)	-0.0315* (0.016)	-0.0355* (0.018)	-0.0356* (0.017)
self employed	-0.0906*** (0.023)	-0.0915*** (0.024)	-0.0907*** (0.024)	-0.0894*** (0.023)	-0.0893*** (0.022)
not-employed	-0.1127*** (0.019)	-0.1144*** (0.020)	-0.1116*** (0.020)	-0.1170*** (0.018)	-0.1172*** (0.019)
2nd quartile (ref. 1st quartile-lowest)	0.1809*** (0.028)	0.1890*** (0.028)	0.1817*** (0.028)	0.1896*** (0.026)	0.1894*** (0.024)
3rd quartile	0.2577*** (0.034)	0.2710*** (0.034)	0.2580*** (0.035)	0.2767*** (0.030)	0.2766*** (0.026)
4th quartile-highest	0.2769*** (0.036)	0.2931*** (0.036)	0.2768*** (0.036)	0.3077*** (0.041)	0.3080*** (0.037)
homeowner	0.0122 (0.016)	0.0142 (0.016)	0.0124 (0.016)	0.0170 (0.018)	0.0173 (0.018)
Constant	0.2278*** (0.072)	0.2471*** (0.076)	0.2246*** (0.074)	0.2618** (0.104)	0.2630*** (0.090)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.274	0.266	0.275	0.257	0.256
F of instruments				44.219	22.656
Hansen's J P-value				0.848	0.851
endogeneity test P-value				0.504	0.664

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A7. PREPAID CARD

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0294*** (0.007)			0.1059 (0.069)	
three correct answers		0.0755*** (0.022)			0.4054* (0.236)
correct on interest			0.0544*** (0.019)		
correct on inflation			0.0043 (0.011)		
correct on diversification			0.0312*** (0.010)		
female	0.0133 (0.011)	0.0122 (0.011)	0.0139 (0.011)	0.0303 (0.020)	0.0333 (0.021)
age (years)	-0.0038** (0.002)	-0.0031* (0.002)	-0.0036** (0.002)	-0.0060*** (0.002)	-0.0040*** (0.001)
age2	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)
Centre (ref. North)	0.0042 (0.020)	0.0040 (0.020)	0.0046 (0.020)	0.0100 (0.023)	0.0088 (0.026)
South and Islands	-0.0310** (0.011)	-0.0312*** (0.011)	-0.0303*** (0.011)	-0.0124 (0.015)	-0.0062 (0.016)
city	0.0136 (0.015)	0.0128 (0.015)	0.0123 (0.015)	0.0044 (0.015)	-0.0024 (0.016)
secondary (ref. none/primary)	-0.0003 (0.011)	0.0035 (0.011)	0.0003 (0.011)	-0.0091 (0.020)	-0.0019 (0.014)
high school	0.0675*** (0.011)	0.0724*** (0.012)	0.0678*** (0.011)	0.0270 (0.036)	0.0253 (0.033)
college and more	0.0886*** (0.022)	0.0928*** (0.022)	0.0885*** (0.022)	0.0398 (0.042)	0.0250 (0.046)
employee (ref. retired)	0.0867*** (0.015)	0.0853*** (0.015)	0.0867*** (0.015)	0.0910*** (0.013)	0.0903*** (0.014)
self employed	0.0875*** (0.019)	0.0866*** (0.019)	0.0872*** (0.019)	0.0763*** (0.018)	0.0719*** (0.020)
not-employed	0.0133 (0.012)	0.0133 (0.013)	0.0145 (0.012)	0.0138 (0.011)	0.0186 (0.013)
2nd quartile (ref. 1st quartile-lowest)	0.0046 (0.012)	0.0081 (0.011)	0.0054 (0.011)	-0.0174 (0.016)	-0.0047 (0.012)
3rd quartile	0.0700*** (0.016)	0.0750*** (0.016)	0.0704*** (0.017)	0.0329 (0.032)	0.0422* (0.026)
4th quartile-highest	0.1688*** (0.023)	0.1734*** (0.022)	0.1682*** (0.023)	0.1244*** (0.046)	0.1197*** (0.044)
homeowner	0.0100 (0.011)	0.0105 (0.011)	0.0102 (0.011)	0.0097 (0.013)	0.0074 (0.013)
Constant	0.2672*** (0.054)	0.2744*** (0.053)	0.2637*** (0.052)	0.2187*** (0.072)	0.2294*** (0.065)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.168	0.168	0.169	0.132	0.052
F of instruments				44.219	22.656
Hansen's J P-value				0.017	0.020
endogeneity test P-value				0.369	0.270

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A8. INFORMAL DEBT

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0013 (0.002)			0.0134 (0.027)	
three correct answers		0.0064 (0.005)			0.0518 (0.087)
correct on interest			0.0083 (0.006)		
correct on inflation			-0.0036 (0.005)		
correct on diversification			-0.0004 (0.003)		
female	-0.0131*** (0.004)	-0.0129*** (0.004)	-0.0129*** (0.004)	-0.0087* (0.005)	-0.0082* (0.005)
age (years)	0.0017 (0.001)	0.0017 (0.001)	0.0017 (0.001)	0.0011 (0.001)	0.0014 (0.001)
age2	-0.0000** (0.000)	-0.0000** (0.000)	-0.0000** (0.000)	-0.0000 (0.000)	-0.0000** (0.000)
Centre (ref. North)	-0.0004 (0.005)	-0.0006 (0.005)	-0.0003 (0.004)	-0.0025 (0.005)	-0.0031 (0.006)
South and Islands	0.0027 (0.007)	0.0029 (0.007)	0.0028 (0.006)	0.0047 (0.009)	0.0060 (0.010)
city	0.0079* (0.004)	0.0078* (0.004)	0.0076* (0.004)	0.0089** (0.003)	0.0083** (0.003)
secondary (ref. none/primary)	0.0047 (0.005)	0.0047 (0.005)	0.0048 (0.005)	0.0013 (0.010)	0.0019 (0.008)
high school	-0.0075 (0.006)	-0.0078 (0.006)	-0.0074 (0.006)	-0.0121 (0.017)	-0.0127 (0.015)
college and more	-0.0094 (0.006)	-0.0099* (0.006)	-0.0094 (0.006)	-0.0184 (0.021)	-0.0204 (0.022)
employee (ref. retired)	-0.0072 (0.006)	-0.0072 (0.006)	-0.0072 (0.006)	-0.0094* (0.006)	-0.0095* (0.005)
self employed	0.0082 (0.008)	0.0081 (0.008)	0.0081 (0.008)	0.0111 (0.007)	0.0107 (0.007)
not-employed	0.0315*** (0.006)	0.0316*** (0.006)	0.0318*** (0.006)	0.0314*** (0.006)	0.0323*** (0.006)
2nd quartile (ref. 1st quartile-lowest)	-0.0318*** (0.006)	-0.0317*** (0.006)	-0.0316*** (0.006)	-0.0346*** (0.009)	-0.0332*** (0.007)
3rd quartile	-0.0359*** (0.007)	-0.0359*** (0.007)	-0.0358*** (0.007)	-0.0405*** (0.011)	-0.0393*** (0.009)
4th quartile-highest	-0.0386*** (0.006)	-0.0389*** (0.006)	-0.0387*** (0.006)	-0.0454*** (0.016)	-0.0458*** (0.015)
homeowner	-0.0168** (0.007)	-0.0169** (0.007)	-0.0168** (0.007)	-0.0164** (0.007)	-0.0168** (0.007)
Constant	0.0389 (0.038)	0.0389 (0.039)	0.0381 (0.039)	0.0403 (0.041)	0.0398 (0.039)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.033	0.033	0.033	0.027	0.018
F of instruments				44.219	22.656
Hansen's J P-value				0.158	0.175
endogeneity test P-value				0.691	0.624

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Tab A9. OUTSTANDING DEBT

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0170*** (0.004)			0.0347 (0.054)	
three correct answers		0.0248* (0.012)			0.1167 (0.179)
correct on interest			0.0294*** (0.009)		
correct on inflation			0.0182 (0.011)		
correct on diversification			0.0036 (0.007)		
female	0.0067 (0.006)	0.0050 (0.006)	0.0069 (0.006)	0.0103 (0.012)	0.0107 (0.012)
age (years)	-0.0018 (0.002)	-0.0014 (0.002)	-0.0018 (0.002)	-0.0022 (0.002)	-0.0015 (0.002)
age2	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)
Centre (ref. North)	-0.0078 (0.011)	-0.0071 (0.011)	-0.0077 (0.011)	-0.0102 (0.013)	-0.0117 (0.014)
South and Islands	-0.0114 (0.013)	-0.0126 (0.014)	-0.0119 (0.013)	-0.0083 (0.015)	-0.0070 (0.017)
city	0.0153 (0.014)	0.0151 (0.014)	0.0151 (0.013)	0.0139 (0.012)	0.0129 (0.012)
secondary (ref. none/primary)	-0.0294*** (0.010)	-0.0263** (0.010)	-0.0298*** (0.010)	-0.0340* (0.017)	-0.0309** (0.014)
high school	-0.0252* (0.012)	-0.0197 (0.012)	-0.0249* (0.012)	-0.0346 (0.028)	-0.0327 (0.025)
college and more	-0.0204 (0.019)	-0.0139 (0.019)	-0.0202 (0.019)	-0.0319 (0.044)	-0.0332 (0.045)
employee (ref. retired)	0.0827*** (0.017)	0.0816*** (0.017)	0.0829*** (0.017)	0.0849*** (0.016)	0.0834*** (0.017)
self employed	0.0364 (0.024)	0.0362 (0.024)	0.0365 (0.024)	0.0370 (0.024)	0.0352 (0.024)
not-employed	0.0059 (0.017)	0.0052 (0.017)	0.0062 (0.017)	0.0083 (0.016)	0.0091 (0.016)
2nd quartile (ref. 1st quartile-lowest)	0.0154 (0.011)	0.0179 (0.011)	0.0155 (0.011)	0.0125 (0.014)	0.0159 (0.011)
3rd quartile	0.0436*** (0.013)	0.0479*** (0.013)	0.0436*** (0.014)	0.0369* (0.022)	0.0405** (0.016)
4th quartile-highest	0.0963*** (0.020)	0.1019*** (0.020)	0.0965*** (0.020)	0.0869** (0.035)	0.0878*** (0.033)
homeowner	0.0686*** (0.015)	0.0693*** (0.015)	0.0687*** (0.015)	0.0673*** (0.016)	0.0672*** (0.016)
Constant	0.1697** (0.065)	0.1760** (0.064)	0.1689** (0.066)	0.1578** (0.076)	0.1630** (0.070)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.098	0.096	0.098	0.095	0.083
F of instruments				44.219	22.656
Hansen's J P-value				0.849	0.878
endogeneity test P-value				0.726	0.576

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A10. OVERDRAFT FACILITIES

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0388*** (0.010)			0.0208 (0.106)	
three correct answers		0.0677** (0.026)			0.1170 (0.344)
correct on interest			0.0698*** (0.018)		
correct on inflation			0.0282* (0.015)		
correct on diversification			0.0196 (0.020)		
female	-0.0236* (0.013)	-0.0267* (0.013)	-0.0231 (0.014)	-0.0236 (0.024)	-0.0195 (0.026)
age (years)	0.0090*** (0.003)	0.0099*** (0.002)	0.0091*** (0.003)	0.0102*** (0.004)	0.0105*** (0.002)
age2	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)
Centre (ref. North)	0.0682** (0.029)	0.0704** (0.028)	0.0686** (0.028)	0.0722** (0.030)	0.0671** (0.032)
South and Islands	-0.0031 (0.035)	-0.0045 (0.035)	-0.0036 (0.035)	0.0088 (0.036)	0.0124 (0.038)
city	0.0693*** (0.023)	0.0686*** (0.023)	0.0682*** (0.022)	0.0510** (0.021)	0.0491** (0.022)
secondary (ref. none/primary)	-0.0164 (0.013)	-0.0099 (0.013)	-0.0167 (0.013)	-0.0100 (0.027)	-0.0105 (0.019)
high school	0.0336** (0.014)	0.0437*** (0.015)	0.0341** (0.015)	0.0365 (0.052)	0.0308 (0.048)
college and more	0.0658** (0.027)	0.0773*** (0.026)	0.0662** (0.027)	0.0715 (0.078)	0.0602 (0.081)
employee (ref. retired)	0.0596*** (0.019)	0.0575*** (0.019)	0.0598*** (0.019)	0.0692*** (0.015)	0.0678*** (0.016)
self employed	0.1257*** (0.031)	0.1252*** (0.030)	0.1254*** (0.030)	0.1434*** (0.027)	0.1404*** (0.029)
not-employed	0.0277 (0.025)	0.0263 (0.026)	0.0294 (0.025)	0.0374* (0.022)	0.0380* (0.021)
2nd quartile (ref. 1st quartile-lowest)	0.0278** (0.013)	0.0319** (0.012)	0.0282** (0.013)	0.0368** (0.017)	0.0381*** (0.012)
3rd quartile	0.0844*** (0.019)	0.0923*** (0.020)	0.0845*** (0.019)	0.0944** (0.038)	0.0933*** (0.029)
4th quartile-highest	0.1509*** (0.021)	0.1606*** (0.021)	0.1509*** (0.021)	0.1649*** (0.046)	0.1600*** (0.041)
homeowner	0.0306** (0.012)	0.0319** (0.012)	0.0311** (0.012)	0.0275 (0.017)	0.0250 (0.018)
Constant	-0.2779*** (0.080)	-0.2586*** (0.078)	-0.2799*** (0.082)	-0.2975*** (0.099)	-0.2977*** (0.080)
Observations	6462	6462	6462	6462	6462
Adjusted R ²	0.108	0.105	0.110	0.106	0.101
F of instruments				33.447	15.855
Hansen's J P-value				0.048	0.052
endogeneity test P-value				0.863	0.721

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A11. USE OF OVERDRAFT FACILITIES

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	-0.0348** (0.014)			-0.4948 (0.365)	
three correct answers		-0.0420** (0.020)			-1.5192 (1.048)
correct on interest			-0.0235 (0.026)		
correct on inflation			-0.0132 (0.029)		
correct on diversification			-0.0646** (0.031)		
female	-0.0323 (0.032)	-0.0302 (0.033)	-0.0319 (0.032)	-0.1199 (0.089)	-0.1998 (0.130)
age (years)	0.0146** (0.005)	0.0138** (0.005)	0.0147** (0.005)	0.0268** (0.012)	0.0177** (0.009)
age2	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0003** (0.000)	-0.0002** (0.000)
Centre (ref. North)	-0.0252 (0.032)	-0.0252 (0.033)	-0.0266 (0.032)	0.0281 (0.047)	0.0997 (0.095)
South and Islands	0.0010 (0.032)	0.0057 (0.033)	0.0005 (0.032)	-0.1251 (0.104)	-0.1777 (0.149)
city	-0.0617** (0.029)	-0.0607** (0.029)	-0.0617** (0.028)	-0.0814*** (0.030)	-0.0566 (0.042)
secondary (ref. none/primary)	-0.0070 (0.029)	-0.0138 (0.029)	-0.0084 (0.029)	0.1231 (0.126)	0.0893 (0.095)
high school	-0.0048 (0.045)	-0.0130 (0.046)	-0.0028 (0.044)	0.1749 (0.171)	0.1700 (0.166)
college and more	-0.0027 (0.047)	-0.0120 (0.048)	-0.0018 (0.046)	0.2536 (0.222)	0.3265 (0.258)
employee (ref. retired)	0.0412 (0.032)	0.0466 (0.032)	0.0405 (0.031)	-0.0782 (0.097)	-0.0819 (0.090)
self employed	0.1336** (0.051)	0.1390** (0.051)	0.1351** (0.051)	0.0201 (0.112)	0.0253 (0.108)
not-employed	0.0585 (0.042)	0.0646 (0.040)	0.0582 (0.042)	-0.0593 (0.112)	-0.0487 (0.088)
2nd quartile (ref. 1st quartile-lowest)	-0.0833 (0.061)	-0.0886 (0.061)	-0.0838 (0.061)	-0.0088 (0.069)	-0.0906 (0.068)
3rd quartile	-0.0838 (0.055)	-0.0911 (0.054)	-0.0841 (0.055)	0.0362 (0.096)	-0.0432 (0.066)
4th quartile-highest	-0.0981** (0.047)	-0.1070** (0.046)	-0.0976* (0.047)	0.0908 (0.146)	0.0764 (0.124)
homeowner	-0.0938** (0.036)	-0.0953** (0.037)	-0.0925** (0.037)	-0.0300 (0.059)	0.0202 (0.087)
Constant	0.0978 (0.203)	0.0656 (0.206)	0.0915 (0.203)	0.7249 (0.500)	0.6207 (0.452)
Observations	1389	1389	1389	1389	1389
Adjusted R ²	0.048	0.045	0.048	-0.911	-2.995
F of instruments				1.903	0.829
Hansen's J P-value				0.504	0.430
endogeneity test P-value				0.102	0.102

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A12. LIFE INSURANCE

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0093*** (0.003)			0.0374 (0.054)	
three correct answers		0.0247** (0.011)			0.1363 (0.178)
correct on interest			0.0207*** (0.006)		
correct on inflation			-0.0046 (0.007)		
correct on diversification			0.0127* (0.007)		
female	-0.0091* (0.005)	-0.0094* (0.005)	-0.0088 (0.005)	-0.0046 (0.010)	-0.0039 (0.011)
age (years)	0.0017 (0.001)	0.0019 (0.001)	0.0017 (0.001)	0.0003 (0.002)	0.0010 (0.001)
age2	-0.0000* (0.000)	-0.0000* (0.000)	-0.0000* (0.000)	-0.0000 (0.000)	-0.0000 (0.000)
Centre (ref. North)	-0.0008 (0.012)	-0.0009 (0.012)	-0.0006 (0.012)	-0.0041 (0.014)	-0.0056 (0.015)
South and Islands	-0.0126 (0.009)	-0.0126 (0.009)	-0.0121 (0.009)	-0.0076 (0.011)	-0.0052 (0.013)
city	0.0028 (0.010)	0.0026 (0.010)	0.0022 (0.010)	0.0078 (0.009)	0.0065 (0.009)
secondary (ref. none/primary)	-0.0141 (0.008)	-0.0129 (0.008)	-0.0137 (0.008)	-0.0168 (0.017)	-0.0145 (0.012)
high school	0.0079 (0.009)	0.0094 (0.008)	0.0080 (0.009)	-0.0010 (0.031)	-0.0013 (0.027)
college and more	0.0570*** (0.016)	0.0581*** (0.015)	0.0568*** (0.015)	0.0374 (0.039)	0.0346 (0.039)
employee (ref. retired)	0.0407*** (0.008)	0.0403*** (0.008)	0.0407*** (0.008)	0.0426*** (0.010)	0.0414*** (0.009)
self employed	0.0879*** (0.017)	0.0876*** (0.017)	0.0878*** (0.017)	0.0761*** (0.015)	0.0749*** (0.015)
not-employed	0.0181 (0.011)	0.0181 (0.011)	0.0187 (0.011)	0.0178 (0.011)	0.0193 (0.012)
2nd quartile (ref. 1st quartile-lowest)	0.0066 (0.006)	0.0077 (0.006)	0.0070 (0.006)	-0.0016 (0.011)	0.0020 (0.007)
3rd quartile	0.0207** (0.009)	0.0222** (0.009)	0.0209** (0.009)	0.0067 (0.022)	0.0103 (0.017)
4th quartile-highest	0.0826*** (0.013)	0.0839*** (0.014)	0.0822*** (0.013)	0.0569* (0.034)	0.0565* (0.031)
homeowner	0.0193** (0.007)	0.0194** (0.008)	0.0193** (0.007)	0.0157** (0.008)	0.0150* (0.008)
Constant	-0.0389 (0.035)	-0.0367 (0.035)	-0.0406 (0.035)	-0.0456 (0.046)	-0.0411 (0.041)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.074	0.075	0.075	0.061	0.039
F of instruments				44.219	22.656
Hansen's J P-value				0.110	0.114
endogeneity test P-value				0.599	0.544

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A13. HEALTH INSURANCE

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0118*** (0.003)			0.0058 (0.029)	
three correct answers		0.0325*** (0.011)			0.0276 (0.099)
correct on interest			0.0185*** (0.005)		
correct on inflation			0.0044 (0.005)		
correct on diversification			0.0131* (0.007)		
female	-0.0183*** (0.005)	-0.0186*** (0.005)	-0.0182*** (0.005)	-0.0178** (0.008)	-0.0173** (0.008)
age (years)	0.0009 (0.001)	0.0012 (0.001)	0.0009 (0.001)	0.0011 (0.002)	0.0013 (0.001)
age2	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)
Centre (ref. North)	-0.0252* (0.013)	-0.0254* (0.014)	-0.0251* (0.013)	-0.0129 (0.010)	-0.0131 (0.010)
South and Islands	-0.0414*** (0.008)	-0.0414*** (0.008)	-0.0412*** (0.008)	-0.0372*** (0.009)	-0.0363*** (0.010)
city	0.0179** (0.008)	0.0175** (0.008)	0.0175** (0.008)	0.0094 (0.006)	0.0089 (0.006)
secondary (ref. none/primary)	-0.0058 (0.007)	-0.0043 (0.006)	-0.0056 (0.007)	0.0009 (0.011)	0.0008 (0.009)
high school	-0.0021 (0.005)	-0.0004 (0.005)	-0.0020 (0.005)	0.0044 (0.016)	0.0035 (0.015)
college and more	0.0625*** (0.013)	0.0637*** (0.013)	0.0625*** (0.013)	0.0513** (0.023)	0.0494** (0.023)
employee (ref. retired)	0.0471*** (0.007)	0.0466*** (0.008)	0.0471*** (0.008)	0.0465*** (0.008)	0.0466*** (0.008)
self employed	0.0453** (0.016)	0.0449** (0.016)	0.0452** (0.016)	0.0543*** (0.015)	0.0537*** (0.015)
not-employed	0.0265*** (0.009)	0.0265*** (0.009)	0.0268*** (0.009)	0.0204** (0.008)	0.0208** (0.008)
2nd quartile (ref. 1st quartile-lowest)	-0.0023 (0.005)	-0.0010 (0.005)	-0.0021 (0.005)	-0.0042 (0.008)	-0.0037 (0.006)
3rd quartile	0.0097 (0.007)	0.0115 (0.007)	0.0098 (0.007)	0.0057 (0.014)	0.0057 (0.011)
4th quartile-highest	0.0854*** (0.011)	0.0869*** (0.011)	0.0852*** (0.011)	0.0783*** (0.016)	0.0776*** (0.015)
homeowner	0.0163*** (0.004)	0.0165*** (0.004)	0.0164*** (0.004)	0.0147*** (0.004)	0.0145*** (0.004)
Constant	-0.0322 (0.049)	-0.0295 (0.049)	-0.0331 (0.049)	-0.0314 (0.053)	-0.0326 (0.051)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.090	0.091	0.091	0.088	0.089
F of instruments				44.219	22.656
Hansen's J P-value				0.081	0.081
endogeneity test P-value				0.918	0.992

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 individuals.

Table A14. PENSION PLAN PARTICIPATION

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0343*** (0.010)			0.3466** (0.163)	
three correct answers		0.0617** (0.024)			0.8865* (0.509)
correct on interest			0.0053 (0.031)		
correct on inflation			0.0673*** (0.022)		
correct on diversification			0.0305 (0.019)		
female	-0.0176 (0.017)	-0.0188 (0.016)	-0.0182 (0.017)	0.0383 (0.043)	0.0476 (0.054)
age (years)	0.0283*** (0.006)	0.0286*** (0.006)	0.0286*** (0.006)	0.0169* (0.010)	0.0166 (0.011)
age2	-0.0003*** (0.000)	-0.0003*** (0.000)	-0.0003*** (0.000)	-0.0002* (0.000)	-0.0002 (0.000)
Centre (ref. North)	0.0022 (0.036)	0.0017 (0.037)	0.0018 (0.036)	-0.0419 (0.040)	-0.0785 (0.052)
South and Islands	-0.0020 (0.051)	-0.0031 (0.051)	-0.0031 (0.050)	0.0603 (0.067)	0.0651 (0.085)
city	-0.0155 (0.017)	-0.0166 (0.018)	-0.0144 (0.017)	-0.0113 (0.025)	-0.0280 (0.031)
secondary (ref. none/primary)	0.0674** (0.028)	0.0715** (0.028)	0.0643** (0.027)	0.0536 (0.050)	0.1011** (0.041)
high school	0.0762*** (0.023)	0.0827*** (0.023)	0.0744*** (0.023)	-0.0341 (0.074)	0.0084 (0.060)
college and more	0.0976** (0.041)	0.1052** (0.041)	0.0957** (0.040)	-0.0606 (0.092)	-0.0240 (0.084)
Self-employed (ref. employee)	-0.1044*** (0.025)	-0.1027*** (0.025)	-0.1040*** (0.025)	-0.1378*** (0.037)	-0.1279*** (0.039)
2nd quartile (ref. 1st quartile-lowest)	0.0327 (0.035)	0.0377 (0.036)	0.0313 (0.034)	-0.0524 (0.064)	-0.0252 (0.060)
3rd quartile	0.0947** (0.042)	0.1008** (0.042)	0.0945** (0.041)	-0.0234 (0.085)	0.0090 (0.083)
4th quartile-highest	0.1710*** (0.041)	0.1785*** (0.041)	0.1714*** (0.040)	0.0143 (0.105)	0.0461 (0.099)
homeowner	0.0209 (0.021)	0.0228 (0.021)	0.0207 (0.021)	-0.0158 (0.027)	-0.0017 (0.031)
Constant	-0.6531*** (0.152)	-0.6282*** (0.148)	-0.6608*** (0.153)	-0.8098*** (0.231)	-0.5411** (0.226)
Observations	2789	2789	2789	2789	2789
Adjusted R ²	0.074	0.072	0.075	-0.484	-0.807
F of instruments				21.230	13.268
Hansen's J P-value				0.596	0.507
endogeneity test P-value				0.013	0.018

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A15. CERTIFICATES OF DEPOSIT

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0099 (0.006)			0.0197 (0.051)	
three correct answers		0.0260* (0.013)			0.0587 (0.145)
correct on interest			0.0245** (0.011)		
correct on inflation			0.0144 (0.011)		
correct on diversification			-0.0089 (0.007)		
female	0.0039 (0.004)	0.0036 (0.004)	0.0041 (0.004)	0.0055 (0.009)	0.0054 (0.008)
age (years)	0.0015** (0.001)	0.0018** (0.001)	0.0016** (0.001)	0.0012 (0.001)	0.0017*** (0.001)
age2	-0.0000* (0.000)	-0.0000** (0.000)	-0.0000* (0.000)	-0.0000 (0.000)	-0.0000** (0.000)
Centre (ref. North)	-0.0038 (0.027)	-0.0039 (0.026)	-0.0037 (0.027)	-0.0024 (0.019)	-0.0036 (0.019)
South and Islands	-0.0208 (0.014)	-0.0208 (0.014)	-0.0216 (0.014)	-0.0176 (0.014)	-0.0177 (0.014)
city	-0.0080 (0.007)	-0.0083 (0.007)	-0.0082 (0.008)	-0.0086 (0.007)	-0.0092 (0.007)
secondary (ref. none/primary)	0.0066 (0.004)	0.0078* (0.004)	0.0059 (0.004)	0.0036 (0.015)	0.0058 (0.009)
high school	0.0044 (0.003)	0.0059* (0.003)	0.0048 (0.003)	-0.0012 (0.025)	0.0011 (0.019)
college and more	0.0144** (0.005)	0.0157** (0.006)	0.0148** (0.005)	0.0071 (0.035)	0.0081 (0.031)
employee (ref. retired)	-0.0216** (0.010)	-0.0220** (0.010)	-0.0213** (0.010)	-0.0205** (0.010)	-0.0214** (0.010)
self employed	-0.0255 (0.015)	-0.0258 (0.015)	-0.0253 (0.015)	-0.0246* (0.013)	-0.0257* (0.014)
not-employed	-0.0179* (0.010)	-0.0179* (0.010)	-0.0176* (0.010)	-0.0169* (0.010)	-0.0167* (0.010)
2nd quartile (ref. 1st quartile-lowest)	0.0074 (0.005)	0.0086 (0.005)	0.0076 (0.005)	0.0053 (0.010)	0.0075 (0.006)
3rd quartile	0.0181** (0.007)	0.0197** (0.008)	0.0181** (0.007)	0.0140 (0.018)	0.0168 (0.012)
4th quartile-highest	0.0249*** (0.008)	0.0264*** (0.009)	0.0253*** (0.008)	0.0187 (0.028)	0.0207 (0.023)
homeowner	0.0067 (0.006)	0.0069 (0.006)	0.0068 (0.006)	0.0052 (0.006)	0.0056 (0.006)
Constant	-0.0340 (0.020)	-0.0316 (0.020)	-0.0347 (0.021)	-0.0393 (0.041)	-0.0356 (0.030)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.023	0.024	0.026	0.019	0.017
F of instruments				44.219	22.656
Hansen's J P-value				0.865	0.898
endogeneity test P-value				0.830	0.809

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A16. SECURITIES UNDER ADMINISTERED ACCOUNT

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0419*** (0.009)			0.0887 (0.137)	
three correct answers		0.0980*** (0.016)			0.4001 (0.479)
correct on interest			0.0651*** (0.022)		
correct on inflation			0.0387*** (0.012)		
correct on diversification			0.0229 (0.014)		
female	-0.0068 (0.006)	-0.0083 (0.006)	-0.0064 (0.006)	0.0020 (0.028)	0.0127 (0.033)
age (years)	0.0033** (0.001)	0.0041*** (0.001)	0.0034** (0.001)	0.0017 (0.004)	0.0030 (0.002)
age2	-0.0000* (0.000)	-0.0000*** (0.000)	-0.0000* (0.000)	0.0000 (0.000)	-0.0000 (0.000)
Centre (ref. North)	-0.0765** (0.032)	-0.0757** (0.032)	-0.0762** (0.032)	-0.0616* (0.036)	-0.0703* (0.042)
South and Islands	-0.1099*** (0.025)	-0.1099*** (0.024)	-0.1105*** (0.025)	-0.0916** (0.037)	-0.0787* (0.045)
city	0.0169 (0.012)	0.0159 (0.013)	0.0162 (0.012)	0.0106 (0.013)	0.0070 (0.015)
secondary (ref. none/primary)	0.0113 (0.014)	0.0170 (0.015)	0.0108 (0.014)	0.0016 (0.042)	0.0020 (0.033)
high school	0.0478** (0.017)	0.0552*** (0.017)	0.0482** (0.017)	0.0147 (0.078)	0.0019 (0.078)
college and more	0.0892*** (0.021)	0.0963*** (0.022)	0.0896*** (0.021)	0.0463 (0.096)	0.0244 (0.107)
employee (ref. retired)	-0.0261 (0.015)	-0.0280* (0.016)	-0.0259 (0.015)	-0.0083 (0.021)	-0.0086 (0.019)
self employed	0.0037 (0.028)	0.0028 (0.028)	0.0036 (0.027)	0.0407* (0.024)	0.0352 (0.023)
not-employed	0.0012 (0.016)	0.0005 (0.017)	0.0023 (0.016)	0.0179 (0.024)	0.0259 (0.025)
2nd quartile (ref. 1st quartile-lowest)	-0.0019 (0.006)	0.0023 (0.007)	-0.0017 (0.006)	-0.0178 (0.019)	-0.0094 (0.009)
3rd quartile	0.0212* (0.012)	0.0283* (0.014)	0.0213* (0.012)	-0.0143 (0.047)	-0.0077 (0.032)
4th quartile-highest	0.1096*** (0.014)	0.1169*** (0.016)	0.1098*** (0.014)	0.0661 (0.067)	0.0585 (0.063)
homeowner	0.0219 (0.013)	0.0226 (0.013)	0.0223 (0.013)	0.0017 (0.021)	-0.0008 (0.023)
Constant	-0.1463** (0.057)	-0.1288** (0.060)	-0.1481** (0.058)	-0.1579 (0.127)	-0.1599* (0.095)
Observations	6462	6462	6462	6462	6462
Adjusted R ²	0.129	0.130	0.131	0.101	-0.059
F of instruments				33.447	15.855
Hansen's J P-value				0.006	0.008
endogeneity test P-value				0.225	0.169

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 individuals.

Table A17. MANAGED SAVINGS

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0030** (0.001)			0.0083 (0.020)	
three correct answers		0.0079** (0.003)			0.0284 (0.065)
correct on interest			0.0018 (0.003)		
correct on inflation			0.0055* (0.003)		
correct on diversification			0.0017 (0.001)		
female	-0.0010 (0.002)	-0.0011 (0.002)	-0.0011 (0.002)	-0.0000 (0.004)	0.0001 (0.004)
age (years)	0.0002 (0.000)	0.0002 (0.000)	0.0002 (0.000)	0.0000 (0.001)	0.0002 (0.000)
age2	0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)
Centre (ref. North)	-0.0154** (0.006)	-0.0155** (0.006)	-0.0154** (0.006)	-0.0160*** (0.006)	-0.0165** (0.007)
South and Islands	-0.0140*** (0.005)	-0.0140*** (0.005)	-0.0141*** (0.005)	-0.0131*** (0.003)	-0.0129*** (0.003)
city	0.0043 (0.004)	0.0042 (0.004)	0.0044 (0.004)	0.0042 (0.003)	0.0039 (0.003)
secondary (ref. none/primary)	0.0044 (0.003)	0.0048 (0.003)	0.0043 (0.003)	0.0031 (0.004)	0.0038 (0.003)
high school	0.0065* (0.004)	0.0070* (0.004)	0.0065* (0.004)	0.0037 (0.009)	0.0042 (0.008)
college and more	0.0174** (0.008)	0.0178** (0.008)	0.0175** (0.008)	0.0137 (0.014)	0.0133 (0.014)
employee (ref. retired)	0.0031 (0.003)	0.0030 (0.003)	0.0031 (0.003)	0.0036 (0.003)	0.0033 (0.003)
self employed	0.0101* (0.005)	0.0100* (0.005)	0.0101* (0.005)	0.0100** (0.005)	0.0097** (0.005)
not-employed	0.0104** (0.004)	0.0104** (0.004)	0.0103** (0.004)	0.0109** (0.005)	0.0111* (0.006)
2nd quartile (ref. 1st quartile-lowest)	-0.0026 (0.002)	-0.0023 (0.002)	-0.0027 (0.002)	-0.0036 (0.005)	-0.0028 (0.003)
3rd quartile	-0.0026* (0.001)	-0.0021 (0.001)	-0.0027* (0.001)	-0.0046 (0.008)	-0.0038 (0.006)
4th quartile-highest	0.0140** (0.005)	0.0145** (0.005)	0.0141** (0.005)	0.0110 (0.010)	0.0113 (0.008)
homeowner	0.0045** (0.002)	0.0045** (0.002)	0.0045** (0.002)	0.0041*** (0.001)	0.0041*** (0.001)
Constant	-0.0246 (0.015)	-0.0238 (0.015)	-0.0243 (0.015)	-0.0274 (0.020)	-0.0262 (0.019)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.021	0.021	0.021	0.018	0.014
F of instruments				44.219	22.656
Hansen's J P-value				0.995	0.987
endogeneity test P-value				0.777	0.746

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Tab A18. ITALIAN SOVEREIGN BONDS

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	-0.0007 (0.008)			-0.0604 (0.078)	
three correct answers		0.0048 (0.011)			-0.1843 (0.269)
correct on interest			-0.0069 (0.019)		
correct on inflation			-0.0078 (0.017)		
correct on diversification			0.0127 (0.016)		
female	-0.0013 (0.006)	-0.0009 (0.005)	-0.0014 (0.006)	-0.0099 (0.017)	-0.0076 (0.017)
age (years)	0.0019 (0.001)	0.0019* (0.001)	0.0019 (0.001)	0.0037 (0.003)	0.0025 (0.002)
age2	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)
Centre (ref. North)	-0.0311 (0.033)	-0.0314 (0.034)	-0.0311 (0.034)	-0.0319 (0.035)	-0.0291 (0.037)
South and Islands	-0.0807*** (0.018)	-0.0804*** (0.017)	-0.0801*** (0.018)	-0.0999*** (0.021)	-0.1017*** (0.025)
city	0.0076 (0.008)	0.0075 (0.008)	0.0075 (0.008)	0.0163*** (0.006)	0.0186*** (0.007)
secondary (ref. none/primary)	0.0042 (0.012)	0.0037 (0.011)	0.0047 (0.012)	0.0211 (0.028)	0.0162 (0.021)
high school	0.0170* (0.009)	0.0160* (0.008)	0.0168* (0.009)	0.0450 (0.045)	0.0411 (0.042)
college and more	0.0225 (0.016)	0.0209 (0.016)	0.0222 (0.016)	0.0604 (0.057)	0.0602 (0.059)
employee (ref. retired)	-0.0340*** (0.011)	-0.0338*** (0.011)	-0.0342*** (0.011)	-0.0416*** (0.011)	-0.0387*** (0.012)
self employed	-0.0181 (0.014)	-0.0182 (0.014)	-0.0182 (0.015)	-0.0087 (0.014)	-0.0062 (0.015)
not-employed	-0.0149 (0.011)	-0.0147 (0.011)	-0.0149 (0.012)	-0.0244** (0.010)	-0.0254** (0.013)
2nd quartile (ref. 1st quartile-lowest)	0.0033 (0.007)	0.0030 (0.006)	0.0033 (0.007)	0.0099 (0.015)	0.0013 (0.008)
3rd quartile	0.0360*** (0.009)	0.0353*** (0.007)	0.0361*** (0.009)	0.0552* (0.030)	0.0464** (0.022)
4th quartile-highest	0.0644*** (0.008)	0.0633*** (0.009)	0.0640*** (0.008)	0.0978** (0.040)	0.0934** (0.039)
homeowner	0.0232** (0.009)	0.0231** (0.009)	0.0232** (0.009)	0.0287** (0.013)	0.0305** (0.013)
Constant	-0.0301 (0.033)	-0.0310 (0.033)	-0.0301 (0.032)	0.0129 (0.049)	-0.0017 (0.047)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.056	0.057	0.057	-0.001	-0.045
F of instruments				44.219	22.656
Hansen's J P-value				0.198	0.169
endogeneity test P-value				0.445	0.514

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A19. CORPORATE BONDS

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0166*** (0.003)			0.0283 (0.065)	
three correct answers		0.0360*** (0.006)			0.1099 (0.199)
correct on interest			0.0352*** (0.012)		
correct on inflation			0.0040 (0.005)		
correct on diversification			0.0117 (0.008)		
female	-0.0031 (0.006)	-0.0041 (0.006)	-0.0027 (0.006)	0.0010 (0.013)	0.0020 (0.013)
age (years)	0.0019** (0.001)	0.0023*** (0.001)	0.0020** (0.001)	0.0015 (0.002)	0.0020** (0.001)
age2	-0.0000 (0.000)	-0.0000** (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)
Centre (ref. North)	-0.0525*** (0.018)	-0.0523*** (0.018)	-0.0523*** (0.018)	-0.0468*** (0.017)	-0.0493*** (0.017)
South and Islands	-0.0653*** (0.015)	-0.0658*** (0.015)	-0.0652*** (0.015)	-0.0590*** (0.019)	-0.0570*** (0.019)
city	0.0108 (0.007)	0.0104 (0.007)	0.0100 (0.007)	0.0102 (0.007)	0.0083 (0.008)
secondary (ref. none/primary)	0.0122 (0.009)	0.0147 (0.009)	0.0124 (0.009)	0.0064 (0.020)	0.0078 (0.014)
high school	0.0293*** (0.010)	0.0331*** (0.011)	0.0296*** (0.010)	0.0157 (0.038)	0.0151 (0.031)
college and more	0.0361** (0.014)	0.0399** (0.015)	0.0361** (0.014)	0.0157 (0.053)	0.0107 (0.051)
employee (ref. retired)	-0.0126 (0.012)	-0.0135 (0.012)	-0.0126 (0.012)	-0.0087 (0.016)	-0.0091 (0.013)
self employed	-0.0126 (0.017)	-0.0130 (0.017)	-0.0127 (0.017)	-0.0086 (0.016)	-0.0094 (0.016)
not-employed	-0.0131 (0.009)	-0.0133 (0.009)	-0.0124 (0.009)	-0.0080 (0.013)	-0.0066 (0.013)
2nd quartile (ref. 1st quartile-lowest)	0.0013 (0.005)	0.0035 (0.005)	0.0018 (0.005)	-0.0040 (0.014)	-0.0007 (0.008)
3rd quartile	0.0313*** (0.010)	0.0347*** (0.011)	0.0316*** (0.010)	0.0182 (0.026)	0.0205 (0.019)
4th quartile-highest	0.0781*** (0.012)	0.0817*** (0.012)	0.0779*** (0.012)	0.0668* (0.036)	0.0661** (0.032)
homeowner	0.0073 (0.009)	0.0078 (0.009)	0.0075 (0.009)	0.0048 (0.012)	0.0034 (0.011)
Constant	-0.0727 (0.043)	-0.0678 (0.042)	-0.0748* (0.042)	-0.0626 (0.060)	-0.0598 (0.052)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.074	0.073	0.076	0.070	0.054
F of instruments				44.219	22.656
Hansen's J P-value				0.133	0.150
endogeneity test P-value				0.836	0.727

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 individuals.

Table A20. BANK BONDS

	(1) OLS	(2) OLS	(3) OLS	(4) IV	(5) IV
number correct answers	0.0152*** (0.003)			0.0205 (0.054)	
three correct answers		0.0341*** (0.006)			0.0719 (0.170)
correct on interest			0.0325** (0.012)		
correct on inflation			0.0077* (0.004)		
correct on diversification			0.0063 (0.007)		
female	-0.0016 (0.006)	-0.0025 (0.005)	-0.0013 (0.005)	-0.0004 (0.011)	-0.0000 (0.011)
age (years)	0.0012* (0.001)	0.0016** (0.001)	0.0013* (0.001)	0.0011 (0.002)	0.0015** (0.001)
age2	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)
Centre (ref. North)	-0.0493** (0.018)	-0.0491** (0.018)	-0.0491** (0.018)	-0.0440*** (0.015)	-0.0454*** (0.016)
South and Islands	-0.0571*** (0.016)	-0.0575*** (0.016)	-0.0573*** (0.015)	-0.0507*** (0.015)	-0.0501*** (0.015)
city	0.0093 (0.007)	0.0090 (0.007)	0.0087 (0.007)	0.0090 (0.007)	0.0082 (0.007)
secondary (ref. none/primary)	0.0100 (0.007)	0.0122* (0.007)	0.0099 (0.007)	0.0068 (0.015)	0.0086 (0.010)
high school	0.0183** (0.007)	0.0215** (0.008)	0.0186** (0.007)	0.0130 (0.031)	0.0138 (0.026)
college and more	0.0189 (0.012)	0.0222 (0.013)	0.0191 (0.012)	0.0107 (0.043)	0.0094 (0.041)
employee (ref. retired)	-0.0099 (0.012)	-0.0107 (0.012)	-0.0098 (0.012)	-0.0059 (0.013)	-0.0067 (0.011)
self employed	-0.0010 (0.018)	-0.0013 (0.018)	-0.0010 (0.017)	0.0026 (0.016)	0.0018 (0.015)
not-employed	-0.0124 (0.009)	-0.0126 (0.009)	-0.0118 (0.009)	-0.0099 (0.012)	-0.0091 (0.013)
2nd quartile (ref. 1st quartile-lowest)	0.0019 (0.004)	0.0039 (0.004)	0.0023 (0.004)	0.0007 (0.011)	0.0027 (0.006)
3rd quartile	0.0266** (0.009)	0.0296*** (0.010)	0.0268*** (0.009)	0.0221 (0.022)	0.0241 (0.016)
4th quartile-highest	0.0588*** (0.009)	0.0620*** (0.010)	0.0588*** (0.009)	0.0553* (0.031)	0.0556** (0.027)
homeowner	0.0094 (0.009)	0.0098 (0.009)	0.0095 (0.009)	0.0063 (0.010)	0.0062 (0.010)
Constant	-0.0511 (0.036)	-0.0468 (0.036)	-0.0528 (0.036)	-0.0568 (0.052)	-0.0542 (0.045)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.059	0.059	0.061	0.058	0.053
F of instruments				44.219	22.656
Hansen's J P-value				0.559	0.583
endogeneity test P-value				0.910	0.826

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 individuals.

Table A21. PARTICIPATION IN THE STOCK MARKET (DIRECT OR INDIRECT)

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0309*** (0.006)			0.1642 (0.109)	
three correct answers		0.0919*** (0.017)			0.5614* (0.316)
correct on interest			0.0440*** (0.012)		
correct on inflation			0.0080 (0.008)		
correct on diversification			0.0420*** (0.010)		
female	-0.0110** (0.005)	-0.0114** (0.005)	-0.0107** (0.005)	0.0190 (0.022)	0.0214 (0.020)
age (years)	0.0024* (0.001)	0.0031** (0.001)	0.0025* (0.001)	-0.0022 (0.003)	0.0010 (0.001)
age2	-0.0000 (0.000)	-0.0000 (0.000)	-0.0000 (0.000)	0.0000 (0.000)	0.0000 (0.000)
Centre (ref. North)	-0.0483* (0.023)	-0.0491** (0.023)	-0.0481* (0.023)	-0.0610** (0.030)	-0.0717** (0.032)
South and Islands	-0.0865*** (0.014)	-0.0861*** (0.013)	-0.0856*** (0.014)	-0.0682*** (0.012)	-0.0603*** (0.013)
city	0.0219** (0.008)	0.0210** (0.008)	0.0209** (0.008)	0.0076 (0.009)	0.0011 (0.011)
secondary (ref. none/primary)	0.0085 (0.009)	0.0119 (0.008)	0.0093 (0.009)	-0.0219 (0.029)	-0.0104 (0.016)
high school	0.0459*** (0.012)	0.0493*** (0.012)	0.0459*** (0.011)	-0.0290 (0.058)	-0.0241 (0.044)
college and more	0.1004*** (0.019)	0.1019*** (0.020)	0.1000*** (0.019)	-0.0017 (0.075)	-0.0155 (0.066)
employee (ref. retired)	-0.0095 (0.009)	-0.0108 (0.009)	-0.0097 (0.009)	0.0084 (0.013)	-0.0012 (0.009)
self employed	0.0167** (0.008)	0.0156* (0.008)	0.0164* (0.008)	0.0146 (0.009)	0.0046 (0.011)
not-employed	0.0087 (0.009)	0.0092 (0.008)	0.0095 (0.009)	0.0218 (0.014)	0.0249 (0.015)
2nd quartile (ref. 1st quartile-lowest)	-0.0115*** (0.003)	-0.0081** (0.004)	-0.0109*** (0.003)	-0.0362* (0.020)	-0.0171* (0.010)
3rd quartile	0.0141 (0.010)	0.0183 (0.011)	0.0145 (0.011)	-0.0494 (0.037)	-0.0300 (0.022)
4th quartile-highest	0.1109*** (0.018)	0.1137*** (0.019)	0.1102*** (0.018)	0.0243 (0.055)	0.0320 (0.045)
homeowner	0.0166** (0.007)	0.0168** (0.007)	0.0167** (0.007)	0.0015 (0.009)	0.0008 (0.008)
Constant	-0.1055* (0.052)	-0.0993* (0.050)	-0.1079* (0.052)	-0.1478** (0.070)	-0.1141** (0.053)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.133	0.140	0.134	-0.090	-0.350
F of instruments				44.219	22.656
Hansen's J P-value				0.006	0.013
endogeneity test P-value				0.312	0.215

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A22. SHARES

	(1) OLS	(2) OLS	(3) OLS	(4) IV	(5) IV
number correct answers	0.0104*** (0.003)			0.0363 (0.049)	
three correct answers		0.0304** (0.011)			0.1575 (0.149)
correct on interest			0.0094 (0.006)		
correct on inflation			0.0074* (0.004)		
correct on diversification			0.0146*** (0.003)		
female	-0.0160*** (0.004)	-0.0161*** (0.004)	-0.0160*** (0.004)	-0.0069 (0.010)	-0.0048 (0.009)
age (years)	0.0013** (0.001)	0.0015** (0.001)	0.0013** (0.001)	0.0002 (0.001)	0.0009 (0.001)
age2	-0.0000 (0.000)	-0.0000* (0.000)	-0.0000 (0.000)	0.0000 (0.000)	-0.0000 (0.000)
Centre (ref. North)	-0.0353*** (0.010)	-0.0356*** (0.010)	-0.0353*** (0.010)	-0.0307** (0.013)	-0.0319** (0.014)
South and Islands	-0.0355*** (0.008)	-0.0354*** (0.008)	-0.0353*** (0.008)	-0.0278*** (0.008)	-0.0238** (0.009)
city	0.0062* (0.003)	0.0059 (0.004)	0.0062* (0.003)	0.0023 (0.004)	-0.0002 (0.007)
secondary (ref. none/primary)	0.0018 (0.003)	0.0030 (0.003)	0.0020 (0.003)	-0.0055 (0.013)	-0.0046 (0.008)
high school	0.0265*** (0.008)	0.0278*** (0.008)	0.0264*** (0.008)	0.0046 (0.026)	0.0009 (0.022)
college and more	0.0584*** (0.015)	0.0590*** (0.016)	0.0583*** (0.015)	0.0276 (0.036)	0.0169 (0.034)
employee (ref. retired)	-0.0055 (0.006)	-0.0059 (0.006)	-0.0056 (0.006)	0.0011 (0.007)	-0.0003 (0.005)
self employed	0.0147** (0.007)	0.0143* (0.007)	0.0147** (0.007)	0.0192*** (0.006)	0.0161** (0.007)
not-employed	0.0056 (0.004)	0.0057 (0.004)	0.0057 (0.004)	0.0091 (0.007)	0.0103 (0.008)
2nd quartile (ref. 1st quartile-lowest)	-0.0068** (0.003)	-0.0057* (0.003)	-0.0068** (0.003)	-0.0127 (0.010)	-0.0086 (0.005)
3rd quartile	-0.0058 (0.004)	-0.0043 (0.004)	-0.0057 (0.004)	-0.0191 (0.018)	-0.0174 (0.011)
4th quartile-highest	0.0530*** (0.011)	0.0540*** (0.011)	0.0528*** (0.011)	0.0219 (0.026)	0.0184 (0.022)
homeowner	0.0071* (0.004)	0.0072* (0.004)	0.0071* (0.004)	0.0031 (0.005)	0.0019 (0.005)
Constant	-0.0490* (0.027)	-0.0468 (0.027)	-0.0491* (0.027)	-0.0454 (0.038)	-0.0428 (0.033)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.071	0.073	0.071	0.048	-0.015
F of instruments				44.219	22.656
Hansen's J P-value				0.003	0.004
endogeneity test P-value				0.790	0.717

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A 23. MUTUAL FUNDS & ETFs

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0255*** (0.006)			0.1046 (0.088)	
three correct answers		0.0771*** (0.015)			0.3468 (0.251)
correct on interest			0.0400*** (0.013)		
correct on inflation			0.0041 (0.008)		
correct on diversification			0.0336*** (0.010)		
female	0.0012 (0.004)	0.0009 (0.004)	0.0015 (0.004)	0.0169 (0.018)	0.0181 (0.017)
age (years)	0.0026** (0.001)	0.0031*** (0.001)	0.0027** (0.001)	0.0004 (0.003)	0.0023* (0.001)
age2	-0.0000 (0.000)	-0.0000** (0.000)	-0.0000 (0.000)	0.0000 (0.000)	-0.0000 (0.000)
Centre (ref. North)	-0.0230 (0.021)	-0.0237 (0.020)	-0.0228 (0.021)	-0.0288 (0.026)	-0.0375 (0.026)
South and Islands	-0.0633*** (0.011)	-0.0628*** (0.011)	-0.0625*** (0.011)	-0.0496*** (0.009)	-0.0467*** (0.008)
city	0.0173** (0.007)	0.0165** (0.007)	0.0163** (0.007)	0.0114 (0.007)	0.0087 (0.008)
secondary (ref. none/primary)	0.0061 (0.006)	0.0089 (0.006)	0.0069 (0.006)	-0.0168 (0.022)	-0.0069 (0.011)
high school	0.0296*** (0.009)	0.0322*** (0.009)	0.0296*** (0.009)	-0.0119 (0.047)	-0.0068 (0.035)
college and more	0.0601*** (0.013)	0.0611*** (0.013)	0.0598*** (0.013)	0.0059 (0.059)	0.0003 (0.051)
employee (ref. retired)	-0.0012 (0.009)	-0.0023 (0.009)	-0.0013 (0.009)	0.0072 (0.012)	0.0028 (0.009)
self employed	0.0106 (0.008)	0.0097 (0.008)	0.0104 (0.009)	0.0135 (0.010)	0.0068 (0.012)
not-employed	0.0078 (0.009)	0.0082 (0.010)	0.0086 (0.010)	0.0147 (0.013)	0.0176 (0.014)
2nd quartile (ref. 1st quartile-lowest)	-0.0067** (0.003)	-0.0039 (0.004)	-0.0061* (0.003)	-0.0216 (0.016)	-0.0102 (0.008)
3rd quartile	0.0156* (0.009)	0.0190* (0.009)	0.0159* (0.009)	-0.0191 (0.029)	-0.0058 (0.018)
4th quartile-highest	0.0785*** (0.015)	0.0806*** (0.015)	0.0779*** (0.015)	0.0310 (0.044)	0.0372 (0.035)
homeowner	0.0121** (0.005)	0.0123** (0.005)	0.0122** (0.005)	0.0057 (0.007)	0.0063 (0.007)
Constant	-0.1105** (0.048)	-0.1055** (0.047)	-0.1129** (0.048)	-0.1562*** (0.059)	-0.1302*** (0.049)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.090	0.096	0.091	-0.013	-0.116
F of instruments				44.219	22.656
Hansen's J P-value				0.181	0.260
endogeneity test P-value				0.382	0.295

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A24. FOREIGN SECURITIES

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0009*			-0.0016	
	(0.000)			(0.008)	
three correct answers		0.0045**			-0.0029
		(0.002)			(0.024)
correct on interest			0.0013		
			(0.002)		
correct on inflation			-0.0020		
			(0.001)		
correct on diversification			0.0036*		
			(0.002)		
female	-0.0055***	-0.0054***	-0.0055***	-0.0063***	-0.0062***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
age (years)	0.0004	0.0004	0.0004	0.0003	0.0002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
age2	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Centre (ref. North)	-0.0083***	-0.0084***	-0.0083***	-0.0074***	-0.0075***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
South and Islands	-0.0087***	-0.0085***	-0.0085***	-0.0091***	-0.0091***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
city	0.0010	0.0010	0.0009	0.0023	0.0023
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
secondary (ref. none/primary)	-0.0006	-0.0006	-0.0004	0.0007	0.0002
	(0.001)	(0.001)	(0.001)	(0.003)	(0.002)
high school	0.0066*	0.0064*	0.0065*	0.0062	0.0055
	(0.003)	(0.003)	(0.003)	(0.005)	(0.004)
college and more	0.0212**	0.0209**	0.0211**	0.0240***	0.0231***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
employee (ref. retired)	-0.0041	-0.0041	-0.0041	-0.0026	-0.0024
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)
self employed	0.0027	0.0026	0.0026	0.0034	0.0034
	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)
not-employed	0.0035	0.0036	0.0036	0.0055	0.0056
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)
2nd quartile (ref. 1st quartile-lowest)	-0.0001	-0.0000	-0.0000	-0.0010	-0.0008
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)
3rd quartile	0.0024	0.0024	0.0025	0.0020	0.0020
	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)
4th quartile-highest	0.0101***	0.0099***	0.0100***	0.0086*	0.0083**
	(0.003)	(0.003)	(0.003)	(0.005)	(0.004)
homeowner	-0.0026	-0.0027	-0.0026	0.0007	0.0004
	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)
Constant	-0.0071	-0.0071	-0.0073	-0.0042	-0.0041
	(0.010)	(0.010)	(0.010)	(0.013)	(0.012)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.016	0.016	0.016	0.015	0.014
F of instruments				44.219	22.656
Hansen's J P-value				0.104	0.106
endogeneity test P-value				0.707	0.684

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A25. DERIVATIVES

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0014*** (0.000)			0.0117** (0.005)	
three correct answers		0.0041** (0.002)			0.0407* (0.021)
correct on interest			0.0021* (0.001)		
correct on inflation			0.0006 (0.001)		
correct on diversification			0.0014 (0.001)		
female	0.0004 (0.001)	0.0004 (0.001)	0.0004 (0.001)	0.0015 (0.001)	0.0019 (0.002)
age (years)	0.0002* (0.000)	0.0002* (0.000)	0.0002* (0.000)	-0.0001 (0.000)	0.0001 (0.000)
age2	-0.0000** (0.000)	-0.0000** (0.000)	-0.0000** (0.000)	0.0000 (0.000)	-0.0000 (0.000)
Centre (ref. North)	-0.0021 (0.001)	-0.0022 (0.001)	-0.0021 (0.001)	-0.0028** (0.001)	-0.0034** (0.001)
South and Islands	-0.0017* (0.001)	-0.0017* (0.001)	-0.0017* (0.001)	0.0002 (0.002)	0.0005 (0.002)
city	-0.0002 (0.001)	-0.0002 (0.001)	-0.0002 (0.001)	0.0003 (0.001)	-0.0002 (0.001)
secondary (ref. none/primary)	-0.0003 (0.001)	-0.0001 (0.001)	-0.0003 (0.001)	-0.0028* (0.002)	-0.0018 (0.001)
high school	0.0024* (0.001)	0.0026* (0.001)	0.0025* (0.001)	-0.0024 (0.003)	-0.0020 (0.003)
college and more	0.0028 (0.003)	0.0029 (0.003)	0.0028 (0.003)	-0.0068** (0.003)	-0.0073* (0.004)
employee (ref. retired)	-0.0018 (0.002)	-0.0018 (0.002)	-0.0018 (0.002)	-0.0010 (0.002)	-0.0014 (0.002)
self employed	-0.0030 (0.002)	-0.0031 (0.002)	-0.0030 (0.002)	-0.0034 (0.002)	-0.0039* (0.002)
not-employed	-0.0003 (0.002)	-0.0003 (0.002)	-0.0003 (0.002)	0.0010 (0.002)	0.0013 (0.002)
2nd quartile (ref. 1st quartile-lowest)	-0.0016 (0.001)	-0.0015 (0.001)	-0.0016 (0.001)	-0.0039*** (0.001)	-0.0026** (0.001)
3rd quartile	-0.0021 (0.001)	-0.0019 (0.001)	-0.0021 (0.001)	-0.0063*** (0.002)	-0.0051*** (0.002)
4th quartile-highest	0.0005 (0.002)	0.0006 (0.002)	0.0005 (0.002)	-0.0051* (0.003)	-0.0049 (0.003)
homeowner	0.0007 (0.001)	0.0007 (0.001)	0.0007 (0.001)	-0.0000 (0.001)	0.0001 (0.001)
Constant	-0.0030 (0.003)	-0.0027 (0.003)	-0.0031 (0.003)	-0.0099* (0.005)	-0.0078 (0.005)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.002	0.003	0.002	-0.054	-0.121
F of instruments				44.219	22.656
Hansen's J P-value				0.370	0.433
endogeneity test P-value				0.031	0.030

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A26.

Second-stage regressions with instruments: #of bank branches every 100,000 people per region and outstanding loan dummy

	(1) Securities under administered account	(2) Shares	(3) Stock market participation (direct or indirect)
number correct answers	-0.0702 (0.048)	0.0169 (0.036)	0.0069 (0.058)
female	-0.0294** (0.012)	-0.0156* (0.008)	-0.0159 (0.013)
age (years)	0.0063*** (0.002)	0.0010 (0.001)	0.0033* (0.002)
age2	-0.0000** (0.000)	-0.0000 (0.000)	-0.0000 (0.000)
Centre (ref. North)	-0.0555 (0.035)	-0.0360*** (0.006)	-0.0354** (0.016)
South and Islands	-0.1238*** (0.026)	-0.0350*** (0.009)	-0.0840*** (0.013)
city	0.0146 (0.012)	0.0067* (0.004)	0.0235*** (0.008)
secondary (ref. none/primary)	0.0404* (0.024)	-0.0010 (0.009)	0.0137 (0.017)
high school	0.1044*** (0.038)	0.0224 (0.021)	0.0578* (0.033)
college and more	0.1658*** (0.048)	0.0552** (0.028)	0.1142** (0.047)
employee (ref. retired)	-0.0329** (0.016)	-0.0047 (0.008)	-0.0116 (0.011)
self employed	0.0093 (0.025)	0.0148** (0.006)	0.0174** (0.008)
not-employed	-0.0074 (0.016)	0.0061 (0.006)	0.0054 (0.009)
2nd quartile (ref. 1st quartile- lowest)	0.0112 (0.011)	-0.0081 (0.008)	-0.0076 (0.012)
3rd quartile	0.0548** (0.025)	-0.0072 (0.015)	0.0187 (0.028)
4th quartile-highest	0.1639*** (0.038)	0.0513** (0.025)	0.1158*** (0.042)
homeowner	0.0291** (0.013)	0.0067 (0.004)	0.0174** (0.008)
Constant	-0.0660 (0.061)	-0.0476 (0.030)	-0.0971* (0.056)
Observations	6462	7421	7421
Adjusted R^2	-0.003	0.071	0.125
F of instruments	40.627	53.044	53.044
Hansen's J P-value	0.802	0.968	0.527
endogeneity test P-value	0.039	0.869	0.706

Source: author's elaboration from SHIW 2016.

In parentheses, standard errors robust to heteroskedasticity and to clustering on regions.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A27. LATE ON BILLS

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	-0.0113** (0.005)			-0.0712** (0.035)	
three correct answers		-0.0140 (0.009)			-0.2248* (0.124)
correct on interest			-0.0021 (0.008)		
correct on inflation			-0.0147** (0.007)		
correct on diversification			-0.0166** (0.008)		
female	-0.0274*** (0.007)	-0.0261*** (0.007)	-0.0273*** (0.007)	-0.0384*** (0.008)	-0.0390*** (0.008)
age (years)	0.0022* (0.001)	0.0019 (0.001)	0.0022* (0.001)	0.0036** (0.002)	0.0020 (0.001)
age2	-0.0000*** (0.000)	-0.0000*** (0.000)	-0.0000*** (0.000)	-0.0001*** (0.000)	-0.0000*** (0.000)
Centre (ref. North)	0.0314*** (0.008)	0.0308*** (0.008)	0.0315*** (0.008)	0.0372*** (0.008)	0.0394*** (0.011)
South and Islands	0.0263* (0.013)	0.0272* (0.013)	0.0261* (0.013)	0.0182 (0.012)	0.0169 (0.013)
city	0.0194* (0.010)	0.0195* (0.010)	0.0191* (0.009)	0.0190** (0.008)	0.0210** (0.009)
secondary (ref. none/primary)	0.0069 (0.013)	0.0047 (0.013)	0.0069 (0.013)	0.0221* (0.012)	0.0143 (0.012)
high school	-0.0032 (0.019)	-0.0072 (0.019)	-0.0030 (0.019)	0.0274 (0.024)	0.0195 (0.022)
college and more	-0.0087 (0.015)	-0.0136 (0.016)	-0.0086 (0.015)	0.0336 (0.028)	0.0306 (0.029)
employee (ref. retired)	-0.0218** (0.009)	-0.0210** (0.009)	-0.0217** (0.009)	-0.0278** (0.011)	-0.0243** (0.010)
self employed	-0.0163 (0.010)	-0.0162 (0.010)	-0.0163 (0.010)	-0.0154* (0.008)	-0.0126 (0.008)
not-employed	0.0656*** (0.015)	0.0661*** (0.014)	0.0659*** (0.014)	0.0607*** (0.017)	0.0613*** (0.016)
2nd quartile (ref. 1st quartile-lowest)	-0.1263*** (0.014)	-0.1280*** (0.014)	-0.1261*** (0.014)	-0.1164*** (0.012)	-0.1228*** (0.012)
3rd quartile	-0.1383*** (0.017)	-0.1414*** (0.016)	-0.1382*** (0.017)	-0.1166*** (0.014)	-0.1233*** (0.013)
4th quartile-highest	-0.1566*** (0.019)	-0.1608*** (0.019)	-0.1566*** (0.019)	-0.1232*** (0.020)	-0.1253*** (0.022)
homeowner	-0.0354*** (0.010)	-0.0359*** (0.010)	-0.0353*** (0.010)	-0.0315*** (0.010)	-0.0325*** (0.010)
Constant	0.2144*** (0.043)	0.2099*** (0.043)	0.2135*** (0.044)	0.2612*** (0.048)	0.2532*** (0.050)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.121	0.120	0.121	0.070	0.007
F of instruments				44.219	22.656
Hansen's J P-value				0.564	0.484
endogeneity test P-value				0.159	0.142

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A28. LATE ON RENT

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	-0.0117 (0.010)			-0.1001* (0.052)	
three correct answers		-0.0258** (0.010)			0.1181 (0.189)
correct on interest			0.0170 (0.017)		
correct on inflation			-0.0154 (0.023)		
correct on diversification			-0.0350 (0.020)		
Female	-0.0178 (0.023)	-0.0176 (0.023)	-0.0180 (0.024)	-0.0460** (0.018)	-0.0214 (0.025)
age (years)	0.0084*** (0.003)	0.0080*** (0.002)	0.0084*** (0.002)	0.0132*** (0.003)	0.0085*** (0.003)
age2	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)
Centre (ref. North)	0.0299 (0.024)	0.0284 (0.026)	0.0286 (0.023)	0.0442** (0.019)	0.0186 (0.020)
South and Islands	0.0127 (0.028)	0.0122 (0.029)	0.0117 (0.028)	0.0210 (0.026)	0.0212 (0.029)
City	0.0023 (0.023)	0.0027 (0.024)	0.0025 (0.022)	0.0181 (0.013)	0.0080 (0.018)
secondary (ref. none/primary)	0.0320 (0.026)	0.0314 (0.026)	0.0292 (0.026)	0.0607** (0.025)	0.0170 (0.031)
high school	0.0150 (0.031)	0.0132 (0.031)	0.0146 (0.032)	0.0642 (0.040)	-0.0122 (0.047)
college and more	0.0053 (0.044)	0.0042 (0.045)	0.0054 (0.046)	0.0761 (0.060)	-0.0459 (0.075)
employee (ref. retired)	-0.0918*** (0.026)	-0.0905*** (0.026)	-0.0907*** (0.025)	-0.0898*** (0.026)	-0.0968*** (0.029)
self employed	-0.0593* (0.031)	-0.0598* (0.031)	-0.0581* (0.031)	-0.0498 (0.032)	-0.0507 (0.034)
not-employed	0.0880* (0.047)	0.0900* (0.049)	0.0891* (0.048)	0.1182*** (0.033)	0.1080*** (0.041)
2nd quartile (ref. 1st quartile-lowest)	-0.1127*** (0.019)	-0.1133*** (0.019)	-0.1134*** (0.018)	-0.0978*** (0.021)	-0.1313*** (0.020)
3rd quartile	-0.1409*** (0.015)	-0.1426*** (0.015)	-0.1410*** (0.015)	-0.1058*** (0.029)	-0.1708*** (0.027)
4th quartile-highest	-0.1262*** (0.029)	-0.1288*** (0.031)	-0.1290*** (0.030)	-0.0922** (0.045)	-0.1710*** (0.038)
homeowner	-0.1609 (0.115)	-0.1663 (0.123)	-0.1743 (0.120)	-0.0809 (0.124)	-0.2387 (0.171)
Constant	0.0636 (0.091)	0.0601 (0.092)	0.0640 (0.090)	0.0350 (0.085)	0.0567 (0.087)
Observations	1345	1345	1345	1345	1345
Adjusted R^2	0.102	0.102	0.103	0.012	0.068
F of instruments				12.363	4.129
Hansen's J P-value				0.132	0.035
endogeneity test P-value				0.431	0.353

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A29. LATE ON LOAN INSTALMENT PAYMENT

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0015 (0.007)			0.0613 (0.049)	
three correct answers		0.0204* (0.011)			0.1555 (0.130)
correct on interest			-0.0090 (0.013)		
correct on inflation			-0.0005 (0.014)		
correct on diversification			0.0134 (0.014)		
female	-0.0150 (0.015)	-0.0142 (0.015)	-0.0151 (0.015)	-0.0104 (0.016)	-0.0089 (0.016)
age (years)	0.0054** (0.002)	0.0054** (0.002)	0.0054** (0.002)	0.0045* (0.003)	0.0057*** (0.002)
age2	-0.0000** (0.000)	-0.0000** (0.000)	-0.0000** (0.000)	-0.0000* (0.000)	-0.0001*** (0.000)
Centre (ref. North)	-0.0109 (0.017)	-0.0131 (0.018)	-0.0104 (0.017)	-0.0182 (0.021)	-0.0251 (0.025)
South and Islands	-0.0201 (0.018)	-0.0189 (0.017)	-0.0196 (0.017)	-0.0087 (0.020)	-0.0089 (0.021)
city	0.0123 (0.013)	0.0113 (0.013)	0.0132 (0.013)	0.0102 (0.014)	0.0010 (0.015)
secondary (ref. none/primary)	0.0410** (0.019)	0.0400** (0.018)	0.0413** (0.019)	0.0198 (0.030)	0.0288 (0.022)
high school	0.0226 (0.034)	0.0195 (0.033)	0.0223 (0.034)	-0.0248 (0.054)	-0.0160 (0.043)
college and more	0.0059 (0.029)	0.0021 (0.029)	0.0046 (0.029)	-0.0477 (0.051)	-0.0393 (0.041)
employee (ref. retired)	0.0128 (0.019)	0.0121 (0.019)	0.0138 (0.019)	0.0189 (0.018)	0.0123 (0.016)
self employed	-0.0110 (0.020)	-0.0118 (0.021)	-0.0099 (0.020)	-0.0080 (0.020)	-0.0125 (0.020)
not-employed	0.0079 (0.038)	0.0096 (0.038)	0.0083 (0.038)	0.0175 (0.037)	0.0270 (0.041)
2nd quartile (ref. 1st quartile-lowest)	-0.1049** (0.038)	-0.1054** (0.038)	-0.1050** (0.038)	-0.1148*** (0.041)	-0.1115*** (0.039)
3rd quartile	-0.1075*** (0.030)	-0.1072*** (0.030)	-0.1069*** (0.030)	-0.1137*** (0.030)	-0.1061*** (0.028)
4th quartile-highest	-0.1461*** (0.034)	-0.1467*** (0.035)	-0.1461*** (0.035)	-0.1615*** (0.040)	-0.1540*** (0.036)
homeowner	-0.0034 (0.021)	-0.0055 (0.021)	-0.0039 (0.021)	-0.0144 (0.019)	-0.0210 (0.021)
Constant	-0.0186 (0.069)	-0.0193 (0.068)	-0.0209 (0.071)	-0.0640 (0.079)	-0.0280 (0.072)
Observations	927	927	927	927	927
Adjusted R ²	0.040	0.042	0.039	-0.038	-0.069
F of instruments				5.653	3.097
Hansen's J P-value				0.615	0.616
endogeneity test P-value				0.261	0.300

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A30. INCOME SUFFICIENT TO MAKE ENDS MEET

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0707*** (0.022)			0.8172*** (0.289)	
three correct answers		0.1622*** (0.040)			2.7454** (1.317)
correct on interest			0.0306 (0.055)		
correct on inflation			0.0426 (0.047)		
correct on diversification			0.1384** (0.058)		
female	-0.0037 (0.033)	-0.0075 (0.033)	-0.0041 (0.033)	0.1504*** (0.056)	0.1569** (0.075)
age (years)	-0.0225*** (0.005)	-0.0208*** (0.006)	-0.0224*** (0.005)	-0.0437*** (0.013)	-0.0259** (0.012)
age2	0.0003*** (0.000)	0.0003*** (0.000)	0.0003*** (0.000)	0.0005*** (0.000)	0.0003*** (0.000)
Centre (ref. North)	-0.0272 (0.086)	-0.0269 (0.086)	-0.0276 (0.084)	-0.1483 (0.099)	-0.2526** (0.115)
South and Islands	-0.2774** (0.107)	-0.2790** (0.109)	-0.2742** (0.106)	-0.2222** (0.109)	-0.2380 (0.145)
city	-0.1006 (0.059)	-0.1022 (0.060)	-0.1006 (0.058)	-0.1405* (0.077)	-0.1548* (0.083)
secondary (ref. none/primary)	0.1598*** (0.039)	0.1700*** (0.040)	0.1623*** (0.039)	-0.0226 (0.080)	0.0560 (0.077)
high school	0.3294*** (0.053)	0.3440*** (0.050)	0.3281*** (0.053)	-0.0598 (0.142)	-0.0029 (0.178)
college and more	0.7456*** (0.069)	0.7598*** (0.065)	0.7442*** (0.069)	0.2179 (0.183)	0.1790 (0.274)
employee (ref. retired)	-0.0372 (0.030)	-0.0409 (0.030)	-0.0382 (0.030)	0.0125 (0.055)	-0.0035 (0.074)
self employed	-0.0157 (0.062)	-0.0174 (0.062)	-0.0164 (0.062)	-0.0407 (0.081)	-0.0469 (0.088)
not-employed	-0.3601*** (0.050)	-0.3608*** (0.050)	-0.3606*** (0.050)	-0.2866*** (0.069)	-0.2546*** (0.091)
2nd quartile (ref. 1st quartile-lowest)	0.6235*** (0.045)	0.6325*** (0.047)	0.6233*** (0.044)	0.4889*** (0.074)	0.5535*** (0.066)
3rd quartile	1.0089*** (0.038)	1.0223*** (0.041)	1.0091*** (0.037)	0.7382*** (0.113)	0.8109*** (0.112)
4th quartile-highest	1.4791*** (0.055)	1.4933*** (0.059)	1.4774*** (0.055)	1.0591*** (0.177)	1.0697*** (0.221)
homeowner	0.1424*** (0.035)	0.1441*** (0.035)	0.1424*** (0.035)	0.1088*** (0.039)	0.0960* (0.050)
Constant	2.2663*** (0.207)	2.2859*** (0.208)	2.2673*** (0.205)	1.8661*** (0.288)	1.9496*** (0.362)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.407	0.407	0.407	0.052	-0.347
F of instruments				44.219	22.656
Hansen's J P-value				0.092	0.074
endogeneity test P-value				0.022	0.032

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.

Table A31. RELATIONSHIP INCOME-SAVING

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	IV	IV
number correct answers	0.0087 (0.011)			0.1115 (0.126)	
three correct answers		0.0094 (0.024)			0.1216 (0.447)
correct on interest			-0.0119 (0.022)		
correct on inflation			-0.0143 (0.021)		
correct on diversification			0.0522** (0.024)		
female	0.0291 (0.021)	0.0280 (0.020)	0.0289 (0.021)	0.0452 (0.035)	0.0335 (0.035)
age (years)	-0.0097*** (0.003)	-0.0095*** (0.003)	-0.0097*** (0.003)	-0.0147*** (0.005)	-0.0103*** (0.004)
age2	0.0001*** (0.000)	0.0001*** (0.000)	0.0001*** (0.000)	0.0001*** (0.000)	0.0001*** (0.000)
Centre (ref. North)	0.0394 (0.046)	0.0399 (0.046)	0.0392 (0.045)	0.0240 (0.040)	0.0222 (0.045)
South and Islands	-0.0971** (0.039)	-0.0979** (0.039)	-0.0949** (0.039)	-0.1085** (0.052)	-0.1298** (0.052)
city	0.0053 (0.024)	0.0052 (0.024)	0.0050 (0.024)	0.0025 (0.028)	0.0039 (0.029)
secondary (ref. none/primary)	0.0070 (0.022)	0.0088 (0.021)	0.0087 (0.022)	-0.0213 (0.038)	-0.0004 (0.034)
high school	0.0413* (0.023)	0.0446* (0.022)	0.0405 (0.024)	-0.0195 (0.070)	0.0316 (0.071)
college and more	0.0955** (0.042)	0.0996** (0.039)	0.0946** (0.042)	0.0058 (0.098)	0.0613 (0.114)
employee (ref. retired)	0.0142 (0.019)	0.0136 (0.019)	0.0136 (0.019)	0.0213 (0.021)	0.0105 (0.021)
self employed	-0.0725* (0.036)	-0.0725* (0.036)	-0.0730* (0.036)	-0.0395 (0.032)	-0.0423 (0.033)
not-employed	-0.2088*** (0.029)	-0.2093*** (0.029)	-0.2089*** (0.029)	-0.2051*** (0.029)	-0.2025*** (0.031)
2nd quartile (ref. 1st quartile-lowest)	0.1742*** (0.029)	0.1756*** (0.028)	0.1743*** (0.029)	0.1190*** (0.034)	0.1321*** (0.028)
3rd quartile	0.2554*** (0.021)	0.2579*** (0.020)	0.2556*** (0.020)	0.1894*** (0.048)	0.2200*** (0.036)
4th quartile-highest	0.4126*** (0.030)	0.4160*** (0.030)	0.4114*** (0.030)	0.3257*** (0.074)	0.3729*** (0.073)
homeowner	0.0586** (0.025)	0.0590** (0.025)	0.0586** (0.025)	0.0509** (0.025)	0.0572** (0.026)
Constant	2.2039*** (0.117)	2.2075*** (0.117)	2.2038*** (0.116)	2.2428*** (0.123)	2.2535*** (0.122)
Observations	7421	7421	7421	7421	7421
Adjusted R ²	0.138	0.138	0.139	0.108	0.130
F of instruments				44.219	22.656
Hansen's J P-value				0.014	0.011
endogeneity test P-value				0.687	0.848

Source: author's elaboration from SHIW 2016.

Linear probability model estimated by OLS (columns 1,2 and 3) and GMM (columns 4 and 5).

In parentheses, standard errors robust to heteroskedasticity and clustering on regions.

* p < 0.1, ** p < 0.05, *** p < 0.01.

Instruments: household's member graduated in economics or statistics and #of bank branches per region every 100,000 inhabitants.