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Measuring the financial literacy of the adult population: the experience of the Bank of Italy[1]

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[1] This paper was prepared for the meeting. The views expressed are those of the authors and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.

Measuring the financial literacy of the adult population: the experience of Banca d'Italia

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Banca d'Italia has recently conducted a survey to investigate financial literacy and inclusion among Italian adults. The survey is part of an OECD project to create an internationally comparable dataset on this important topic. The questionnaire used has been developed by the International Network for Financial Education (OECD - INFE). The sample consists of about 2,500 persons interviewed using two different methods. Some 40 percent of them had a face-to-face interview while the others used a tablet. Our findings show the existence of substantial knowledge gaps with respect to other G20 countries, which are most evident among less educated respondents, among the elderly and among women. Compared to other countries, Italy shows a very low level of financial knowledge but respondents seem to be aware of their weaknesses (or they are at least prudent in assessing their level of financial literacy). We also discuss some critical aspects of the OECD's methodology that should be addressed in order to improve the measurement of financial literacy and to increase cross-country comparability.

Keywords: financial Literacy, financial inclusion, mode effect

JEL classification:

Contents

Introduction

Several studies show 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 (see, among others, Lusardi and Mitchell 2011 and 2014). Adequate skills enable individuals to take advantage of the opportunities offered by a developed financial system, at the same time taking risks into account in a proper manner.

The evidence available suggests that the level of basic and financial competencies of the Italian population is low compared with the most advanced economies. Within the Programme for the International Assessment of Adult Competencies (PIAAC), the OECD ran a survey measuring literacy, numeracy and problem-solving skills of populations aged 16-65. Among the 24 countries surveyed, Italy turned to be at the bottom of the distribution both in literacy and numeracy (OECD, 2013). Klapper, Lusardi, and van Oudheusden (2015) use the Standard & Poor's Ratings Services Global Financial Literacy Survey to show that only 37 per cent of Italians correctly understand basic financial concepts, much less than the EU average of 52 per cent. In line with the theoretical predictions of Lusardi, Michaud and Mitchell (2011; 2013), Fornero and Monticone (2011), exploiting data from the Bank of Italy's *Survey on Household Income and Wealth*, show that the level of financial knowledge in Italy is: hump-shaped over the life cycle; increases with the level of education; is higher among men; and is higher in northern (richer) regions.

Detailed information on adult financial literacy, comparable across countries, had however been lacking until the recent development of the OECD-INFE harmonized methodology (OECD 2015). The first results were presented in the OECD-INFE International Survey of Adult Financial Literacy Competencies (2016), which included 30 countries. Subsequently, following a call by G20 Leaders at the 2016 Hangzhou Action Plan meeting, a report on financial literacy across G20 countries was presented at the 2017 G20 summit meeting in Hamburg (OECD 2017).

At the beginning of 2017, Banca d'Italia ran a sample survey on approximately 2,500 adult individuals using the OECD-INFE harmonized questionnaire (Italian Literacy and Financial Competence Survey, IACOFI). The survey was carried out using two different methodologies: 1,500 individuals responded via a tablet device designed to be easily used by all subgroups of the population (even the less educated or the more elderly), while the remaining 1,000 individuals were interviewed personally using CAPI methodology (Computer Assisted Personal Interviews).

The data collected have enriched the limited information available for Italy and will contribute to implement the National Strategy for Financial Education that Italy recently decided to develop.

This paper presents the main results based on this survey. A comparison with other countries is performed on the basis of national data published in the G20/OECD report of 2017.

The OECD-INFE framework

According to a comprehensive definition, financial literacy is a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing (OECD, 2011).

The International Network for Financial Education (INFE) has developed a questionnaire widely adopted around the World (OECD-INFE, 2015), measuring three areas of financial literacy: knowledge, behaviour and attitudes.

The knowledge component aims at assessing the understanding of basic concepts which are a pre-requisite for making sound financial decisions. It is based on the three topics that have become the standard in the literature on financial literacy (Lusardi and Mitchell, 2011): understanding simple and compound interest, inflation and the benefits of portfolio diversification.

The second component measures the diffusion of behaviour that often indicates the ability to manage money properly. In particular, the behaviour index is based on questions that assess whether people have a budget, are able to pay debts and utilities with no concerns, and acquire information before making investments.

The attitudes component tries to evaluate, aside from actual knowledge and behaviours, personal traits such as preferences, beliefs and non-cognitive skills, which have been shown to affect personal well-being. In particular, in the INFE methodology this component is meant to capture attitudes towards precautionary saving and towards the long term in general.

The overall level of financial literacy is given by the sum of the three components and it ranges between 1 and 21: a maximum of 7 points derives from the knowledge questions, 9 from behaviour, and 5 from attitudes.

Finally, according to the OECD methodology, there are no penalties for wrong answers and therefore the missing answers ("don't' know") are treated the same as the wrong ones. The OECD-INFE methodology is the result of a multidisciplinary contribution, reflects policy makers' experiences and attempts to measure the level of financial literacy in a comprehensive manner. Even though this methodology represents a useful tool for policy makers, it is affected by some weaknesses that will be addressed in a specific section.

Financial literacy gaps in the Italian population

Overall, the survey results show a very low level of financial literacy in Italy compared with the G20 average (figure 1).

The financial knowledge score is on average 3.5 out of a maximum of 7 points, compared with a G20 average of 4.3. The percentage of respondents who achieved a minimum target score (5 or more, according to the OECD methodology) is slightly above 30 percent, versus the G20 average of 48 percent. Italians are broadly not aware of the benefits of portfolio diversification: only 37 percent of respondents understand that risks can be reduced by buying a wide range of stocks and shares (table 1). Furthermore, less than half of the respondents are able to calculate a simple interest rate while only 23 percent are able both to calculate a simple interest and recognize the additional benefit of compounding over five years.

These results are likely to be affected by the different respondents' behaviours across countries. For instance, Italy seems to be characterized by a high non-response rate for financial knowledge questions: only one in three individuals answers all 7 questions, versus 45 percent in the UK and 66 percent in Canada, the only two countries for which micro data are available (table 2). Moreover, the response behaviour of Italian respondents appears to be influenced by the survey mode: the percentage of "I do not know / refused" is lower for face-to-face interviews. However, our preliminary results show that this aspect cannot explain by itself all the difference with other countries (di Salvatore *et. al*. 2017).

Also the Italian behaviour score is below the G20 average: 4.4 versus 5.4 on a scale of 0 to9. The proportion of respondents who achieved a minimum target score (at least 6 out of 9, according to the OECD methodology) is less than 30 percent, compared with a G20 average of 52 percent. The behavioural score is negatively impacted by the low propensity of Italians to pursue long-term financial goals: only 27 percent of respondents agree with the statement "I set long-term financial goals and strive to achieve them". Budgeting is barely used: only 37 percent of adults state that their family sets an early budget to decide how much of their income will be spent to cover their living expenses and how much of it will be saved (table 3). However, Italian adults show a lower tendency to borrow: only 15 percent of adults have been in a situation where family income was insufficient to cover their living costs and resorted to borrowing to make ends meet in the last 12 months.

On the other hand, Italy is quite aligned with the attitude score with a value slightly higher than 3 out of 5, versus 3 the G20 countries average of 3. Besides, the pattern in the responses to the three questions for the attitude score is rather similar: 40 percent 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 percent disagree that money is there to be spent and 37 percent disagree that they tend to live for the day. The corresponding G20 average percentages are 43, 29 and 48 percent, respectively (table 4).

The role of socio-demographic characteristics

The level of financial knowledge is not uniform throughout the population (table 5).

Education is one of the most important factors in ensuring adequate levels of understanding of financial concepts. The average knowledge score drops from about 4 for graduates to about 3.2 for those with secondary education and to 2 for those with lower education levels. There are also gender gaps, even though with a lower intensity than those recorded in other countries (OECD 2017). In particular, highly educated women record lower financial knowledge scores than their male peers (table 6). In addition, financial skills increase with age for younger individuals and then decrease for older ones, with a peak at about age 44. Finally, the scores are lower for those who are not working such as housewives, the retired, the unemployed or individuals seeking their first employment.

Therefore, it is likely that differences in socio-demographic composition play a role in explaining country performances. Compared with other countries, Italy is characterized by a higher share of individuals with low levels of education: about 47 percent of the adult Italian population has a primary level of education, while the same group accounts for only 14 percent of the population in Germany and does not exceed 10 percent in Canada and the UK.

In order to assess how much of the gap with other countries is attributable to the different socio-demographic composition, we compute the three financial literacy indicators for Italy under five alternative scenarios where sample weights have been rearranged so that the distribution of some socio-demographic variables is equal to the corresponding ones of Germany, France, the Netherlands, Canada and the United Kingdom. The auxiliary information on the socio-demographic distributions comes from the Household Finance and Consumption Survey (HFCS) for the first three countries, whereas for Canada and the United Kingdom we use micro data from the OECD survey on financial literacy.

In particular, we create 54 socio-demographic classes resulting from the combination of 9 age classes, 3 education classes, and the two gender classes. The gap in the average financial literacy score between country *X* and Italy can be decomposed as follows:

$$p_X - p_{IT} = \sum_{c=1}^{54} (w_c^X - w_c^{IT}) * p_c^{IT} + \sum_{c=1}^{54} w_c^X * (p_c^X - p_c^{IT})$$

where p_c^{IT} and p_c^X denote the average scores in class c respectively for Italy and for country *X* and w_c^{IT} and w_c^X are the sums of sample weights in class c respectively for Italy and for country *X*. The first summation accounts for the part of the gap which is due to the different socio-demographic compositions in the two countries, while the second summation reflects the gap in the average scores between the two countries in the single socio-demographic classes.

The first summation can be computed as the difference between the Italian score in the counterfactual scenario relative to country *X* and the actual Italian score. In order to compute the counterfactual score, the sample weight for respondent *i* belonging to class *c* is re-proportioned according to the following formula:

$$\widetilde{w}_{i,c} = w_{i,c}^{IT} * \frac{w_c^X}{w_c^{IT}}$$

which has no impact on the distribution of characteristics within the class but aligns the total proportion of class *c* in the population to the one in country *X*.

The results under different scenarios are given in table 7. The counterfactuals of the three indicators show higher values in all simulations, compared with the actual scores. This indicates that the socio-demographic composition in Italy actually has a negative effect on its average score. The share of the gap in financial knowledge scores that is due to the different demographic composition ranges from 11 percent in the case of France and the Netherlands (over an initial gap of about 1.4 points) to 26 and 38 percent, respectively, for Canada and the United Kingdom (over an initial gap of about 1.4 and 0.7 points).

The results of the counterfactual exercise show that differences in the socio-demographic composition are important but not sufficient to account for all the gap in the financial literacy scores between Italy and other countries, as differences in the average scores of the socio-demographic classes between countries play an important role as well. For example, in Canada average scores are higher than the corresponding Italian ones across almost all the classes. In the case of the UK, instead, the socio-demographic component has a higher impact on the gap (accounting for about 40 percent of the initial gap) and the differences in average scores with respect to Italy are more pronounced in the classes with the highest education levels.

Respondents' self-assessment of financial knowledge

The level of self-confidence in financial matters may shape financial behaviour and how confidently people answer knowledge questions, thus avoiding the "don't know" option.

In the survey there is a direct question to assess the level of self-confidence. The question reads as follows: "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). The question does not contribute to the final score.

The answers to this question reveal that respondents in Italy are aware of their knowledge gaps. More than half of them believe that their financial literacy is below average: this percentage is around 30 percent in the G20 average (figure 2). Only 5 percent of them rate their knowledge above average, compared to the 25 percent in G20 countries, while the remaining 43 percent rate themselves on average. Moreover, in comparison with the countries for which micro-data are available, Italian adults underestimate their actual competencies more extensively. For example, almost a quarter of individuals think that they have skills below average while achieving an actual score that is higher than average. In Canada and the United Kingdom, this percentage is equal to 6 and 3 percent (table 8) respectively.

A low self-assessment is associated with a lower participation in financial markets: individuals who believe they have low financial competencies are less inclined to hold investment products, to use debt instruments, or to have private pension plans (figure 3).

In addition, the perception of having poor financial skills is also associated with a greater propensity to give a "don't know" answer. About 22 percent of adults do not answer more than half of the financial knowledge questions; this percentage

rises to 25 percent for those who consider their financial skills below average or well below average, while it drops to only 7 percent among those who rate themselves above or well above average. In the United Kingdom, only 11 percent of adults do not answer more than half of the questions, while the corresponding percentage in Canada is just over 3 percent.

In the literature on consumer protection, as well as in the practice of policy making, there is growing interest in the cognitive and behavioural biases affecting consumers' decisions (Lefevre and Chapman, 2017).

Overconfidence is one of the main recognized biases. An investor is overconfident when he/she overestimates his/her own ability to successfully perform a particular task or to make an accurate judgment. The IACOFI survey allows us to study a specific form of overconfidence, that of individuals believing that their financial knowledge is on average or above average when it is actually below.

According to this definition, in Italy about 22 percent of the population is overconfident, much less than in the United Kingdom and Canada (respectively 45 and 30 percent, table 8).

The probability of being overconfident, rather than correctly evaluating one's own financial knowledge is higher among men, highly educated individuals, people living in southern regions, and self-employed workers in Italy (table 9, column 1). These results are quite in contrast to evidence from Canada and the UK, where overconfident individuals are more likely to be found among women and among the less educated (table 9, column 2 and 3).

Overconfidence is associated with a higher probability of having borrowed money (table 10). It is impossible however to precisely disentangle the mechanism linking overconfidence and borrowing behaviour. On the one hand it is possible that overconfident individuals are, other things being equal, more likely to borrow money as a result of an optimistic view of their future income. On the other hand individuals who have just signed up for a mortgage (or another debt contract) may feel more familiar with economic concepts and overestimate their actual financial knowledge.

Moreover, IACOFI data also show that overconfident individuals are more exposed to specific forms of risk, such as investing in something that turns to be worthless, accidentally providing personal financial information, experiencing the unauthorized use of a personal payment card (table 11).

Some remarks on the OECD's methodology

The OECD-INFE toolkit on financial competencies is an important framework to measure the level of financial literacy of adult population. It is based on the experience of the most active policy makers, some of which are from Anglo-Saxon countries, where one of the main concerns is household financial fragility and over-indebtedness. It is therefore a useful tool to identify specific forms of financial illiteracy and bad behaviors. However, the OECD methodology has some critical aspects that should be addressed, possibly to improve its general validity and cross-country comparability, but also to strengthen the ability to measure financial literacy.

First, the overall indicator is given by the sum of three indicators that do not contribute to the final indicator in the same way: behaviours, with a maximum score of 9 points, are those that weigh most on the final score, while the knowledge indicator, which is the most commonly used in the literature, only contributes with a maximum of 7 points out of 21.

A second critical aspect is that the indicators of behaviour and motivation are based on heuristics that policy makers have developed, but that are not easily generalizable. In fact, defining what is good behaviour or a good motivation for all respondents ignores non-negligible differences relating to different moments in the life cycle, to the external and institutional conditions, and not least to individual preferences. For example, a high propensity to save is always considered good behaviour regardless of the respondent's age and this is in contrast with the life-cycle theory. Moreover, the purchase of financial assets in the two years before the survey is a precondition for subsequent questions contributing to the behaviour indicator. However, financial asset purchases not only reflect the literacy level of individuals but also the economic picture at the time the survey is conducted or other institutional factors such as the development of financial markets or the current tax system. Questions about financial market participation should not therefore be considered as measures of individuals' financial literacy. The total score should be based on behaviour that is strongly affected only by individuals' choices, such as whether or not a person double-checks his or her records or asks various sources for advice before making an investment. A second weakness is the risk of inflating financial literacy gaps, since the higher the level of financial knowledge the higher the probability of having behaving "correctly".

A third aspect relates to the unit of analysis. The OECD framework is designed for the adult population and, as a consequence, respondents are randomly selected within households. The random selection of the individual may not be the most appropriate when the financial decisions are taken at the household level and when the family realizes some form of labour division which also includes financial decision making (Hsu 2016). For instance the head of the household could be the one who is in charge of financial decisions. The choice of randomly selecting an individual within the household assumes that he/she is representative of the other members of the family. Yet, when tasks are specialized this assumption could be easily contradicted, implying that a survey on randomly selected individuals may not properly measure the overall level of financial literacy. The Italian survey on household income and wealth (SHIW) has sporadically included some questions aiming at measuring the level of financial competences of the person who is most involved in managing the finances of the household. The level of financial knowledge resulting from the SHIW survey is higher than the one coming from the IACOFI survey: the share of respondents who are familiar with the economic concepts of inflation and risk diversification are 12 and 14 percentage points higher in the SHIW survey. This result holds even when restricting to the IACOFI survey respondents who report to participate in the household day-to-day decision making about money.

So, there also is a case for defining also financial literacy at the household level as well. The random selection of a member of the household may penalize those countries with larger average family size. Indeed, figures 4 and 5 seem to suggest the existence of a negative association between average size of households and the average level of financial literacy. The OECD framework includes a question on who participates to the household decision making about money, this information,

however, enters the financial literacy score only in the grading of one question, namely the one regarding the adoption of a household budget. Another possibility is to adopt a different criterion to select the respondents. After an initial random selection, the selected person should be asked some screening questions in order to make sure that he or she makes some financial decisions in the household. If this is not the case then the selection process should skip to next household member. Another possibility is to interview both the randomly selected person and the person who is most knowledgeable about the household finances.

Finally, the OECD methodology considers the missing answers ("don't know"), as wrong answers ignoring that "knowing not to know" can actually lead to more virtuous behaviors such as being more prone to ask for advice or to seek as much information as possible before making a decision. Moreover, our preliminary results show that the propensity to give a "don't know" answer is negatively associated with levels of self-confidence, even after controlling for the actual level of financial knowledge and other observables characteristics (di Salvatore *et. al.* 2017). Since levels of self-confidence vary across countries, in the absence of penalties for the wrong answers, the methodology tends to reward individuals (and countries) with a higher propensity to answer questions.

Concluding remarks

Banca d'Italia has recently conducted a survey to investigate financial competencies and inclusion among Italian adults using the OECD-INFE questionnaire.

The overall level of financial literacy in Italy is one of the lowest among G20 countries. Italians struggle in particular with the knowledge of basic economic concepts and they are less likely to put in practice good behaviours such as setting a household budget. They are however close to the G20 average in terms of attitude toward the long run.

Financial literacy is particularly low among the least educated, the elderly, and women (for the latter in particular with concern to basic knowledge).

Socio-demographic characteristics of the Italian population, such as the low level of education, explain only part of the gap with other G20 countries However, Italian respondents seem to be aware of their weaknesses (or at least they are cautious in assessing their level of knowledge) and this could represent a good starting point for policy measures.

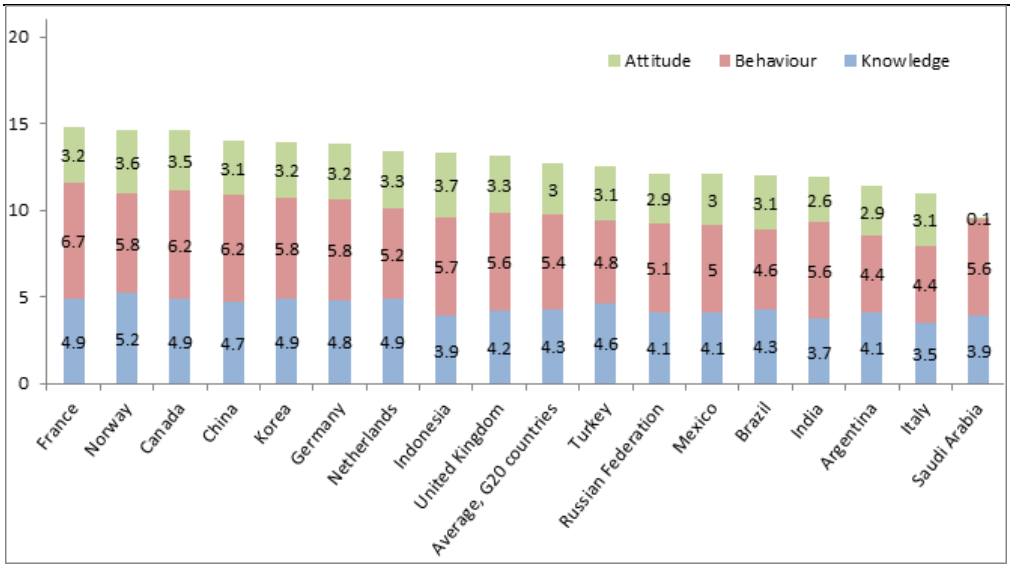
Our findings also suggest that the level of self-confidence is associated with both financial market participation and with some risky behaviours which are relevant for consumer protection (such as accidentally providing personal financial information or experiencing unauthorized use of payment card).

We finally provide a short discussion of the OECD methodology, suggesting a few improvements that could increase cross-country comparability, the quality of financial literacy measurement and strengthen the link with economic theory.

Appendix: Figures and Tables

Financial knowledge, attitudes and behaviour

(averages; weighted data) Figure 1



The G20 average does not include the Netherlands and Norway which participate as guest countries under the German G20 presidency

Examples of Financial Knowledge questions

K1. *Assume you are going to receive a gift of €1,000. Now imagine that you have to wait for one year to get the money and that inflation stays at 1 percent. In one year's time will you be able to buy:* (a) More than you could buy today; (b) The same amount; (c) Less than you could buy today; (d) Don't know; (e) Refused.

K2. *You lend €25 to a friend one evening and he gives you €25 back the next day. How much interest has he paid on this loan?*

K3. *Suppose you put €100 into a no fee savings account with a guaranteed interest rate of 2% per year. You don't make any further payments into this account and you don't withdraw any money. How much would be in the account at the end of the first year, once the interest payment is made?*

K4. *and how much would be in the account at the end of five years, remembering there are no fees or tax deductions, you don't make any further payments and you don't withdraw any money? Would it be* (a) More than €110; (b) €110; (c) Less than €110 euro; (d) Don't know; (e) Refused

K5. *It is usually possible to reduce the risk of investing in the stock market by buying a wide range of stocks and shares. (True or false?)*

Share of correct answers to Financial Knowledge questions

(percentages; weighted data) Table 1

Question	K1	K2	K3	K4*	K3 and K4*	K5
Argentina	69	87	22	37	8	59
Brazil	65	78	50	30	18	77
Canada	57	93	58	56	39	68
China	70	78	74	55	42	57
France	59	94	57	54	34	75
Germany	71	86	58	53	39	65
India	41	67	42	35	15	50
Indonesia	14	76	78	38	36	48
Italy	48	54	47	33	23	37
Japan	56	--	66	43	39	46
Korea	71	83	52	53	35	81
Mexico	74	92	12	32	3	64
Russian Federation	65	88	48	46	27	41
Saudi Arabia	27	69	46	34	33	60
South Africa	25	70	42	36	13	55
Turkey	55	84	54	32	19	74
United Kingdom	38	83	57	52	36	52
Average G20 countries**	**53**	**80**	**51**	**42**	**27**	**59**
Netherlands	*65*	*92*	*76*	*61*	*56*	*53*
Norway	*76*	*91*	*80*	*65*	*58*	*59*

* According to OECD methodology a correct answer to question K4 is only accepted if the respondent has given the correct answer to question K3 as well.

** The average does not include the Netherlands and Norway which participate as guest countries under the German G20 presidency.

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

"Don't Know"/"Refused" as snswers to Financial Knowledge questions

(percentages of respondents) Table 2

Number of "Don't Know"/"Refused"	0	1	2	3	4	5	6	7
Italy	31.7	21.7	13.8	11.3	8.0	7.2	6.2	0.2
Tablet device	*25.9*	*17.1*	*12.7*	*13.3*	*9.3*	*10.8*	*11.0*	*0.0*
CAPI	*38.5*	*25.4*	*13.9*	*9.0*	*6.7*	*3.7*	*2.3*	*0.5*
UK	45.0	21.9	14.4	7.8	4.6	2.7	2.0	1.6
Canada	66.4	19.1	8.0	3.2	2.2	0.8	0.3	0.1

Examples of Financial Behaviour questions

B1. *I would like to know how much you agree or disagree that the following statement applies to you, personally. Please use a scale of 1 to 5, where 1 tells me that you completely agree that the statement describes you and 5 shows that you completely disagree: "I set long term financial goals and strive to achieve them".*

B2. *Who is responsible for making day-to-day decisions about money in your household?* (a) You make these decisions by yourself; (b) You make these decisions with someone else; (c) Someone else makes these decisions; (d) Don't know; (e) Refused

B3. *and, does your household have a budget? A household budget is used to decide what share of your household income will be used for spending, saving or paying bills. ?* (a) Yes; (b) No; (c) Don't know; (d) Refused

Share of adults showing positive Financial Behaviours

(percentages; weighted data) Table 3

Question	B1*	B2**	B3**	B2 and B3**
Argentina	49	67	55	39
Australia	--	94	74	70
Brazil	46	80	43	36
Canada	58	92	63	58
China	68	95	75	72
France	61	90	85	76
Germany	59	91	35	32
India	64	88	59	54
Indonesia	66	98	68	67
Italy	27	79	37	31
Japan	47	--	--	--
Korea	46	89	76	71
Mexico	59	80	44	37
Russian Federation	46	93	50	47
Saudi Arabia	68	96	60	59
South Africa	49	67	60	43
Turkey	44	86	78	68
United Kingdom	45	96	53	51
United States	57	90	56	52
Average G20 countries* **	**53**	**87**	**60**	**54**
Netherlands	*39*	*94*	*40*	*39*
Norway	*44*	*97*	*33*	*32*

* Points are given if the respondent agrees with the statement (options 1 and 2)

** Respondents who make decisions by themselves or with other household members. (options (a) and (b))

*** The G20 average does not include the Netherlands and Norway which participate as guest countries under the German G20 presidency.

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

Financial Attitude questions

A1. *I would like to know how much you agree or disagree that the following statement applies to you, personally. Please use a scale of 1 to 5, where 1 tells me that you completely agree that the statement describes you and 5 shows that you completely disagree: "I tend to live for today and let tomorrow take care of itself"*

A2. *I would like to know how much you agree or disagree that the following statement applies to you, personally. Please use a scale of 1 to 5, where 1 tells me that you completely agree that the statement describes you and 5 shows that you completely disagree: "I find it more satisfying to spend money than to save it for the long term"*

A3. *I would like to know how much you agree or disagree that the following statement applies to you, personally. Please use a scale of 1 to 5, where 1 tells me that you completely agree that the statement describes you and 5 shows that you completely disagree: "Money is there to be spent"*

Share of adults that disagree with the statements (4 or 5 on the scale)

(percentages; weighted data) Table 4

Question	A1	A2	A3
Argentina	44	42	23
Australia	58	--	--
Brazil	42	55	27
Canada	64	47	38
China	53	48	21
France	68	48	23
Germany	55	45	22
India	28	27	22
Indonesia	40	70	75
Italy	37	40	21
Japan	55	36	--
Korea	51	44	26
Mexico	36	48	32
Russian Federation	45	29	22
Saudi Arabia	18	14	15
South Africa	54	44	35
Turkey	54	45	19
United Kingdom	53	44	34
Average G20 countries*	**48**	**43**	**29**
Netherlands	*55*	*46*	*19*
Norway	*78*	*53*	*28*

* The G20 average does not include the Netherlands and Norway which participate as guest countries under the German G20 presidency.

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

Financial Literacy scores in Italy

(averages; weighted data) Table 5

	Knowledge	Behaviour	Attitude
Gender			
Women	3.42	4.42	3.12
Men	3.63	4.43	3.04
Age			
Below 35	3.47	4.06	2.84
35-44	3.67	4.59	3.06
44-54	3.63	4.61	3.05
55-64	3.58	4.40	3.20
Over 64	3.32	4.54	3.32
Education			
University degree / some university studies	4.04	4.77	3.17
Secondary school (completed)	3.78	4.55	3.08
Some secondary school	3.18	4.21	3.01
Primary school (completed)	2.98	4.20	3.18
Some primary school	1.98	3.36	3.01
Labour force status			
Self-employed	3.74	4.72	3.02
In paid employment	3.69	4.70	3.08
Looking after the home	3.19	4.20	3.10
Unemployed/looking for first occupation	3.19	4.00	2.86
Retired	3.39	4.53	3.33
Student	3.85	3.44	2.76
Town population size			
Less than 20,000	3.50	4.41	3.13
Between 20,000 and 40,000	3.24	4.46	2.86
More than 40,000	3.66	4.43	3.11
Geographical area			
North	3.58	4.53	3.15
Centre	3.63	4.49	3.11
South	3.38	4.25	2.98
Total	**3.52**	**4.43**	**3.08**

Financial Literacy scores by socio-demographic class

Table 6

Sex	Men						Women					
Education	Less than high school diploma			At least high school diploma			Less than high school diploma			At least high school diploma		
Age	< 41	41-60	> 60	< 41	41-60	> 60	< 41	41-60	> 60	< 41	41-60	> 60
Financial Literacy scores by socio-demographic class *(averages)*												
Knowledge	2.8	3.3	3.4	3.9	4.2	4.2	3.2	3.1	3.0	3.7	3.9	3.5
Behaviour	3.8	4.0	4.4	4.4	4.9	5.2	4.0	4.3	4.4	4.5	4.7	4.5
Attitudes	2.6	3.0	3.3	3.0	3.1	3.4	2.8	3.0	3.3	3.1	3.2	3.3
Share of population by socio-demographic classes *(percentages)*												
Italy	6.1	7.7	9.5	11.7	9.6	3.5	5.0	8.9	10.2	12.6	12.0	3.3
Germany	2.7	1.2	0.8	14.8	18.3	12.4	3.3	2.1	3.7	14.1	16.4	10.2
France	2.8	4.2	4.9	16.0	13.9	7.0	2.0	5.1	7.0	17.1	13.7	6.3
Netherlands	2.9	5.1	5.6	14.0	13.0	7.1	3.1	4.8	8.9	17.1	12.6	5.7
United Kingdom	0.9	0.5	1.4	19.0	14.6	11.8	1.0	1.4	1.0	18.8	16.3	13.5
Canada	1.7	1.3	1.1	16.5	16.6	11.3	1.7	2.0	1.2	17.0	18.3	11.3

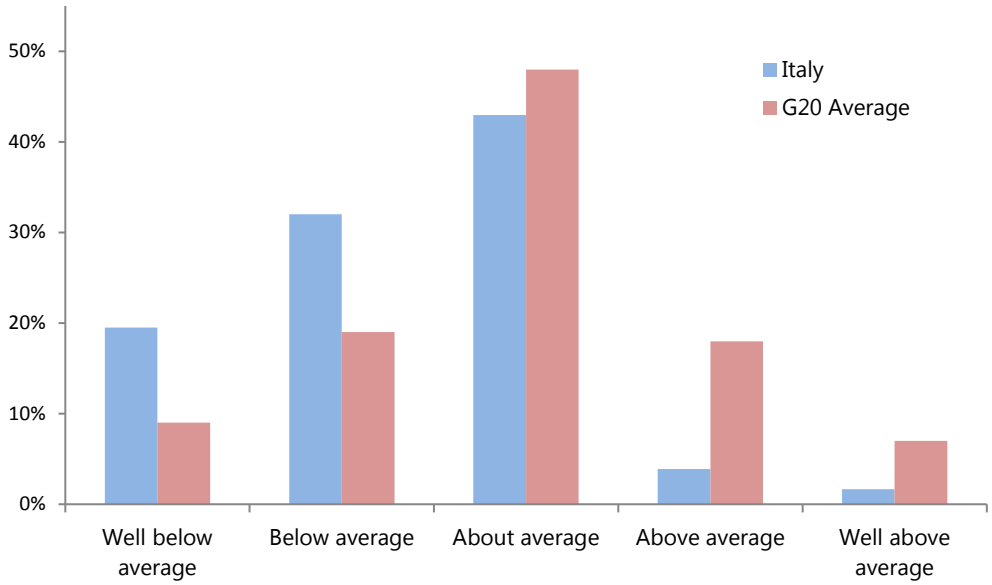
Financial literacy scores in counterfactual scenarios

Table 7

		Italy	Germany	The Netherlands	France	UK	Canada
Knowledge	Actual	3.52	4.80	4.90	4.90	4.20	4.90
	Counterfactual	--	3.76	3.68	3.68	3.78	3.88
Behaviour	Actual	4.43	5.80	5.20	6.70	5.60	6.20
	Counterfactual	--	4.64	4.56	4.56	4.61	4.62
Attitude	Actual	3.08	3.20	3.30	3.20	3.30	3.50
	Counterfactual	--	3.15	3.15	3.14	3.15	3.15

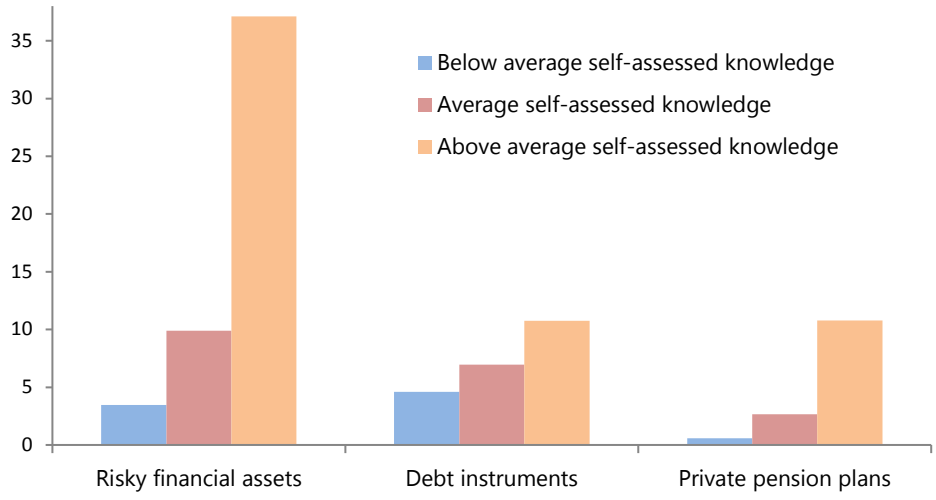
Self-assessment of financial knowledge

Figure 2



Proability of holding financial products by self-assessed financial knowledge

Figure 3



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

Distribution of adults by self-assessed and actual knowledge class

(percentages; weighted data)

Table 8

	Italy		Canada		UK	
	Actual knowledge**					
Self-assessment*	Below average	Above average	Below average	Above average	Below average	Above average
Below average	27.5	23.2	10.2	5.8	8.8	2.9
Average	20.2	23.4	22.5	33.3	30.6	25.9
Above average	2.2	3.6	6.4	21.9	12.3	19.5

* The "below average" class includes the survey options "very low" and "quite low" financial knowledge, and the "above average" class includes the survey options "very high" and "quite high" financial knowledge.

** The "below average" class includes all actual scores lower or equal than national average.

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

Probability of being overconfident: logit model.

Table 9

	(1) Italy	(2) Canada	(3) United Kingdom
Men	0.334**	-0.869***	-0.705***
	(0.163)	(0.181)	(0.188)
Age: 18-29	(omitted)	(omitted)	(omitted)
30-39	-0.201	-0.0218	0.163
	(0.347)	(0.311)	(0.278)
40-59	-0.0512	-0.185	-0.0800
	(0.323)	(0.269)	(0.264)
60-69	-0.473	0.0224	0.447
	(0.413)	(0.382)	(0.402)
70 and above	-0.669	-0.0689	0.942*
	(0.450)	(0.478)	(0.536)
South	0.547***	Province f.e.	Country f.e.
	(0.158)		
Secondary and tertiary education	0.344**	-0.772***	-0.268
	(0.164)	(0.206)	(0.210)
Student	(omitted)	(omitted)	(omitted)
Self-employed	1.285***	-0.632	-1.213
	(0.466)	(0.583)	(0.762)
Employee	0.837**	0.0579	-1.639**
	(0.413)	(0.503)	(0.703)
Looking after the home	0.645	0.311	-1.225
	(0.485)	(0.880)	(0.898)
Unemployed	0.444	-0.987	-1.736**
	(0.432)	(0.635)	(0.849)
Retired person	0.708	-0.122	-1.845**
	(0.511)	(0.610)	(0.819)
Other	1.544**	-0.743	-1.083
	(0.734)	(0.592)	(0.777)
Constant	-0.0643	1.338**	2.316***
	(0.421)	(0.574)	(0.714)
Observations	1,139	601	673

Probability of holding a financial instrument (logit model).

Table 10

	Italy		Canada		UK	
	Mortgage	Unsecured or pension backed loans	Mortgage	Secured bank loans	Mortgage	Secured bank loans
Overconfident	1.148***	-0.544	0.520***	0.520**	0.523*	2.435***
	(0.282)	(0.367)	(0.191)	(0.246)	(0.313)	(0.682)
Men	0.638**	0.0947	0.275	0.226	0.319	-0.00457
	(0.302)	(0.308)	(0.170)	(0.228)	(0.283)	(0.678)
Age: 18-29	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
30-39	1.507**	0.521	1.327***	1.006*	0.217	-1.849*
	(0.668)	(0.661)	(0.328)	(0.544)	(0.320)	(1.050)
40-59	1.105*	0.230	1.562***	1.945***	-0.529	-0.541
	(0.645)	(0.622)	(0.309)	(0.488)	(0.378)	(0.827)
60-69	-0.572	0.0569	0.973**	2.274***	-1.412*	-2.951**
	(0.956)	(0.910)	(0.398)	(0.562)	(0.764)	(1.175)
70 and over	0.0304	-0.773	1.404***	1.768**		
	(0.974)	(1.060)	(0.535)	(0.732)		
South	-0.591*	0.00533	Prov. f.e.	Prov. f.e.	Count. f.e.	Count. f.e.
	(0.325)	(0.281)				
Secondary and tertiary education	0.328	-0.209	0.157	-0.212	0.557	0.185
	(0.357)	(0.322)	(0.200)	(0.248)	(0.347)	(0.845)
Student	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
Self-employed	0.508	14.29	0.942	0.376	1.106	1.214
	(1.213)	(.)	(0.704)	(1.122)	(0.776)	(1.384)
Employee	0.567	15.36	0.893	0.647	0.871	0.131
	(1.176)	(.)	(0.660)	(1.070)	(0.650)	(1.148)
Looking after the home	0.500	14.21	1.417*	0.730	1.680**	(omitted)
	(1.298)	(.)	(0.843)	(1.264)	(0.815)	
Unemployed	-0.989	13.26	0.401	0.0458	-1.651	-0.130
	(1.285)	(.)	(0.772)	(1.239)	(1.241)	(1.649)
Retired person	-0.473	14.65	-0.00487	-0.0729	-2.439*	(omitted)
	(1.385)	(.)	(0.751)	(1.148)	(1.289)	
Other	1.967	15.30***	0.203	0.0769	-1.444	(omitted)
	(1.370)	(0.363)	(0.739)	(1.144)	(1.029)	
Constant	-5.459***	-18.01	-3.299***	-3.763***	-3.074***	-4.409***
	(1.141)	(.)	(0.731)	(1.151)	(0.721)	(1.509)
Observations	2210	2210	854	683	736	452

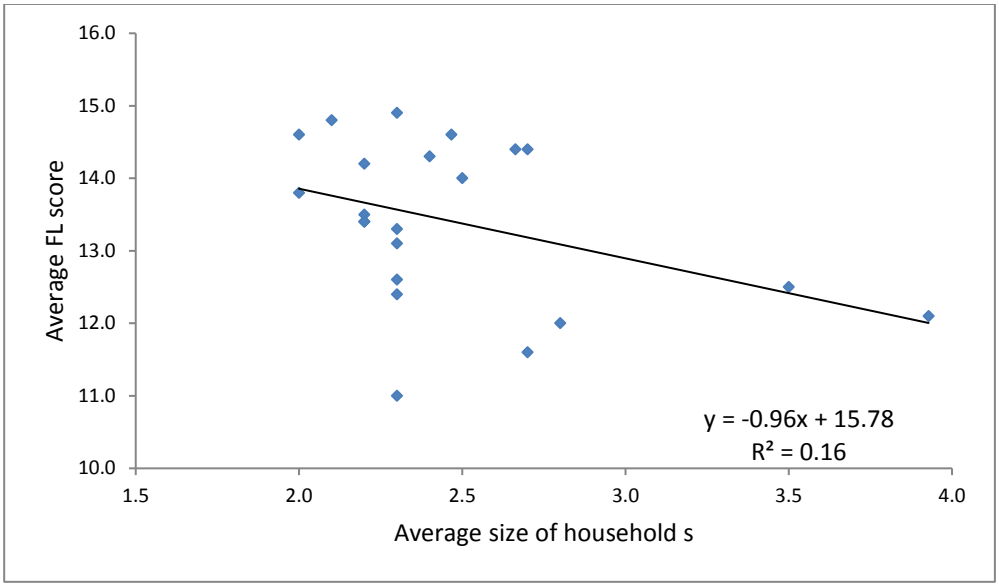
Probability of behaving in a risky way (logit model).

Table 11

	Worthless investments	Phishing	Unauthorized payments
Overconfident	1.026***	1.366***	1.151***
	(0.163)	(0.181)	(0.190)
Men	0.115	-0.0989	0.0498
	(0.173)	(0.194)	(0.205)
Age: 18-29	(omitted)	(omitted)	(omitted)
30-39	0.228	-0.226	-0.436
	(0.384)	(0.401)	(0.430)
40-59	0.347	0.0599	0.229
	(0.354)	(0.362)	(0.379)
60-69	-0.0383	-0.111	-0.961*
	(0.434)	(0.476)	(0.566)
70 and over	0.118	0.448	0.0902
	(0.543)	(0.615)	(0.624)
South	-0.359**	-0.184	-0.260
	(0.172)	(0.199)	(0.196)
Secondary and tertiary education	-0.0850	-0.207	-0.150
	(0.161)	(0.191)	(0.200)
Student	(omitted)	(omitted)	(omitted)
Self-employed	0.362	0.338	0.470
	(0.500)	(0.532)	(0.565)
Employee	0.0553	0.368	0.335
	(0.477)	(0.493)	(0.534)
Looking after the home	0.245	-0.0741	0.553
	(0.522)	(0.568)	(0.600)
Unemployed	-0.336	-0.0207	0.0693
	(0.489)	(0.494)	(0.523)
Retired person	0.175	-0.530	0.0580
	(0.599)	(0.691)	(0.722)
Other	-0.0578	--	--
	(0.953)		
Constant	-2.407***	-2.654***	-2.817***
	(0.381)	(0.416)	(0.440)
Observations	2,210	2,190	2,190

Relation between average size of households and Financial Literacy score in OECD countries

Figure 4

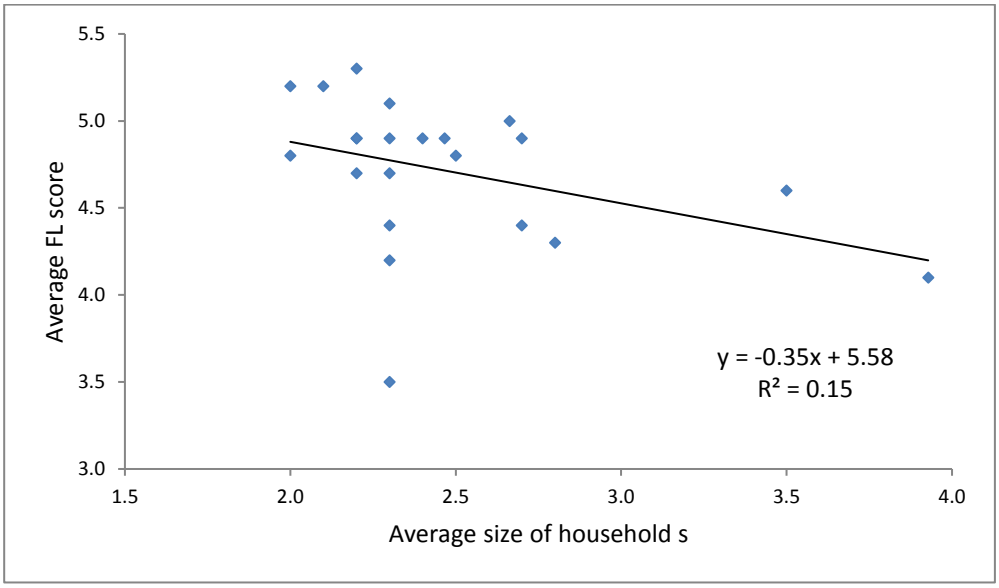


The average size of households comes from the OECD database (http://www.oecd.org/els/family/database.htm)

OECD countries: Austria, Belgium, Canada, Croatia, Czech Republic, Estonia, Finland, France, Germany, Hungary, Italy, Korea, Latvia, Lithuania, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Turkey, United Kingdom.

Relation between average size of households and Financial Knowledge score in OECD countries

Figure 5



The average size of households comes from the OECD database (http://www.oecd.org/els/family/database.htm)

OECD countries: Austria, Belgium, Canada, Croatia, Czech Republic, Estonia, Finland, France, Germany, Hungary, Italy, Korea, Latvia, Lithuania, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Turkey, United Kingdom.

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Irving Fisher Committee on
Central Bank Statistics

BANK FOR INTERNATIONAL SETTLEMENTS

Bank of Morocco – CEMLA – IFC Satellite Seminar at the ISI World Statistics Congress on *"Financial Inclusion"*

Marrakech, Morocco, 14 July 2017

Measuring the financial literacy of the adult population: the experience of the Bank of Italy[1]

Antonietta di Salvatore, Francesco Franceschi, Andrea Neri and Francesca Zanichelli,
Bank of Italy

[1] This presentation was prepared for the meeting. The views expressed are those of the authors and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.

BANCA D'ITALIA
EUROSISTEMA

Measuring financial literacy and inclusion of the adult population: the OECD-INFE framework

by di Salvatore, Franceschi, Neri and Zanichelli

Bank Al-Maghrib – CEMLA-IFC Satellite Seminar on Financial Inclusion,
Marrakech, Morocco, July 14

Foreword

- G20 Leaders in the 2012 and 2014 have recognized the importance of financial literacy and inclusion and requested international comparable surveys
- OECD has launched a project to create an internationally comparable dataset.
- A blueprint questionnaire used has been developed by the International Network for Financial Education (OECD -INFE)
- Banca d'Italia has recently conducted a survey to contribute to this initiative
- The results have been presented in the G20 meeting in July

Focus of the presentation

The measurement of financial literacy

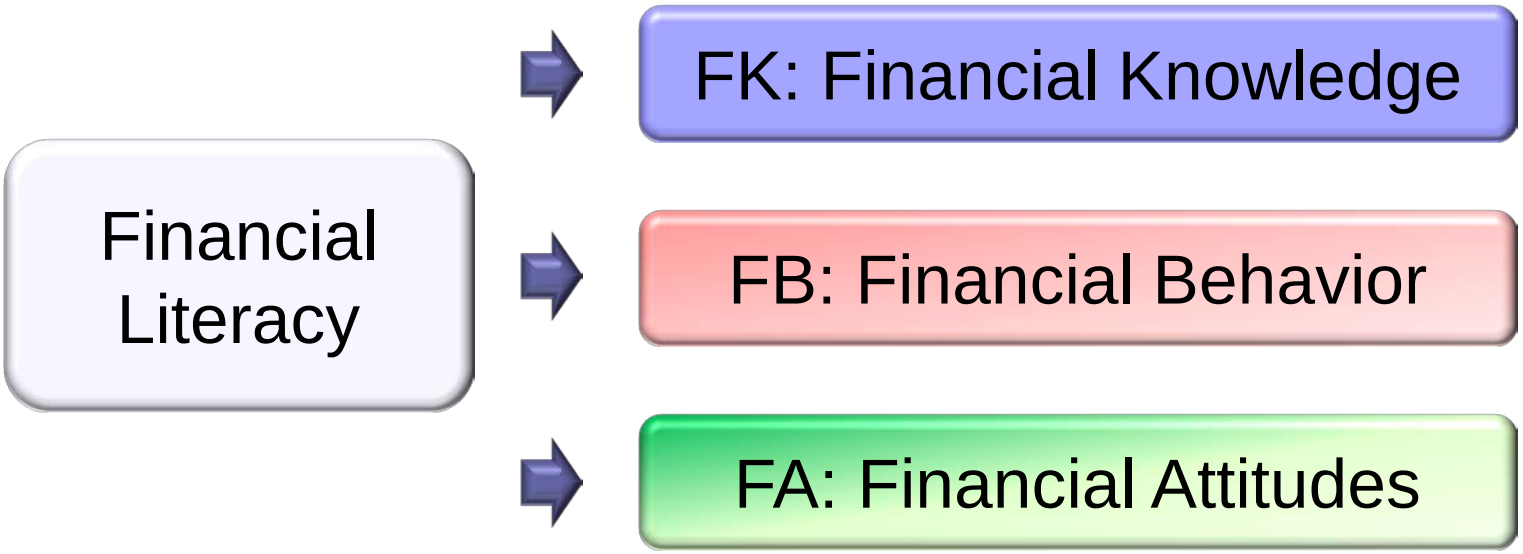
Reasons:

- Financial literacy is a strong determinant of financial inclusion
- Financial literacy can be improved by policy intervention
- There is no widely accepted framework to measure FL

The Italian survey

- Focus: financial literacy and inclusion
- Target: adult population (18+)
- Sample: 2,500 individuals
- Two probabilistic samples (electoral lists, population registers)
- Two different methodologies: 40 % CAPI – 60% *Tablet*

OECD Methodology



*«A combination of awareness, **knowledge**, skills, **attitude** and **behaviors** necessary to make sound financial decisions and ultimately achieve individual financial well-being»*

OECD Methodology

- Inflation
- Simple and compound interest
- Risk diversification
- Risk ↔ Return
- …

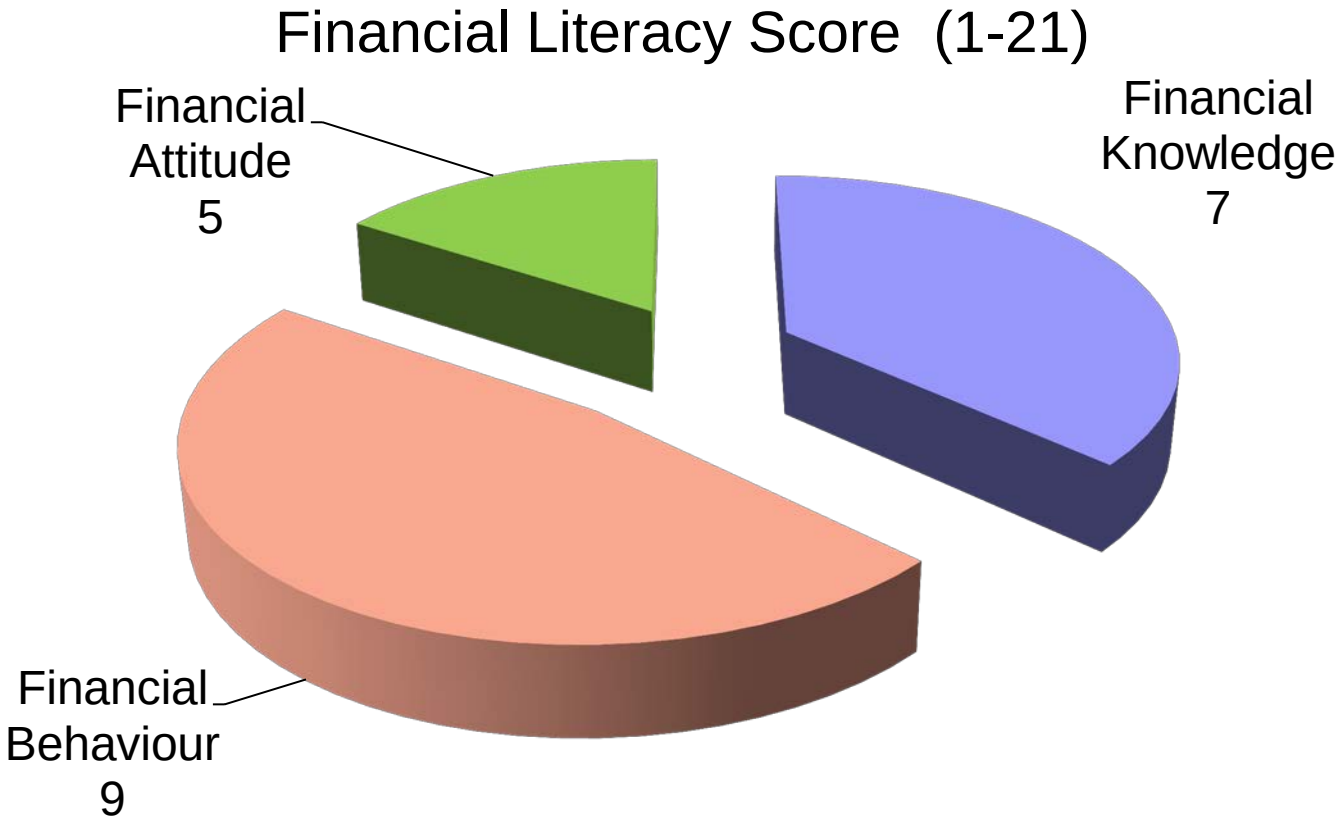
OECD Methodology

- Budgeting
- Active saving
- Shopping for financial products
- Making ends meet
- …

OECD Methodology

- Short term living vs planning ahead
- Attitudes towards money spending
- …

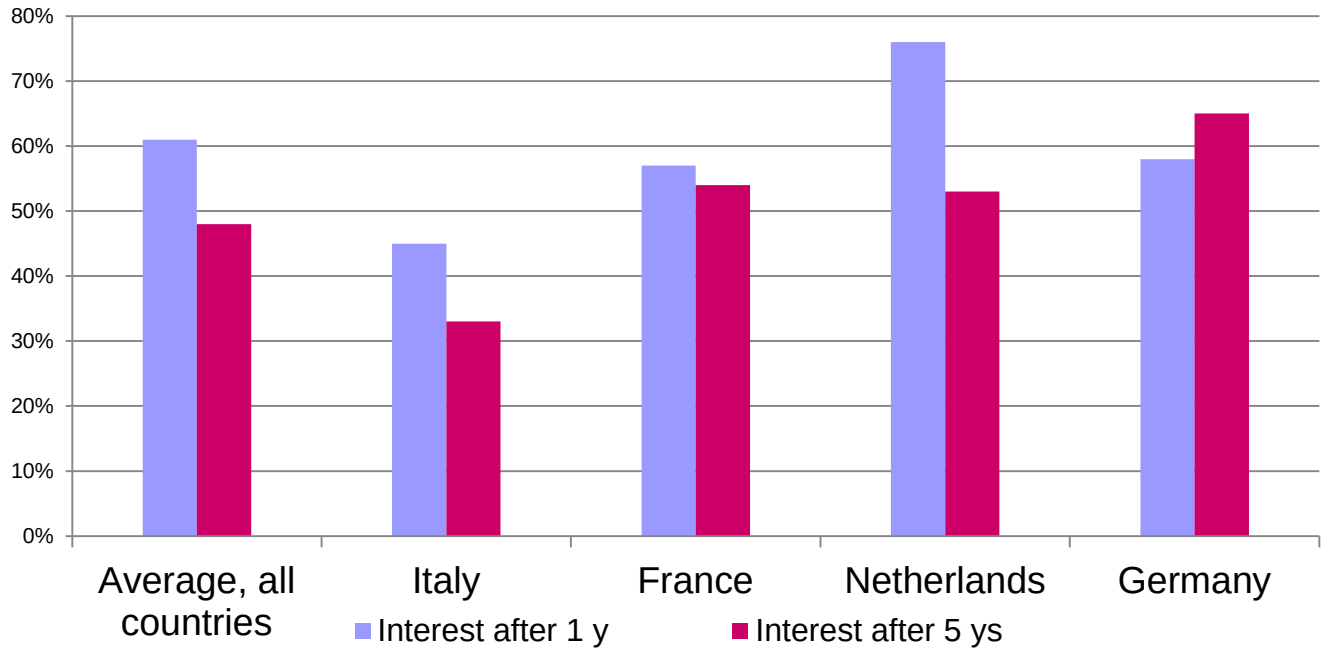
OECD Methodology



Financial knowledge (1)

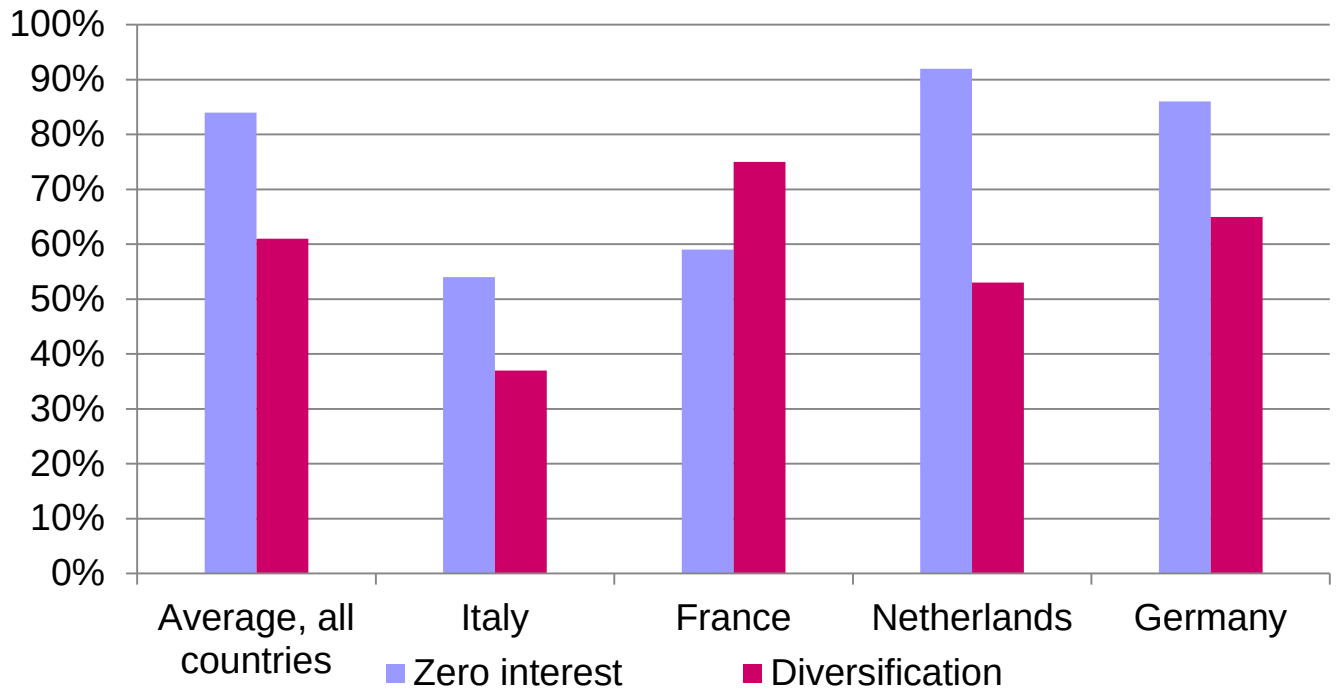
Suppose you put EUR 100 into a no-fee savings account with a guaranteed interest rate of 2% per year. You do not make any further payments into this account and you do not withdraw any money. How much would be in the account at the end of the first year, once the interest payment is made?

And how much would be in the account at the end of five years?



Financial knowledge (2)

- *You lend $25 to a friend one evening and he gives you $25 back the next day. How much interest has he paid on this loan?*
- *It is usually possible to reduce the risk of investing in the stock market by buying a wide range of stocks and shares*



The impact of socio-demographic characteristics

- men score better than women
- the level of education appears to be of high relevance for scores
- U-shape for age

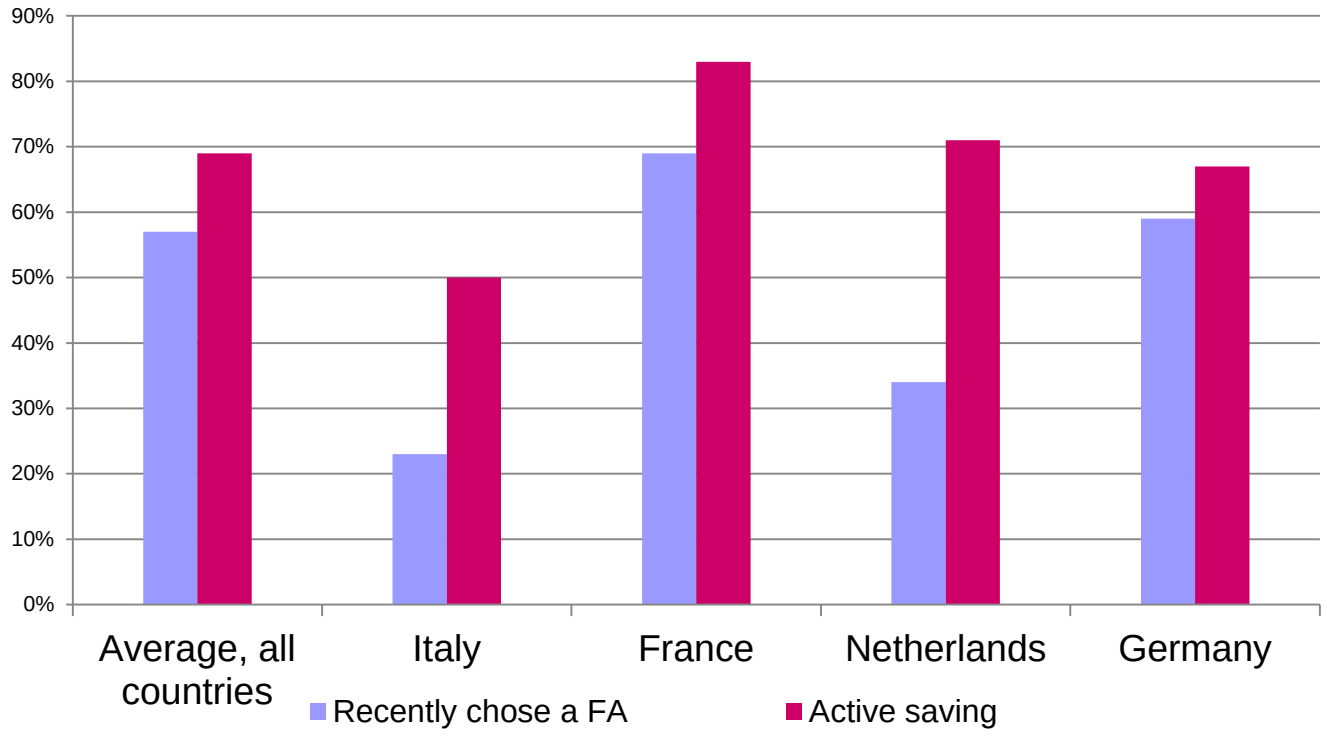
The role of socio-demographics in cross-country comparisons

- Counterfactual analysis by aligning the population characteristics

	Germany	France	UK	Canada
Gap	**1,28**	**1,38**	**0,68**	**1,38**
% explained by demographics	**19%**	**12%**	**38%**	**26%**

Financial Behaviour (1)

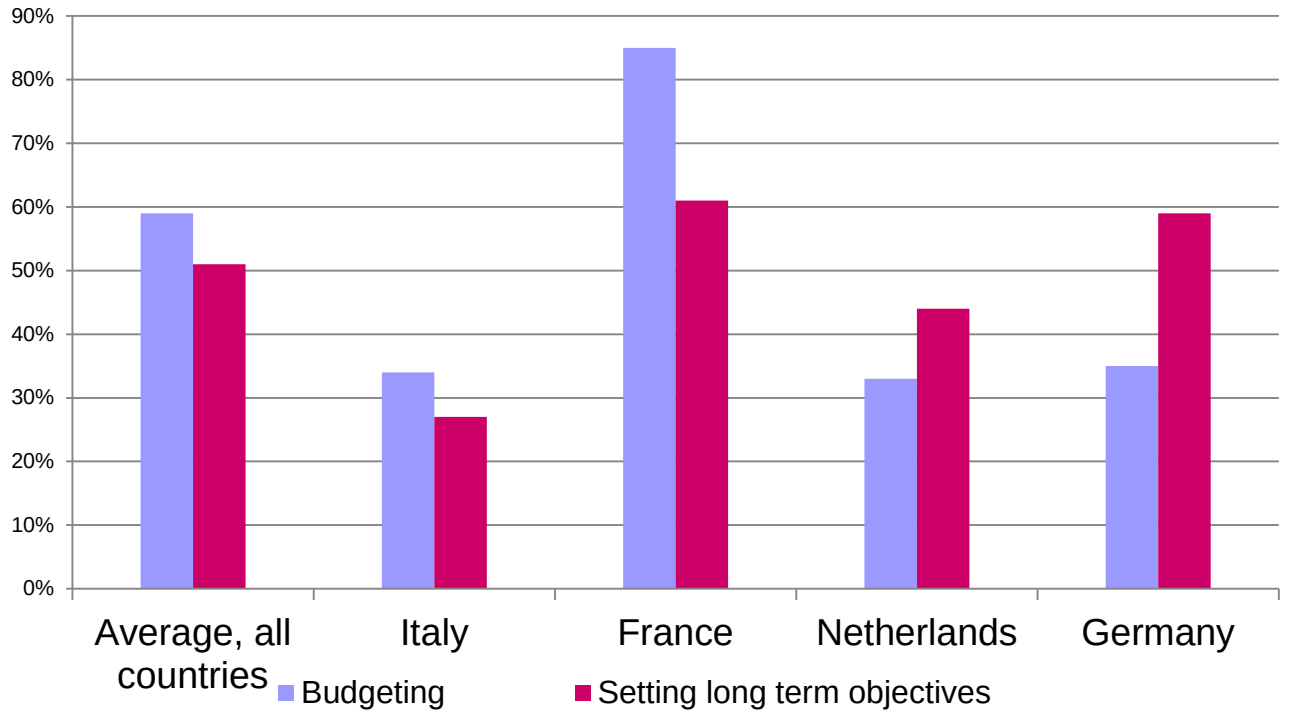
- *In the last two years, which of the following types of financial products have you chosen? (showcard)*
- *In the past 12 months have you been [personally] saving money in any of the following ways? (showcard)*



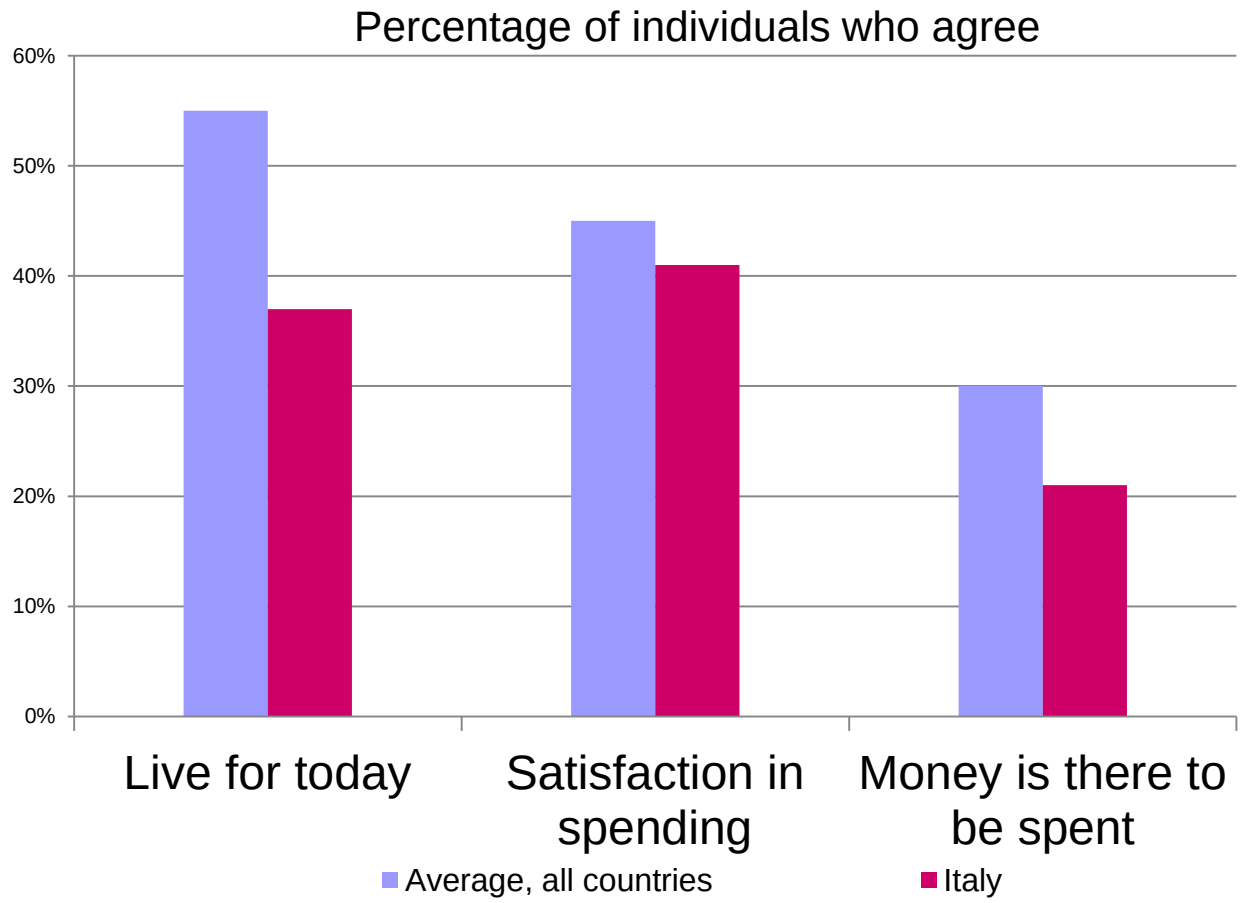
Financial Behaviour (2)

- *Does your household have a budget? A household budget is used to decide what share of your household income will be used for spending, saving or paying bills*

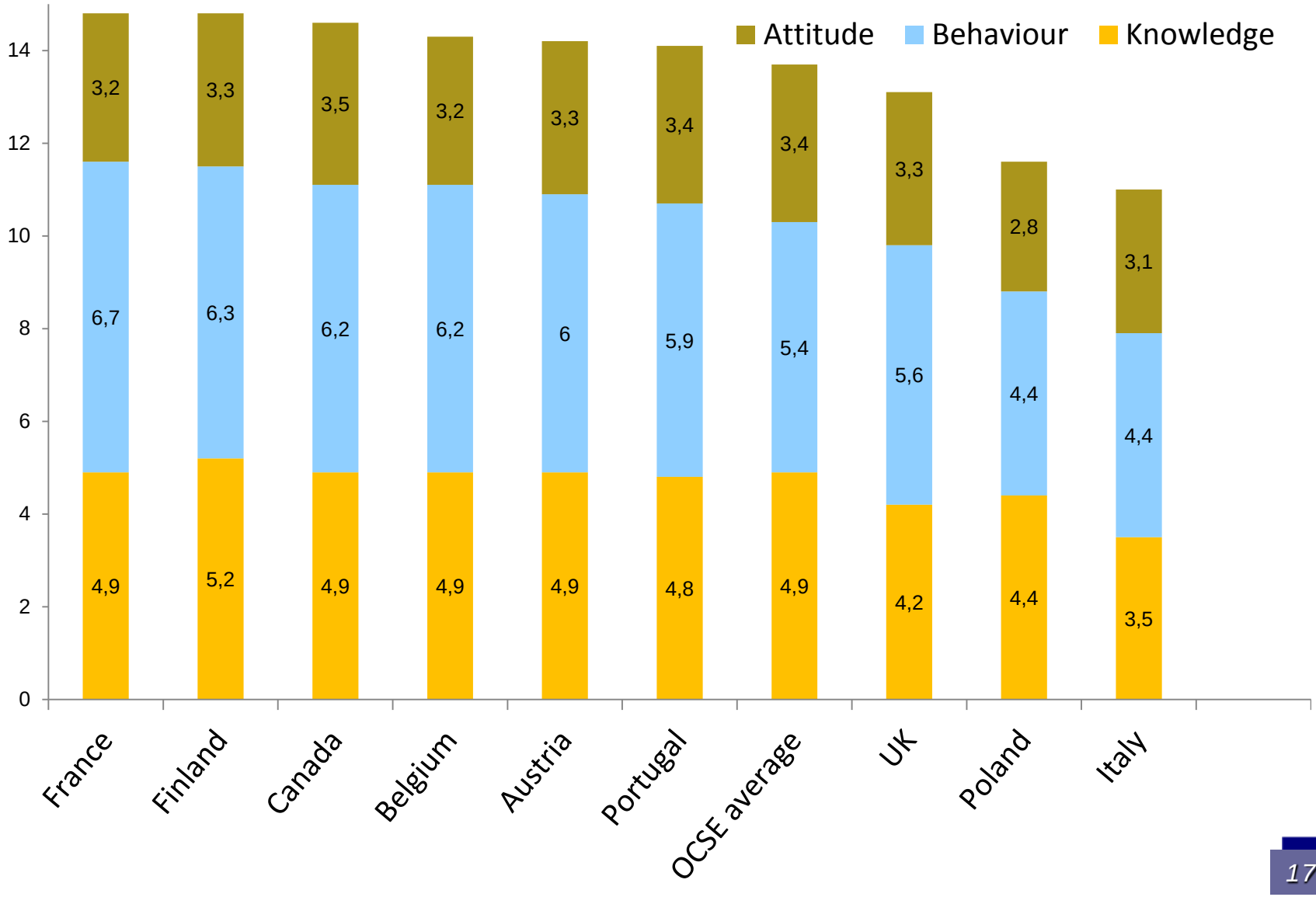
- *I set long term financial goals and strive to achieve them*



Financial attitude

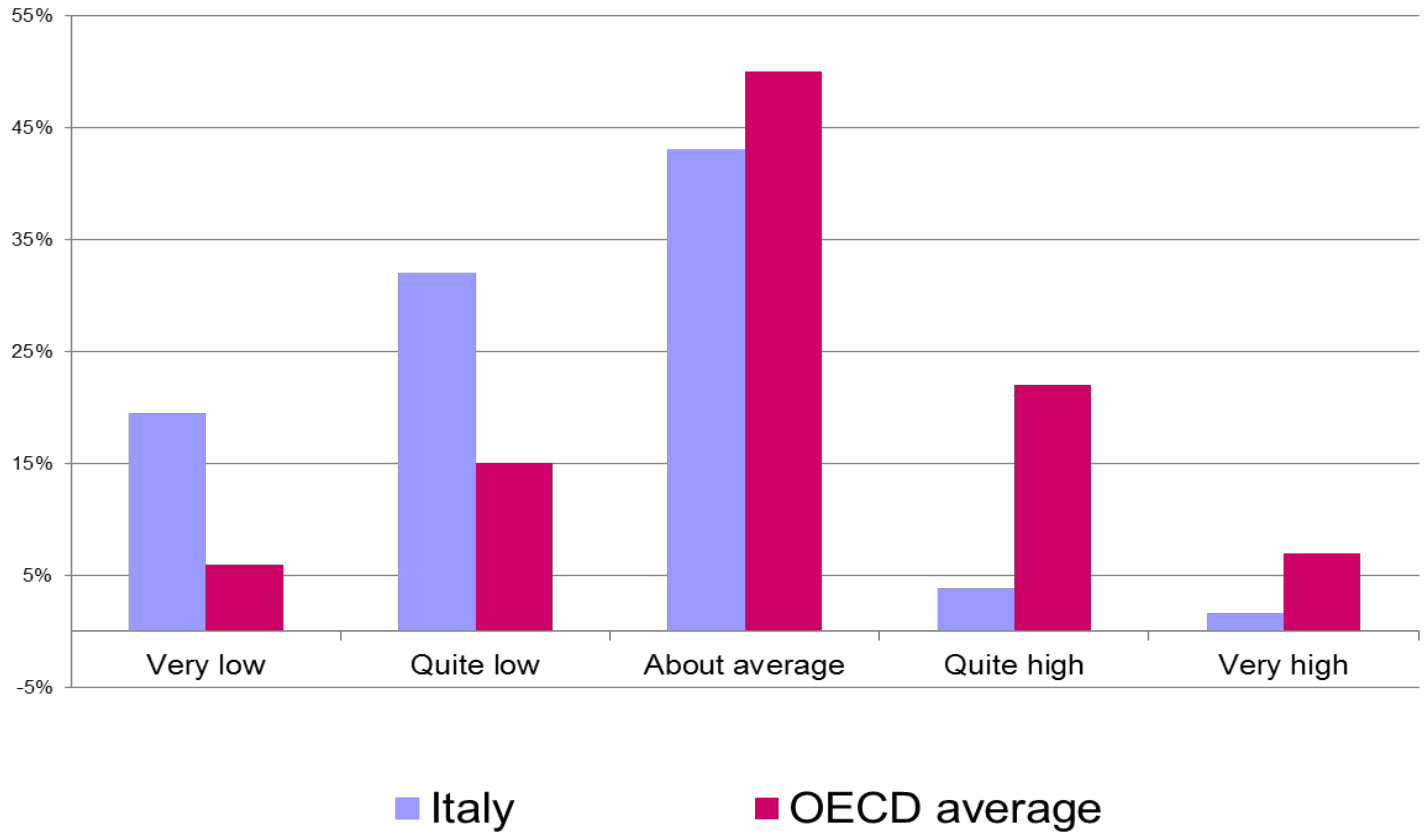


Total score

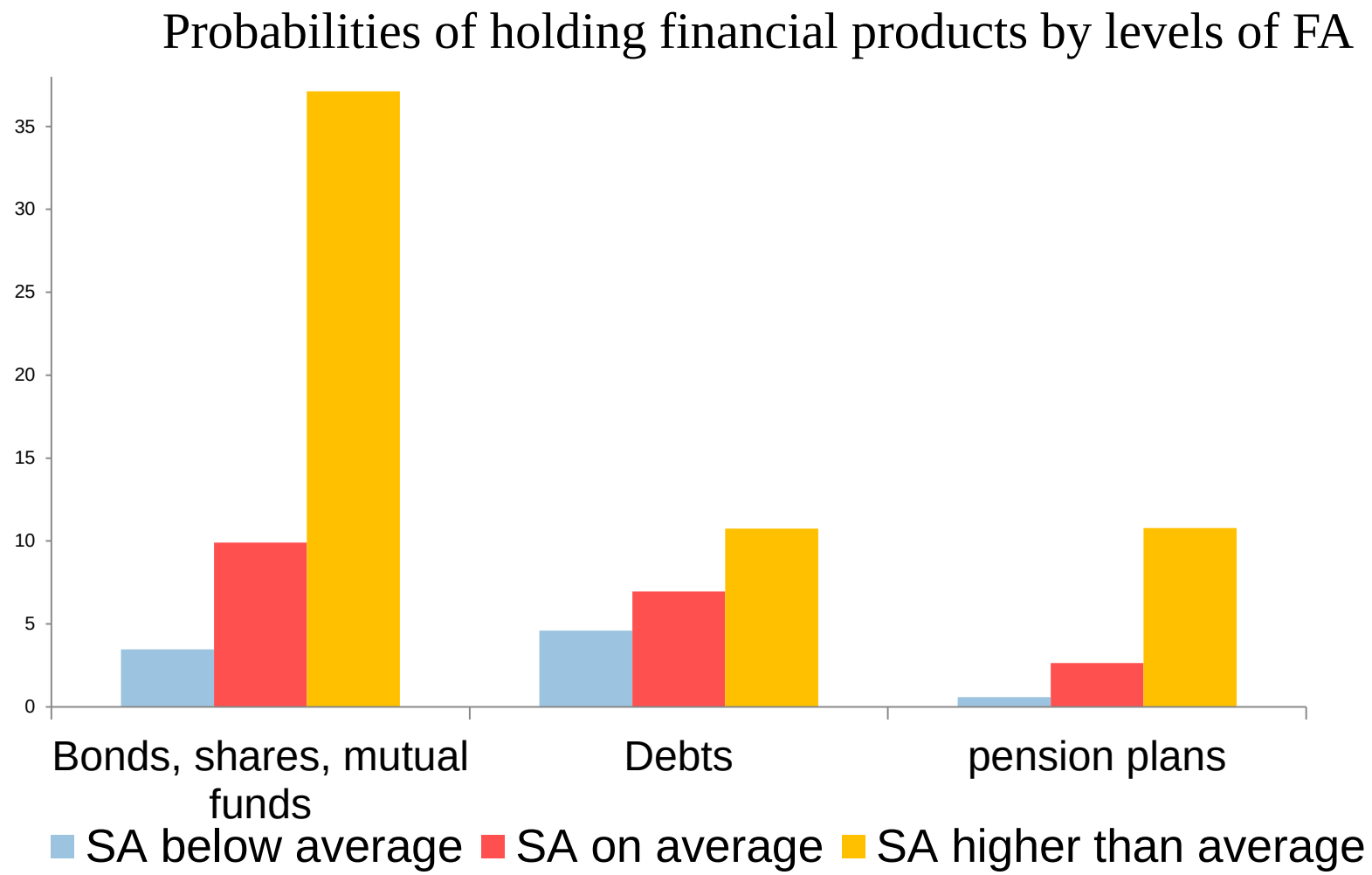

Attitude
Behaviour
Knowledge
0
2
4
6
8
10
12
14
3,2
6,7
4,9
3,3
6,3
5,2
3,5
6,2
4,9
3,2
6,2
4,9
3,3
6
4,9
3,4
5,9
4,8
3,4
5,4
4,9
3,3
5,6
4,2
2,8
4,4
4,4
3,1
4,4
3,5
France
Finland
Canada
Belgium
Austria
Portugal
OCSE average
UK
Poland
Italy

Individuals' self-assessment of financial knowledge

How you would rate your overall knowledge about financial matters compared with other adults in your country?
(missing responses excluded, percentages)



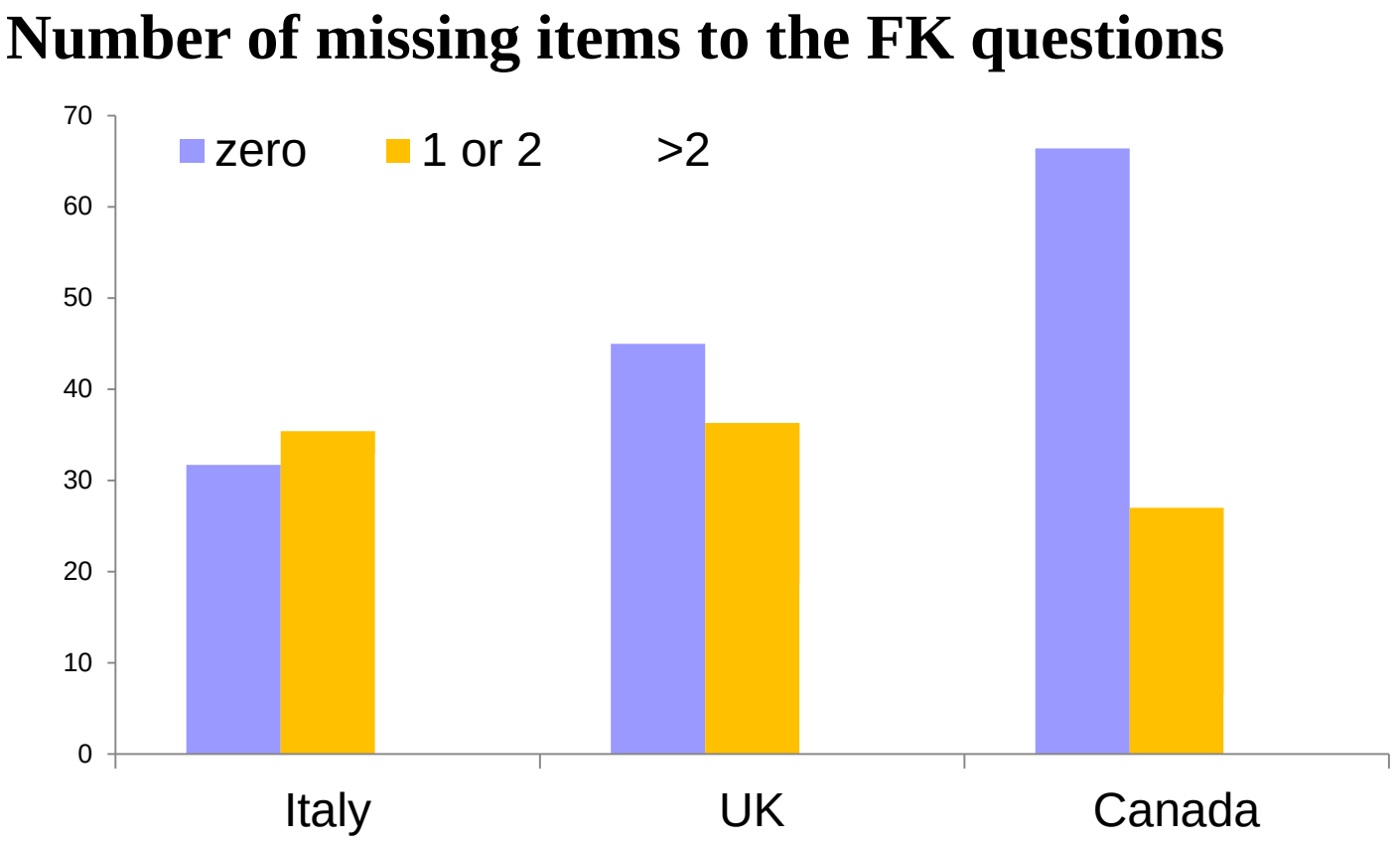
Self-assessment and financial inclusion



FL and Self-assessment explain behaviour

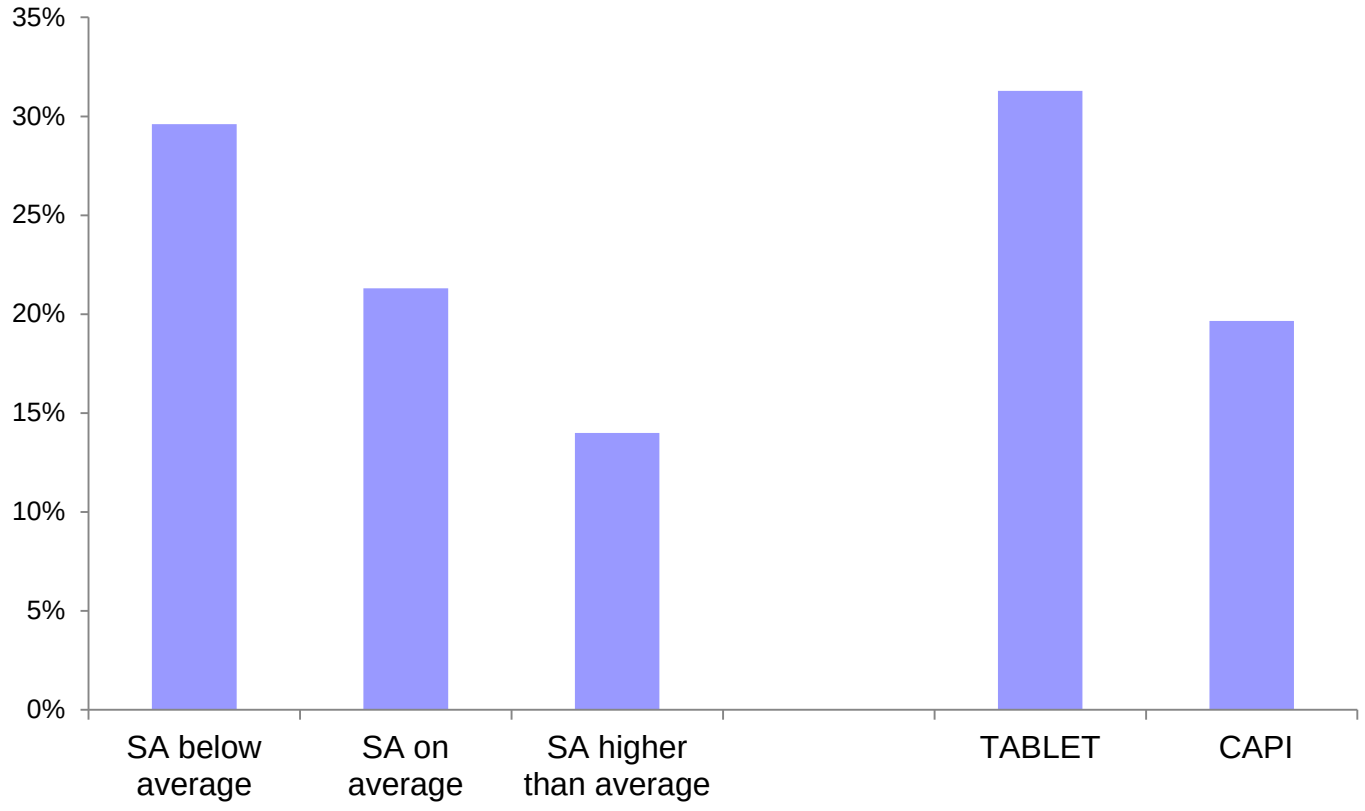
	PENSION PLAN PARTICIPATION		SAVING		TIMELY BILL PAYMENT		RAINY DAYS FUNDS		FINANCIAL PRODUCTS	
	Odds ratio (Pr > Chi Sq)		Odds ratio (Pr > Chi Sq)		Odds ratio (Pr > Chi Sq)		Odds ratio (Pr > Chi Sq)		Estimate (Pr > |t|)	
Parameter	With controls	Without controls	With controls	Without controls	With controls	Without controls	With controls	Without controls	With controls	Without controls
FK score	**1.186 (0.0012)**	***1.237 (<.0001)***	1.009 (0.7757)	*1.063 (0.0453)*	**1.093 (0.0112)**	***1.141 (<.0001)***	**1.256 (<.0001)**	**1.305 (<.0001)**	**0.0475 (0.001)**	***0.0689 (<.0001)***
FA score	**1.254 (0.0163)**	***1.219 (0.0213)***	**1.302 (0.0002)**	***1.394 (<.0001)***	**1.376 (<.0001)**	***1.574 (<.0001)***	1.048 (0.5153)	1.136 (0.0585)	**0.0848 (0.013)**	***0.1048 (0.002)***
Self-assessed FK	**1.551 (<.0001)**	***1.939 (<.0001)***	**1.606 (<.0001)**	***1.638 (<.0001)***	**1.261 (0.0033)**	***1.238 (0.0028)***	**1.511 (<.0001)**	**1.46 (<.0001)**	**0.2015 (<.0001)**	***0.2412 (<.0001)***

Some methodological issues…



Some methodological issues…

Share of (item) nonresponse by SA and Mode of Interview



Conclusions

The OECD methodology is a valuable instrument for policy makers

Possible areas for improvement

- Some of Behavioural questions should be reconsidered
- The attitude questions are «questionable»
- Has the sum of FK FB e FA some economic meaning?
- Missing important themes such as the issue of pensions

Conclusions

- Awareness is not considered but seems to have relevant policy implications:
  1. Knowing that you don't know is the first step for improvement;
  2. It seems to have great explanatory power on behaviour even after controlling for FK scores;
  3. Could over-confidence or under-confidence be a problem?

- Don't Know is considered as a «wrong answer»

  DKs (and the final score) depend on the method of interview and on respondents' risk adversion