

# How much does wealth matter for financial literacy acquisition?

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## Motivation and Aim

- ▶ Despite the importance of financial literacy, its level is rather low in many countries. What drives the acquisition of financial knowledge?
- ▶ Theoretical literature stressed the role of *financial wealth*  $\Rightarrow$  having more wealth can encourage the acquisition of at least some basic knowledge to better manage it
- ▶ Clearly, financial literacy affects wealth accumulation (Bernheim and Garrett (2003); Guiso and Jappelli (2008); Lusardi and Mitchell (2007); Lusardi and Tufano (2008); van Rooij, Lusardi and Alessie (2007, 2008))  
 $\Rightarrow$  need to account for endogeneity
- ▶ Findings preview: financial wealth, general education, experience (age) and education of the family have a positive effect on financial literacy. The effect of wealth is rather low

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# Outline

## Literature

Theoretical Literature  
Empirical Literature

## Empirical Analysis

Data and Descriptive Statistics  
Empirical Strategy  
Results

## Conclusions

## Theoretical frameworks

- ▶ *HUMAN CAPITAL PRODUCTION: Delavande, Rohwedder and Willis (2008), MRRC WP*

Assume that, given risk, the maximum expected rate of return on risky assets to each investor depends on his stock of financial knowledge.

Hence, the benefit from the investment in financial knowledge depends on the amount of wealth held in the risky asset

- ▶ *INFORMATION ACQUISITION: Peress (2004), RFS*

Investors acquire information about assets payoffs (i.e., purchase a signal with precision  $x$ ) by means of newspapers, seminars, financial advisors, etc... The optimal amount of information ( $x$ ) for agent  $i$  is given by

$$\underbrace{C'(x_i)}_{\text{marginal cost}} = \frac{1}{2} \underbrace{\tau(W_{0i})}_{\text{abs risk tolerance}} \underbrace{\phi'(x_i)}_{\phi = E[SR]}$$

There is a wealth threshold  $W_{0i}^*$  such that only agents with initial wealth above this threshold acquire information

## Empirical literature on determinants

- ▶ DEMOGRAPHICS (being male, white...)
- ▶ GENERAL EDUCATION: Bernheim (1998); Guiso and Jappelli (2008); Meier and Sprenger (2008)
- ▶ INTELLIGENCE, EFFORT in answering: Delavande, Rohwedder and Willis (2008)
- ▶ PATIENCE: Meier and Sprenger (2008)
- ▶ WEALTH/EARNINGS: Bernheim (1998) finds that financial scores rise with earnings while macroeconomic ones do not; Guiso and Jappelli (2008) find that having high income and financial wealth above 500 thousand euro are associated with greater financial knowledge
  - ⇒ No account of wealth endogeneity

# Data

- ▶ Bank of Italy's Survey of Households Income and Wealth (SHIW): 2006 cross section
- ▶ A random subsample (3,992 households) answered a battery of financial literacy tests (only household heads)
- ▶ Questions are similar to those in the HRS and other European surveys (DHS, SHARE...)

# Data

**QUIZ 1** Suppose you receive this statement of account from your bank; can you tell me what sum of money is available at the end of May? [▶ See Figure](#)

*i. Amount in euro / ii. Don't know*

**QUIZ 2** Imagine leaving 1,000 euro in a current account that pays 1% interest and has no charges. Imagine also that inflation is running at 2%. Do you think that if you withdraw the money in a year's time you will be able to buy the same amount of goods as if you spent the 1,000 euro today?

*i. Yes / ii. Less / iii. More / iv. Don't know*

**QUIZ 3** This figure shows the value of two different investment funds over the last four years. Which fund do you think produced the largest return in that period? [▶ See Figure](#)

*i. Fund 1 / ii. Fund 2 / iii. The same / iv. Don't know*

# Data

- QUIZ 4** Imagine leaving 1,000 euro in a current account that pays 2% annual interest and has no charges. What sum do you think will be available at the end of 2 years?  
*i. Less / ii. Exactly 1,020 € / iii. More / iv. Don't know*
- QUIZ 5** Imagine you have only equity funds and stock market prices fall. Are you...?  
*i. Better off / ii. Worse off / iii. As before / iv. Don't know*
- QUIZ 6** Which of the following types of mortgage do you think will allow you from the very start to fix the maximum amount and number of installments to be paid before the debt is extinguished?  
*i. Floating-rate mortgage / ii. Fixed-rate mortgage / iii. Floating-rate mortgage with fixed installments / iv. Don't know*

# Descriptive statistics

Table: Answers to financial literacy questions (in %)

	quiz1	quiz2	quiz3	quiz4	quiz5	quiz6	Average
Correct	50.75	60.5	27.23	39.6	51.33	53.61	47.17
Incorrect	6.44	9.52	35.37	31.96	15.53	12.68	18.58
Don't Know	42.81	29.98	37.4	28.43	33.14	33.72	34.25
Total	100	100	100	100	100	100	100
N obs	3,992	3,992	3,992	3,992	3,992	3,992	3,992

▶ Figure 1

▶ Figure 2

▶ Figure 3

# Empirical Strategy

- ▶ Financial literacy index: number of correct answers
- ▶ **GMM** allows to test instruments validity, but considers the dependent variable as continuous
  - ⇒ Instruments for financial wealth:
    - ▷ Interest rates on deposits at beginning of 2006 at regional level
    - ▷ Dummy = 1 if the HH had a self-employed/entrepreneur parent
    - ▷ Dummy = 1 if living in a house received as inheritance or gift
- ▶ **IV Ordered probit** instrumented via control function approach. Dependent variable is treated as ordinal (i.e., high literacy, medium literacy, low literacy...) ▶ Figure 3

## GMM Regression

<i>Dep var: Number of correct answers</i>	First stage	First stage	GMM	GMM
<b>Financial wealth (100k)</b>			<b>2.659***</b>	<b>2.067**</b>
Female	-0.069***	-0.073***	-0.334***	-0.346***
Age	0.018***	0.015***	0.058***	0.054***
Age squared	-0.000***	-0.000***	-0.001***	-0.001***
Years schooling	0.023***	0.024***	0.070***	0.072***
North-west	0.143***	0.146***	0.314**	0.316**
North-east	0.149***	0.149***	0.264*	0.278*
Center	0.107***	0.106***	0.519***	0.573***
Employee	-0.061***	-0.056***	0.196*	0.119
Self-employed	0.035	0.033	0.117	0.080
Unemployed	-0.039	-0.042	-0.239	-0.248
Other has better edu than HH		0.050***		0.296***
Other has greater income than HH		0.029**		-0.037
F of HH: Primary		-0.005		0.367***
F of HH: Secondary		-0.010		0.302**
F of HH: High school+		0.061		0.289*
M of HH: Primary		0.020		0.169*
M of HH: Secondary		0.024		0.339**
M of HH: High school+		-0.032		0.277
<i>Interest rate 2006</i>	<i>0.188**</i>	<i>0.196**</i>		
<i>House as inheritance/gift</i>	<i>0.046***</i>	<i>0.044***</i>		
<i>HH has self-empl parent</i>	<i>0.068***</i>	<i>0.068***</i>		
Constant	-0.768***	-0.747***	0.594	0.259
N obs	3953	3904	3953	3904
Adj. R-Squared	0.156	0.164	0.140	0.223

Significance: \*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

## IV Ordered Probit

	Low literacy			Medium literacy			High literacy		
	0	1	2	3	4	5	6		
Fin W (100k)	-0.266***	-0.115***	-0.084**	0.012*	0.131***	0.198***	0.124**		
Female	0.057***	0.023***	0.016***	-0.004***	-0.028***	-0.040***	-0.025***		
Age	-0.009***	-0.004***	-0.003***	0.000*	0.004***	0.007***	0.004***		
Age squared	0.000***	0.000***	0.000***	-0.000**	-0.000***	-0.000***	-0.000***		
Years school	-0.011***	-0.005***	-0.004***	0.001**	0.006***	0.008***	0.005***		
North-west	-0.049***	-0.023***	-0.018***	-0.000	0.024***	0.040***	0.027***		
North-east	-0.047***	-0.022***	-0.018***	-0.001	0.023***	0.038***	0.026***		
Center	-0.077***	-0.038***	-0.033***	-0.005*	0.036***	0.068***	0.050***		
Employee	-0.008	-0.003	-0.003	0.000	0.004	0.006	0.004		
Self-empl	-0.004	-0.002	-0.001	0.000	0.002	0.003	0.002		
Unempl	0.035	0.014	0.009	-0.003	-0.017	-0.023	-0.013		
Better edu	-0.042***	-0.019***	-0.015***	0.001	0.021***	0.033***	0.022***		
Greater inc	0.004	0.002	0.001	-0.000	-0.002	-0.003	-0.002		
F: Prim	-0.048***	-0.021***	-0.016***	0.001	0.024***	0.037***	0.024***		
F: Second	-0.038**	-0.018**	-0.014**	-0.001	0.018***	0.031**	0.021**		
F: High sc+	-0.039**	-0.019*	-0.016	-0.001	0.019**	0.033*	0.023		
M: Prim	-0.025*	-0.011*	-0.008*	0.001	0.012*	0.019*	0.012*		
M: Second	-0.042***	-0.020**	-0.017**	-0.001	0.020***	0.036**	0.025**		
M: High sc+	-0.029	-0.014	-0.011	-0.000	0.014	0.024	0.016		
Fitted resid	0.193*	0.083*	0.061*	-0.009	-0.095*	-0.144*	-0.090*		
N obs	3904								
Log-lik	-6788.59								
Pseudo R-Sq	0.093								

Each column reports marginal effects on the probability of any given outcome of the dependent variable

Significance: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

## Conclusions

- ▶ Indeed wealth matters for the acquisition of financial knowledge, together with demographics, age, learning costs, family education
- ▶ However, the effect of wealth is very small, meaning that only individuals endowed with a very large amount of wealth are encouraged to learn more (median financial wealth is €7,000)
- ▶ In the case of Italy, this may be because many rely on their bank's advice instead of learning on their own (Beltratti, 2007) or due to past features of the pension system

**National Saving Bank**

*Account statement as of 31/05/200*

*Account No 678 987654 321*

DATE	VALUE	REF.	DESCRIPTION	WITHDRAWALS	DEPOSITS
***	***	***	PREVIOUS BALANCE AS OF 05/05/2006		320
01/05/2006	30/04/2006	1007	PHONE BILL PAYMENT, PERIOD 01/03/2006 - 30/04/2006	65	
02/05/2006	01/05/2006	1008	WITHDRAWAL DEBIT CARD N. 10	100	
27/05/2006	28/05/2006	1010	PAYROLL DEPOSIT		1.100
28/05/2006	27/05/2006	1011	CHEQUE N. 3036 YOUR ORDER IN FAVOR OF MR PAOLO ROSSI	187	
29/05/2006	28/05/2006	1012	RENT PAYMENT APRIL	800	
29/05/2006	28/05/2006	1013	FEES FOR TRANSACTION No 1012	1	
31/05/2006	30/05/2006	1014	PURCHASE CARD N. 10. ON 28/05/2006 CHEMIST SHOP	88	
31/05/2006	30/05/2006	1015	REFUND NURSERY SCHOOL FEES		100
***	***	***	BALANCE AFTER THE ABOVE MENTIONED TRANSACTIONS		279

Figure: QUIZ 1

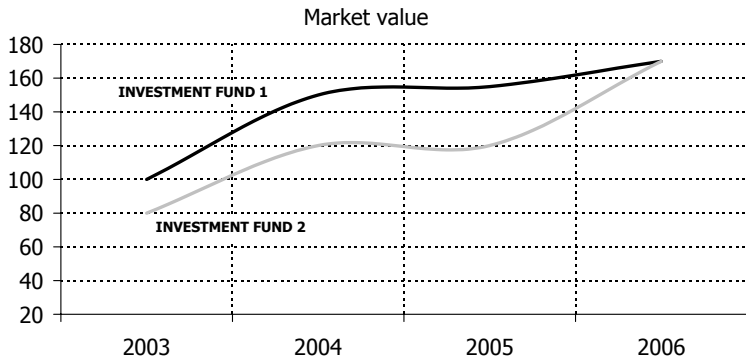
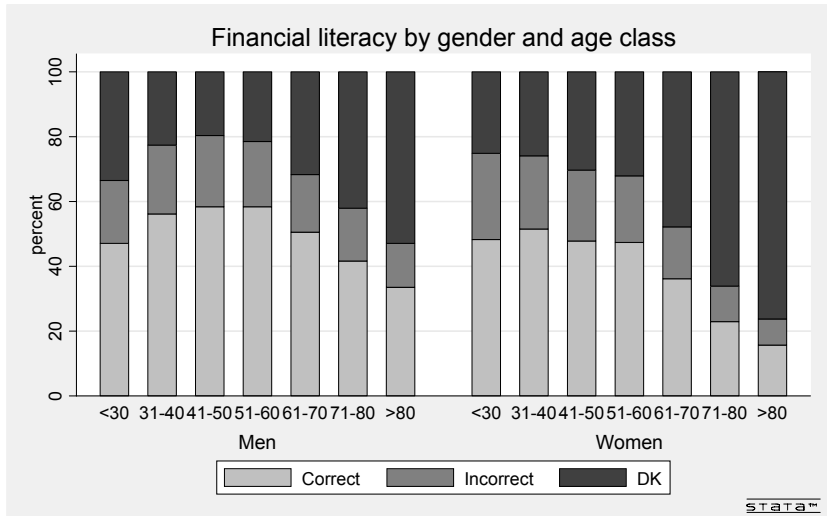
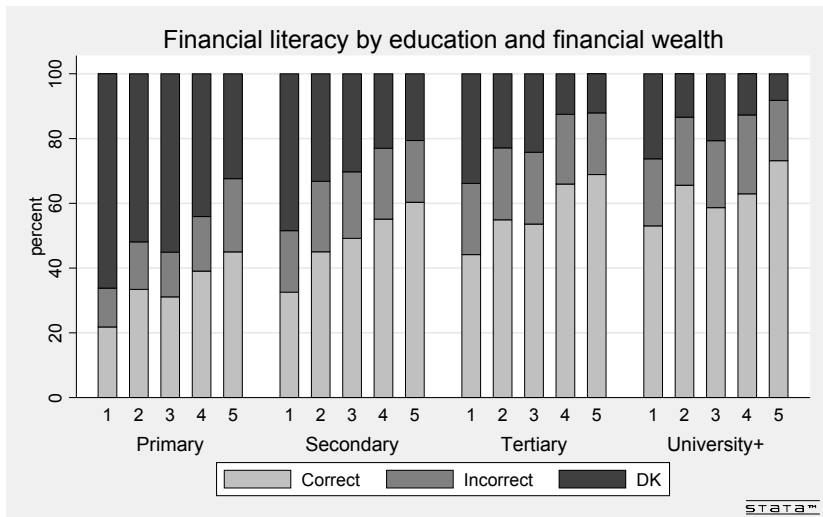


Figure: QUIZ 3

## Descriptive statistics



## Descriptive statistics



STATA™

## Descriptive statistics

