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Financial Literacy and Money Attitudes: Do Boys and Girls Really Differ? A Study among Italian Preadolescents

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Abstract: Several institutions have pointed to financial education as a means of facing the contemporary crisis. However, research on financial literacy and money attitudes among children has as yet been rather scarce. Some studies maintain that women and men receive different economic socialization patterns, and consequently develop different levels of financial literacy and gendered money attitudes that in turn reproduce economic inequalities. This study was conducted in order to shed light on gender differences in financial literacy and money attitudes among preadolescents in Northern Italy. The survey used here consisted of a self-completion questionnaire administered to a sample of 1,635 students aged 12-14 years. Gender differences are estimated using several linear regression models and a binomial logistic regression model. Empirical analysis reveals significant gender differences in money attitudes, but not in financial literacy. These findings are discussed with suggestions for sustaining gender equality and designing future financial education programs.

Keywords: gender differences; financial literacy; financial education; economic socialization; money attitudes; self-confidence

Introduction

The global financial crisis which burst out in the second half of 2008 has had a major impact on the development of the Euro-Mediterranean Partnership and brought about certain changes in the priorities for its working areas (Notarstefano, 2011)[3]. To face the downturn, several public institutions – such as the European Commission (EC) or the Organisation for Economic Co-operation and Development (OECD) – have highlighted the importance of improving the financial literacy of new generations, i.e., "the process by which financial consumers/investors improve their understanding of financial products, concepts and risks and, through information, instruction and/or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being" (OECD, 2005, p. 4). For emerging economies in the Mediterranean area, financially educated individuals can help ensure that the financial sector makes an effective contribution to real economic growth and poverty reduction; for more developed economies, financial literacy contributes to ensuring that individuals save enough to provide an adequate income in retirement and also avoid high levels of debt that might result in bankruptcy (OECD, 2006). In most industrialized countries, in fact, today's school-leavers need to be a lot more financially literate than even their parents were if they are to manage their personal finances successfully through their longer life.

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[3] The Euro-Mediterranean Partnership (or Barcelona Process) started in 1995 with the Barcelona Euro-Mediterranean Conference and then expanded and evolved into the Union for the Mediterranean. It was an innovative alliance based on the principles of joint ownership, dialogue and co-operation, seeking to create a Mediterranean region of peace, security and shared prosperity (for more information see http://eeas.europa.eu/euromed/index_en.htm).

However, research on financial literacy has as yet been rather scarce, though interest in it is growing. Studies in the United States and in Northern Europe are definitely more numerous and articulated than those in Mediterranean area (OECD, 2009; Martin, 2007; Traclò, 2010). In 2012, the OECD has launched the first large-scale international study to assess the financial literacy of young people: it will be testing 15 year-olds on their knowledge of personal finances and ability to apply it to their financial problems through the PISA (Programme for International Student Assessment) survey in several countries, including several Mediterranean ones[4]. The present study aims to add further information regarding the Mediterranean area, focusing on gender differences in financial literacy and money attitudes among preadolescent students living in Northern Italy. There are two reasons for this focus on gender differences. First, despite the fact that one of the United Nations' Millennium Development Goals set in 2000 was reaching gender equality and the empowerment of women, evidence indicates that the goal is far from being reached in Italy and other Mediterranean countries (Künzler, 2002; Lopez-Claros & Zahidi, 2005; OECD, 2010) that have persistent gender differences in working careers and family roles. Second, as pointed out by the recent work by Willman Bordat and colleagues (2011), control of money is a crucial resource for empowering women and increasing their ability to make effective decisions and to convert them into desired outcomes.

The study is organized as follows. The first section addresses the background and the aim of the study. The second section provides a description of the previous empirical studies. The third section puts forward four hypotheses for testing in the rest of the study and outlines the dataset and the research methodology. The fourth section presents the findings of the empirical analysis, and the final section discusses their implications, also devoting attention to financial education policies.

Background and Aim of the Study

Background of the Study

Gender differences in financial literacy and money attitudes have recently attracted interest for two main reasons. First, as shown by several studies carried out in different Western countries (e.g. Gornick & Jäntti, 2010; Marin & Zólyomi, 2010; Alessie, Van Rooij & Lusardi, 2011), women have been particularly hard hit by the financial downturn, which has increased their chances of descending into poverty, especially if they are unmarried, divorced or elderly. Second, despite rises in their level of education and paid work participation, women still have lower earnings and pensions than men (see, e.g., Ginn, 2003; 2008; Smith, 2010). This trend has been explained not only by women's lower labour force attachment, but also by their lower financial literacy (Fonseca *et al.*, 2010; Fornero & Monticone, 2011), their more ambivalent attitudes towards money and economic success (Prince, 1993; Zelizer, 1994; Deutsch, Roksa & Meeske, 2003) and the fact that they have less control over money in the household (Pahl, 1989; 2005).

Some scholars (Prince, 1993; Rabow & Newcomb, 1992; Zelizer,1994; Ruspini, 2008) have argued that gender differences in financial literacy and money attitudes arise from a different set of practices and expectations for sons and daughters that parents have during their children's upbringing, and that the offspring consequently develop distinct preferences, confidence and fears as regards financial matters. In this line of reasoning, it is very important to understand the characteristics of children's economic socialization, or the development of the each individual's economic role, i.e., "any social role defining for the actor his participation in the social process of allocation and exchange normally referred to as economic activity" (Denhardt & Jeffress, 1971: 114). In other words, viewing the sociology of money from the cultural perspective (Baker & Jimerson, 1992), we can say that symbolic meanings, preferences and attitudes that boys and girls associate with money can play a significant role in its use during their growth and in adult life.

[4] The countries involved are: Albania, Australia, Belgium (Flemish Community), Brazil, Shanghai-China, Colombia, Croatia, Czech Republic, Estonia, France, Israel, Italy, Latvia, New Zealand, Poland, Slovak Republic, Slovenia, Spain and United States.

As documented in vivid detail by Zelizer (1994; 2005), symbolic meanings vary according to social relations, often gendered, within which money is embedded, and which eventually turn into a process that she calls "earmarking money". In Western countries, this process starts in early childhood, since children are potentially exposed to material exchanges of goods and services which have different rewards depending on the sex of the actors: girls' provision of goods and service to relatives and friends is more likely to be treated as gift-like trading or swapping, while men are more often "allowed" to collect fees (Zelizer, 2005). Furthermore, a study of the social construction of gender identity carried out among preadolescents in Italy (Besozzi, 2003) documented that boys are more likely than girls to claim that they are entitled to receive money from their parents: when ranking the characteristics of good parents, boys assign more importance to "giving children the possibility of having money" than girls do.

Aim of the Study

This study is based on a sample of 12 to 14 year old preadolescents attending lower secondary schools in Northern Italy. The aim of the study is to assess gender differences at this particular stage of economic life in financial literacy and in three relevant dimensions of money attitudes, i.e., materialism[5], self-confidence in managing money, and investment attitude. To the best of our knowledge, this is the first quantitative study shedding light on these matters among preadolescents in Italy. One might question why we should be concerned about the existence of gender differences in economic issues at this age. On the basis of previous contributions (Harbough *et al.*, 2002; Sutter *et al.,* 2010), we see three reasons. First, preadolescence is a moment in life when individuals conventionally start to gain a greater level of independence from parents in earning and spending money. It seems worth asking if girls and boys develop different types of financial literacy and money attitudes while dealing with this new level of independence. Second, some of the attitudes they develop in this stage of the life course may have a significant impact on their decision-making process in later life, e.g., on planning their education and working career. Finally, determining whether gender differences in financial literacy and money attitudes appear during preadolescence can suggest possible interventions in education that might help to prevent gender inequalities at a later stage in life.

The local dimension of this study is counterbalanced by the richness in terms of information of the dataset used here, which contains many items devoted to financial literacy and money attitudes. Information on some important parental characteristics is also available (see the methodological section). To the best of our knowledge, no national dataset is well suited to answering the research question of this study.

Empirical Evidence

In recent years, financial literacy and the different dimensions of money attitudes have captured scholarly attention to an increasing extent. If not otherwise indicated, the studies cited here refer to the United States, since the investigations in other Western countries have been fewer in number and later in date.

Financial Literacy

Several studies have shown that females tend to display lower scores than males on measures of personal financial literacy both among adults (Lusardi & Mitchell, 2005; 2008; Fonseca *et al.*, 2010), college students (Volpe & Chen, Pavlicko, 1996; Chen & Volpe, 2002; Jones, 2005; Borden, Lee, Serido & Collins, 2008), and adolescents (Dosso & Rosci, 2000; Becchetti *et al.* 2011 for Italy). The

[5] We are fully aware that there is a heated debate in the consumer research literature regarding the definition of materialism (Flouri, 1999; Kasser, 2006). In this study, however, we use this term in a restricted sense, i.e., the importance attached to money.

study by Chen and Volpe (2002) reveals that gender differences in financial literacy remain statistically significant after controlling for other factors such as education, class rank, ethnic background, nationality, years of work experience, age and annual income. In this study, education and work experience had a significant effect on financial literacy, while income, nationality and ethnic background substantially did not.

Goldsmith and Goldsmith (1997) suggest that females have lower scores in financial literacy than males because their general interest in investment and personal finance is usually lower, as is their motivation to learn about this topic. Following this line of reasoning, Chen and Volpe (2002) found that female college students are not only less financially literate than males, but also have less enthusiasm for personal finance topics and lower confidence in these issues. These scholars argue that enthusiasm and confidence may be the contributing factors that explain why men are more knowledgeable than females. Some evidence from a more recent study (Mandell & Schmid Klein, 2007) also reveals that motivational variables significantly impact financial literacy among high-school students.

Chen and Volpe (2002) also maintained that the impact of financial education on financial literacy was greater for females than for males, as females' literacy was more likely to be improved by studying business-related courses than males'. Similar results were also found by Becchetti and colleagues (2011) in a study carried out in Italy of adolescents exposed to a financial education program. This trend was named "financial learning convergence", since the effect of the program is stronger in subgroups with lower ex-ante financial literacy.

Materialism

Motivation for being interested in finance may depend simply on the importance individuals attach to money as a value and as a factor contributing to their overall satisfaction; in other words, does money bring happiness? Research on gender differences in materialism has consistently reported that males agree with this statement more than females, considering both university students and adults. Prince (1993) uses data on young adults aged 18-34 to show that males consider money as a symbol of status and power, and have a stronger need for control over their finances. Moreover, acquiring and handling money is closely linked to their self-esteem. By contrast, females view money as a means of obtaining things and experiences that they can enjoy in the present. As Rudmin (1990) points out, male attachment to money is abstract, while female attachment is contextual[6]. Similar results were found by Rabow and Newcomb (1999), who showed that money makes male university students feel lovable, happy, powerful, and in control more than it does female students[7]. A questionnaire survey among adolescents carried out in Italy confirmed gender differences in materialism, with boys associating money with power, self-esteem and happiness, and girls viewing it as a means of feeling security and protection (Dosso & Rosci, 2000; Rinaldi & Giromini, 2002). However, no statistically significant gender differences in materialism have been found among Italian children (Sartori & Ongari, 1999).

Examining how adult males and females end up earmarking money differently, Zelizer (1994; 2005) points at the influence of the patriarchal family structure during upbringing, which shape gendered meanings of money. Evidence in this sense is also found by retrospective qualitative studies on economic socialization (Rabow & Charness, 1991; Rabow, Charness, Aguilar & Toomaijian, 1992; Rabow & Newcomb, 1999; Rinaldi, 2007 for Italy).

[6] Although they did not measure gender differences in materialism, several laboratory experiments run by economists have found statistically significant gender differences among children as regards preferences in economic decisions. In dictator games, Gummerum and colleagues (2010) found that girls are more generous than boys even at a tender age (3-5 years), and similar results were reported by experiments on older students (Harbaugh, Krause & Liday, 2003; Sutter *et al.*, 2010).

[7] The association between money and power has also been found to be stronger for males than for females among university students in several studies in Asian countries (Lim & Teo, 1997; Sabri, Hayhoe & Ai, 2006).

Investment Attitude and Self-Confidence in Managing Money

Focusing attention on investment attitude, the review of the experimental economics literature examining gender differences in risk preferences by Croson and Gneezy (2009) reveals that males are more risk prone than females among non-expert populations. Several psychologists (Byrnes, Miller & Schafer, 1999) also come to the same conclusion: risk tends to be judged lower by males than by females, and by whites than by people of colour (the so-called "white male effect", see Finuncane *et al.*, 2000).

To account for gender differences in investment attitude, some scholars have noted the role played by differences in self-confidence between males and females (Croson & Gneezy, 2009; Niederle & Vesterlund, 2011). The literature shows that in general terms both men and women are often overconfident, but men are more overconfident in their success in uncertain situations, such as financial ones. Evidence among college and high school students supports this statement, both in field studies about self-evaluation of confidence and capability in managing money (Prince, 1993, Rabow & Newcomb, 1999, Chen & Volpe, 2002; Rinaldi & Giromini, 2002 for Italy) and in laboratory studies of investment behaviour (Barber & Odeann, 2001; Yeoh & Wood, 2011). To the best of our knowledge, however, no studies of gender differences in self-confidence in managing money have been carried out among preadolescents.

Hypotheses, Data and Methods

As pointed out in the second section, the goal of this study is to analyze gender differences in financial literacy and in the three dimensions of money attitudes mentioned above among preadolescents in Northern Italy. To this end, four hypotheses will be tested:

- Hypothesis 1: boys display higher financial literacy than girls (H1).
- Hypothesis 2: boys display higher materialism than girls (H2).
- Hypothesis 3: boys display higher pro-investment attitudes than girls (H3).
- Hypothesis 4: boys display higher self-confidence in managing money than girls (H4).

These hypotheses are estimated using multivariate statistical techniques, which in this specific instance consist of several ordinary linear regression models and an ordinary binomial logistic regression model.

The data for this study come from a survey carried out as part of the project entitled "The Economy and Me" sponsored by Junior Achievement Italia, the Italian division of a worldwide non-profit organization dedicated to educating students about workforce readiness, entrepreneurship and financial literacy through experiential, hands-on programs[8]. The survey was conducted in 2010 by an interdisciplinary research group (sociologists, psychologists, economists, and statisticians) at the Catholic University of Milan. It consists of a self-completion questionnaire on a sample of 1,635 12 to 14 year-old lower secondary school students living in Northern Italy[9]. This sample was obtained from schools participating in the Junior Achievement Italia initiatives. A quota sample of schools was chosen in order to reflect certain characteristics of school distribution in Northern Italy, i.e., regional distribution, the size of the town in which schools are located (provincial capital/provinces) and the type of school (public/private). For each school, all students in the classes involved in the "The Economy and Me" project filled out the questionnaire. The survey collected information on a range of aspects that can be grouped into five main sections: family life and progress at school, interest in economy and sources of information on the related issues, an evaluation test of financial literacy, money attitudes, values and personality.

The very first problem to tackle is the operazionalization of materialism, self-confidence in managing money, investment attitude and financial literacy. In this connection, it is essential to recognise that analyzing materialism and self-confidence involves several problems, as they are not

[8] For more information about Junior Achievement, see http://www.ja.org/ and http://www.junioritalia.org.
[9] The following regions were included in the study: Piemonte, Lombardia, Veneto, Emilia-Romagna.

single measurable entities, but rather abstract constructs which at best can be derived from measurements of other directly observable variables. The dataset contains several items that can be used to create indices measuring these constructs. An exploratory factor analysis was carried out to identify the set of not-directly observable constructs underlying these items, and thus choose the items which seem to refer to materialism and self-confidence in managing money[10]. The indices were computed by summing the scores of these items after standardization. The items from which the indices were computed and their range of scores are listed in Table 1. A reliability and item analysis was carried out to evaluate the reliability of the indices, testing if each of these consistently reflects the construct it is measuring. Allowing for the small number of items used to compute the indices, there is a fair degree of reliability (alpha = 0.68 for the index of materialism; alpha = 0.70 for the index of self-confidence in managing money). Finally, to enhance the readability of the findings, a normalization procedure was applied to the indices in order to obtain scores varying from zero to 10, where zero is the minimum and 10 the maximum level of materialism/self-confidence.

Table 1. Items Used to Compute the Index of Materialism and the Index of Self-Confidence in Managing Money

Items	**Range of scores**
Index of materialism	
Money brings happiness	1 = "Strongly disagree"/ 6 = "Strongly agree"
Money is crucial to living well	1 = "Strongly disagree"/ 6 = "Strongly agree"
Earning much money is required in order to be an important person	1 = "Strongly disagree"/ 6 = "Strongly agree"
Money can buy everything	1 = "Strongly disagree" / 6 = "Strongly agree"
Importance of wealth / economic success	1 = "First for importance in a group of 12 values" / 12 = "Last for importance in a group of 12 values"
I feel angry if other people have more money than me	1 = "Strongly disagree"/ 6 = "Strongly agree"
It is important to have a job you like, even if the pay is not so high	1 = "Strongly disagree"/ 6 = "Strongly agree"
Index of self-confidence in managing money	
I am able to plan my expenses	1 = "Strongly disagree"/ 6 = "Strongly agree"
I am able to manage my money	1 = "Strongly disagree"/ 6 = "Strongly agree"
I do not need to ask for advice about the use of my money	1 = "Strongly disagree"/ 6 = "Strongly agree"
Management of my money is under my control	1 = "False"/ 6 = "True"
I would be able to collect the fees for a school trip and to keep the accounts	1 = "Strongly disagree"/ 6 = "Strongly agree"

Investment attitude can also be considered as an abstract construct to some extent, like materialism and self-confidence in managing money. In this case, however, only one item in the dataset measures this construct, and consequently the subsequent analysis is limited to it. Respondents were asked to agree/disagree with the following statement: "It is important to invest money in order to increase it". Possible answers are: 1 = "Strongly disagree" 2 = "Moderately disagree" 3 = "Disagree a little" 4 = "Agree a little" 5 = "Moderately agree" 6 = "Strongly agree". For parsimony reasons, the item was recorded in a dummy variable as follows: 1-3 = 0, "Absence of a pro-investment attitude", 4-6 = 1 "Presence of a pro-investment attitude".

As regards financial literacy, eight multiple choice items in the dataset test the respondent's ability in this respect. An index of financial literacy was computed by assigning value 1 to each correct answer and zero otherwise, and summing the scores of each item. Here again, readability of the findings was enhanced by applying a normalization procedure to the index in order to obtain scores varying from zero to 10, where zero is the minimum and 10 the maximum level of financial literacy.

[10] In the factor analyses performed here, estimates of the common factors are obtained using the unweighted least-squares method, and oblimin rotation is used. All findings for the different factor analyses versions are available on demand.

Four separate regression models were estimated in this study. In the first model, a multiple linear regression tests the effect of the respondent's sex on the index measuring his/her materialism. In the second model, a multiple linear regression tests the effect of the respondent's sex on the index measuring his/her self-confidence in managing money. In the third model, a binomial logistic regression tests the effect of the respondent's sex on his/her investment attitude. Finally, in the fourth model, a multiple linear regression tests the effect of the respondent's sex on the index measuring his/her financial literacy.

In addition to the variables concerning gender differences in financial literacy and money attitudes, several independent variables were included in the models to control for some important confounding effects: area of residence, type of school (public or private)[11], age, nationality, number of brothers and sisters, parental education and parental social class[12]. These lurking variables may have a potential effect on the dependent variables of each model, and they may be at the same time randomly associated with the respondents' sex for an unequal distribution of boys and girls across their categories. For the same reason, a variable concerning parental materialism and a variable concerning parental investment attitude were included in the first and in the third model respectively[13]. Unfortunately, no variables concerning parental self-confidence in managing money and parental financial literacy are available in the dataset. Thus, the second and the fourth models were run without these controls. Finally, because a subsample of the dataset attended a financial education program that may have a potential effect on financial literacy and money attitudes, a variable concerning attendance/non-attendance in this program was included in all models. Descriptive statistics of all variables included in the models are reported in the appendix (Tables A.1 and A.2).

Results

Table 2 presents the results concerning gender differences in financial literacy and money attitudes from the ordinary least squares regression models and from the binomial logistic regression model, as well as the results for the effects of the control variables. This study does not go into detail for the latter, because they are not the main object of interest. All in all, the analysis put forward here shows findings that are largely in accordance with expectations.

[11] It is necessary to control for this variable because it represents to some extent a proxy of parental social class, since in Italy the costs of private schools are much higher than those of public schools.

[12] Parental social class is coded as follow: 1 = "Professionals, administrators, large proprietors, managers" (classes I, II in the EGP social class scheme, see Erikson et al. 1979) 2 = "Routine non-manual employees" (classes IIIa, IIIb) 3 = "Small proprietors" (classes IVa, IVb, IVc), 4 = "Lower grade technicians and manual workers" (classes V, VI, VIIa, VIIb) 5 = "Out of the labour force" 6 = "Other & missing". The category "Other" is due to the fact that unfortunately data concerning parental occupation were not collected properly.

[13] As regards parental materialism, respondents were asked if the following statement is true or false: "My parents maintain that money does not bring happiness". Possible answers are: 1 = "False" 2 = "Mostly false" 3 = "Somewhat false" 4 = "Somewhat true" 5 = "Mostly true" 6 = "True". For parsimony reasons, the item was recorded in a dummy variable as follows: 1-3 = 1, "Materialistic parents", 4-6 = 0 "Non-materialistic parents". As regards parental investment attitude, respondents were asked if the following statement is true or false: "My parents often discuss investments". Possible answers are: 1 = "False" 2 = "Mostly false" 3 = "Somewhat false" 4 = "Somewhat true" 5 = "Mostly true" 6 = "True". For parsimony reasons, the item was recorded in a dummy variable as follows: 1-3 = 0, "Parents without a pro-investment attitude", 4-6 = 1 "Parents with a pro-investment attitude". We are conscious of the fact that discussing investments frequently does not necessarily mean having a pro-investment attitude and vice versa, but this variable is the only acceptable proxy for parental investment attitude available in the dataset. In any case, the findings of the analysis do not differ substantially if the model is run without this control (table not shown, available on demand).

Table 2. Gender Differences in Materialism, Self-Confidence in Managing Money, Investment Attitude and Financial Literacy, and Control Variables

	Model 1		**Model 2**		**Model 3**		**Model 4**	
	β	SE	β	SE	e^{β}	SE	β	SE
Sex of the respondent								
Male					1.00			
Female	-0.44***	0.09	-0.30**	0.11	0.69**	0.10	0.19	0,13
Type of school								
Private					1.00			
Public	-0.24	0.19	0.22	0.23	0.74	0.23	-0.50	0,26
Missing	0.26	0.93	0.76	1.19	0.49	0.65	0.80	1,39
Age	0.13	0.07	0.03	0.09	0.96	0.10	0.04	0,10
Nationality								
Italian					1.00			
Non Italian	0.36*	0.15	0.19	0.19	0.68	0.14	-0.77***	0,21
Missing	-0.01	0.21	-0.35	0.26	0.69	0.20	-0.15	0,30
No. of brothers and sisters	0.01	0.04	0.06	0.05	0.91	0.06	-0.02	0,06
Father's education								
University degree					1.00			
Upper secondary-school diploma	-0.02	0.15	-0.07	0.19	0.89	0.23	-0.02	0,22
Lower secondary-school / primary school certificate	0.05	0.17	0.02	0.22	0.91	0.26	-0.17	0,25
Missing	-0.06	0.18	-0.16	0.22	0.61	0.17	-0.24	0,25
Mother's education								
University degree					1.00			
Upper secondary-school diploma	0.07	0.15	0.06	0.19	0.83	0.21	-0.18	0,21
Lower secondary-school / primary school certificate	0.37*	0.18	-0.25	0.22	0.67	0.19	-0.61*	0,25
Missing	0.33	0.18	-0.23	0.23	0.90	0.25	-1.01***	0,26
Father's social class								
Professionals, administrators, large proprietors,. managers					1.00			
Routine non-manual employees	0.05	0.17	-0.10	0.22	1.28	0.40	0.25	0,25
Small proprietors	-0.38	0.21	0.26	0.26	1.84	0.78	0.02	0,30
Lower grade technicians and manual workers	-0.07	0.17	-0.01	0.21	0.69	0.18	-0.10	0,24
Out of the labour force	-0.36	0.36	0.13	0.45	1.87	1.24	-0.14	0,51
Other & missing	-0.25	0.13	0.10	0.17	0.61*	0.14	-0.37	0,19
Mother's social class								
Professionals, administrators, large proprietors, managers					1.00			
Routine non-manual employees	0.12	0.16	-0.06	0.20	1.39	0.38	0.01	0,23
Small proprietors	0.47	0.31	-0.76*	0.39	1.65	0.97	0.09	0,44
Lower grade technicians and manual workers	0.11	0.23	-0.12	0.29	0.83	0.28	0.06	0,33
Out of the labour force	0.13	0.17	-0.23	0.21	1.23	0.33	-0.40	0,24
Other & missing	0.18	0.15	-0.22	0.19	1.09	0.27	-0.23	0,22
Parental attitude to materialism								
Non-materialistic parents								
Materialistic parents	0.74***	0.11						
Missing	0.11	0.30						

Table 2 (continued)

	Model 1		Model 2		Model 3		Model 4	
	β	SE	β	SE	e^{β}	SE	β	SE
Parental investment attitude								
Parents without a pro- investment attitude					1.00			
Parents with a pro-investment attitude					1.47**	0.21		
Missing					1.38	0.46		
Respondent's attendance in the financial education program								
Non-attendance					1.00			
Attendance	-0.01	0.10	-0.01	0.13	1.11	0.18	1.14***	0,15
Missing	0.18	0.20	-0.51*	0.24	0.89	0.23	0.05	0,24
Constant	*3.11****	*0.89*	*6.23****	*1.14*			*4.61****	*1,29*
N	*1,241*		*1,274*		*1,275*		*1,339*	
R2	*0.09*		*0.03*				*0.15*	
Log-likelihood					*-635.2*			

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

For materialism, model 1 clearly shows a statistically significant gender difference, with girls revealing less materialism than boys. To gain a better understanding of the magnitude of this difference, a predicted value of the index of materialism was calculated for boys and girls[14]. In a range of scores varying from zero to 10, where zero is the minimum and 10 the maximum level of materialism, boys achieve a score of 4.9, and girls a score of 4.5.

Moving to self-confidence in managing money, the findings from model 2 indicate lower self-confidence for girls than for boys. Considering some predicted values of the index measuring self-confidence, in a range of scores varying from zero to 10, where zero is the minimum and 10 the maximum level of self-confidence, boys achieve a score of 6.6, and girls a score of 6.3.

Passing to the investment attitude, a gender difference in line with the hypothesis put forward here was also found in this case: according to model 3, the odds that girls exhibit a pro-investment attitude are 31% lower than the corresponding odds for boys.

Finally, as regards financial literacy, model 4 shows no gender difference. By contrast with the previous findings, this result does not follow expectations that boys would show higher financial literacy than girls.

Discussion

Recently, the population's level of financial literacy has become an issue of increasing concern in emerging and developed countries. This has resulted in particular from shrinking public and private support systems, shifting demographic profiles including the ageing of the population and wide-ranging developments in the financial marketplace. Thus, financial literacy is now acknowledged as an important element of financial and economic stability and development (OECD, 2012). However, scant scholarly attention has been devoted to this topic in the Mediterranean area. The present study aims to add further information concerning the Italian case, focusing on gender differences in financial literacy and money attitudes among preadolescent students living in the Northern part of the country.

[14] Here and in the following predictions all other covariates are set to mean values.

The empirical analysis consists of several ordinary linear regression models and an ordinary binomial logistic regression model.

The findings presented here shed some new light on the subject matter of the study. First, boys assign more importance to money than girls as a means of achieving happiness. Second, boys reveal a higher pro-investment attitude than girls. Both results confirm our hypotheses (H2 and H3), and are in line with previous research based on different age groups. Since money is a more relevant matter for boys than for girls, it is reasonable to expect that they are also more disposed to invest in order to increase the amount of money they have. We would suggest that part of these findings may be due to the fact that, as indicated by Williams (2001), girls are more affected than boys by the "commodification anxiety", i.e., the fear of a world sullied by commodification of intimate relationships. Thus, girls declare that they attach less importance to money and to making it profitable.

Contrary to our hypothesis (H1), we do not find statistically significant differences in financial literacy between boys and girls. This may indicate that gender differences in financial literacy do not appear during preadolescence but in a later stage of the life course, possibly as a result of early work experience. Chen and Volpe (2002) underline that in the United States college students who have less work experience are also more likely to be less knowledgeable in financial matters. Since in Italy there is robust evidence that males more often have early work experience than females (ISTAT, 2002; Finocchietti, 2004; Dei, 2006; IRES, 2008), it can be supposed that the higher male financial literacy develops well after preadolescence, following the gender differences in early work experience. Unfortunately, we have no empirical evidence to support or reject this statement. So the question remains open, and could be investigated in future studies.

We also found that boys have higher self-confidence in managing money than girls, in line with our hypothesis (H4). These findings may reflect a status belief, in accordance with the Status Characteristics Theory (Berger, Fisek, Norman & Zelditch, 1977; Wagner & Berger, 1997; Ridgeway, 2001; Ridgeway *et al.*, 2009). According to this theory, gender inequalities are also due to status beliefs, i.e., "widely held cultural beliefs that link greater social significance and general competence, as well as specific positive and negative skills, with one category of a social distinction (e.g., men) compared to another (e.g., women)" (Ridgeway, 2001: 638). In this line of reasoning, girls could feel less self-confidence in managing money than boys since their evaluation is affected by a status belief[15]. This could be expected given the traditional vision of gender and family roles characterizing Italy, where men have greater control over money within couples (Facchini, 2008). With the adoption of a traditional gender-role model, girls contribute to enhancing this model through their interaction with boys, in a mechanism of reciprocal confirmation of stereotypes. In this process, an important role is also played by economic socialization agents like family and media, with parents who may be not fully aware of the different patterns they set for boys and girls, contributing to reinforce status beliefs about gender at a latent level. This topic goes beyond the focus of this study, but could be worthy of further investigations.

It is important to underline that the different importance that boys and girls attach to money during preadolescence could in turn affect their choices for higher education and investments during their adult working career. As regards educational choices, Italy has long shown gender segregation in technical/scientific fields and, though to a much lesser extent, in economic disciplines, where males are much more likely to enroll and graduate than females (Triventi, 2010). These fields are among those which provide a greater probability of earning higher average monthly salaries (ISTAT, 2010). Focusing on investments in the working career, studies carried out in Italy (Barone, 2004; Bucchi & Neresini, 2010) show that during adolescence and later, girls are more oriented towards care-giving occupations, while boys are more interested in occupations with high incomes and possibilities of upward mobility. In adult life, Italian women have lower incomes than men, educational level being equal, since they devote less time and energy to their working career and have less prestigious occupations (Simonazzi, 2006; Pruna, 2007).

The findings of this study should be considered as exploratory, both because of their regional dimension and as a result of some limits in the data collection process. A first step in future research

[15] Unfortunately, also in this case we are not able to support or reject this statement at the empirical level.

should be to outline a detailed theoretical framework providing predictions on gender differences in financial literacy and money attitudes. Subsequently, an empirical test at the national level should be carried out. This would require a national dataset providing detailed information on these matters, which is not yet available. If an adequate sample size were available, it could also be of interest to analyse variations across the different areas of the country, which provide different institutional and cultural contexts in terms of family and gender roles and patterns of economic socialization. Finally, the role of parental education should also be considered, since it could affect the amount of gender differences in financial literacy and money attitudes.

From the point of view of policy making, the evidence from this study is of some relevance because respondents of the dataset used here are at the stage of the life course of early experience in managing money. These findings may draw policy-makers' attention. It seems clear that the level of financial literacy is similar for boys and girls, but not their money attitudes. Thus, it is important to intervene in order to prevent these gender differences from turning into inequalities in adult life, through specific financial education programs which help girls develop higher self-confidence in managing money (Hira & Mugenda, 2007). These programs also contribute significantly to improving perceived financial self-efficacy (Sanders, Weaver & Schnabel, 2007). Moreover, an interesting result of some of these programs carried out in the United States is that females respond to them by increasing their confidence in attaining retirement goals more than males (Clark *et al.*, 2004).

Several research and communications programs[16] are now under way in the Mediterranean area and in other countries to shed light on the factors that can enable women to empower themselves and change the current gendered power relations, with the aim of reducing gender inequalities. As money is a key resource of women's empowerment, we recommend that that educational policies more openly address the issue of financial literacy and money attitudes in school curricula, in order to ensure that both boys and girls are better equipped to face social challenges in their later adult life.

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[16] See, e.g., the Pathways of Women's Empowerment (www.pathwaysofempowerment.org/) or the Microcredit Summit (http://www.microcreditsummit.org).

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Appendix

Table A.1. Descriptives Statistics

	Mean	St. Dev.	(N)	Mean	St. Dev.	(N)	Mean	St. Dev.	(N)	Mean	St. Dev.	(N)
Index of Materialism	4.7	1.6	1,241									
Index of Self-Confidence in Managing Money				6.4	2.0	1,274						
Index of financial literacy										4.4	2.5	1,339
Age	13.6	0.7	1,241	13.6	0.7	1,274	13.6	0.7	1,275	13.6	0.7	1,339
No. of brothers and sisters	1.3	1.1	1,241	1.3	1.1	1,274	1.3	1.1	1,275	1.3	1.1	1,339

Table A.2. Descriptives Statistics

	Model 1		**Model 2**		**Model 3**		**Model 4**	
	Abs. Val.	%	Abs. Val.	%	Abs. Val.	%	Abs. Val.	%
Investment attitude								
Absence of a pro-investment attitude					282	22.1		
Presence of a pro-investment attitude					993	77.9		
Sex of the respondent								
Male	616	49.6	633	49.7	638	50.0	669	50.0
Female	625	50.4	641	50.3	637	50.0	670	50.0
Type of school								
Private	89	7.2	91	7.1	96	7.5	100	7.5
Public	1,149	92.6	1,180	92.6	1,176	92.2	1,236	92.3
Missing	3	0.2	3	0.2	3	0.2	3	0.2
Nationality								
Italian	1,035	83.4	1,065	83.6	1,065	83.5	1,115	83.3
Non Italian	142	11.4	144	11.3	145	11.4	156	11.7
Missing	64	5.2	65	5.1	65	5.1	68	5.1
Father's education								
University degree	264	21.3	269	21.1	269	21.1	280	20.9
Upper secondary-school diploma	300	24.2	309	24.3	315	24.7	321	24.0
Lower secondary-school / primary school certificate	297	23.9	303	23.8	302	23.7	316	23.6
Missing	380	30.6	393	30.9	389	30.5	422	31.5
Mother's education								
University degree	270	21.8	277	21.7	278	21.8	290	21.7
Upper secondary-school diploma	358	28.9	367	28.8	370	29.0	382	28.5
Lower secondary-school / primary school certificate	268	21.6	273	21.4	276	21.7	287	21.4
Missing	345	27.8	357	28.0	351	27.5	380	28.4

Table A.2 (continued)

	Model 1		Model 2		Model 3		Model 4	
	Abs. Val.	%	Abs. Val.	%	Abs. Val.	%	Abs. Val.	%
Father's social class								
Professionals, administrators, large proprietors, managers	250	20.2	254	19.9	256	20.1	267	19.9
Routine non-manual employees	140	11.3	139	10.9	142	11.1	143	10.7
Small proprietors	82	6.6	83	6.5	80	6.3	86	6.4
Lower grade technicians and manual workers	204	16.4	213	16.7	206	16.2	218	16.3
Out of the labour force	22	1.8	23	1.8	23	1.8	24	1.8
Other & missing	543	43.8	562	44.1	568	44.6	601	44.9
Mother's social class								
Professionals, administrators, large proprietors, managers	192	15.5	196	15.4	200	15.7	206	15.4
Routine non-manual employees	241	19.4	249	19.5	246	19.3	259	19.3
Small proprietors	33	2.7	34	2.7	32	2.5	35	2.6
Lower grade technicians and manual workers	79	6.4	83	6.5	82	6.4	86	6.4
Out of the labour force	214	17.2	217	17.0	221	17.3	229	17.1
Other & missing	482	38.8	495	38.9	494	38.8	524	39.1
Parental attitude to materialism								
Non-materialistic parents	958	77.2						
Materialistic parents	254	20.5						
Missing	29	2.3						
Parental investment attitude								
Parents without a pro-investment attitude					514	40.3		
Parents with a pro-investment attitude					701	55.0		
Missing					60	4.7		
Respondent's attendance in the financial education program								
Non-attendance	377	30,4	386	30,3	381	29.9	396	29.6
Attendance	782	63,0	795	62,4	780	61.2	812	60.6
Missing	82	6,6	93	7,3	114	8.9	131	9.8
Total	1,241	100.0	1,274	100.0	1,275	100.0	1,339	100.0