Financial Literacy of University Students

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Abstract: The current financial crisis highlights real problems profoundly related to the level of financial knowledge. Some studies suggest that many individuals, including small business owners, do not have adequate financial skills to be able to handle their finances. The term "financial literacy" summarizes the set of knowledge, skills and attitudes necessary to enable recognition and understanding of the foundations of personal finance. Informed and literate individuals are able to make responsible decisions. Our paper presents the preliminary results obtained with the Portuguese StudentFinance2012 survey. A total of 612 university students from seven different institutions agreed to participate and complete the survey. The sample has an average age of 23.67 years and is gender balanced. Students were classified in three course areas such as engineering, business and management, or design and tourism. Most respondents frequent a degree course, being the university mostly a public institution. A majority of our students has solely funded by their parents or family. By analyzing the total amount of financial products, we obtained an average of 2.57 financial products by student. To analyze financial literacy, our study developed measures such students' financial involvement, financial knowledge and parents influence and explore it as a function to issues such as age, gender, course area, course type, type of university and parental funding. The results suggest that the financial involvement of students evolves over time (as age increases, the financial involvement also increases) and confirm significant dependence with demographic variables such as gender, age, or course, among others. For the financial knowledge the results are encouraging, with students to show interesting levels of knowledge. We also identified relations of dependence with age, gender and course, among many others. Parental influence was analyzed by the level of agreement with statements related to the perceptions of the influence and behavior of parents about money, budgeting, saving and paying bills. The main results indicate that parents are a positive influence and that students are experiencing a financial behaviour that integrates the family.

Keywords: Financial literacy, financial involvement, financial knowledge, parents influence, education, survey, university students

1. Introduction

It is recognized the importance of the education in financial literacy. In Portugal there have been some awareness programs in the early years at school, and in university there are many courses that contain basic financial disciplines in the curriculum. But these students are financially able to make correct decisions? Our paper aims to present the preliminary results of a questionnaire designed to determine the financial literacy of Portuguese university students. In addition to analyzing their level of knowledge and their behavioral characteristics, also intends to evaluate the relationship of financial literacy with the characteristics of students as well as the impact of literacy in their attitudes and decisions.

This paper is organized as follows. In Section 2, we make a brief discussion of the financial literacy implications. In Section 3, we present the survey StudentFinance2012 applied to Portuguese university students and explore the results obtained. Finally, section 4 summarizes the most relevant conclusions.

2. Financial literacy

The current global crisis situation highlights real problems and peculiar situations concerning people's lives, which noticeably affect their financial decisions and behavior. Due to the loss of income, savings reduction, labour instability or even to excessive habits of consumption affected markedly the predisposition and necessity to consume financial products, like credit cards and personal loans, without the corresponding financial knowledge and a clear understanding of the consequences associated with the adoption of those products.

There is a growing recognition, particularly at international level, that the consumption decisions in retail banking markets and the individual financial effects, have a major impact on macroeconomic and financial stability. In addition, citizens better informed and with higher levels of financial education turn out to help motoring markets and contribute to the stability of the financial system, choosing the products that best fit their risk profile (Banco de Portugal 2010; Atkinson and Messy 2010). In addition, the environment where consumers are asked to make financial decisions is becoming increasingly complex. This situation exacerbates the difficulty to understand and to consciously decide in an assertive way. Some of the factors referred as potentially barriers to successful financial decisions are frequently pointed the following: choice overload, complexity and uncertainty, time effects and pressures, over (and under) confidence, self-control and amount of information disclosed and how it is presented (ASIC 2011).

Despite the political impositions in the regulation of proper disclosure of financial products and services available, some studies suggest that many individuals, including small business owners (Brown, Saunders and Beresford 2006), do not have adequate financial skills to be able to handle their own finances. The lack of basic skills and financial knowledge begins to attract the interest of researchers. Some studies focus on its effect on the design of retirement plans (Dvorak and Hanley 2010; van Rooij, Lusardi and Alessie 2011), non-payment of consumer credit, savings and housing wealth (Lusardi and Mitchell 2007; Gathergood 2012), educational programs in universities (Tomášková, Mohelská and Nemcová 2011; Wolfe-Hayes 2010; DeLaune, Rakow and Rakow 2010), and parenthood influential role in financial behaviors and attitudes (Norvilitis and MacLean 2010).

But what is intended with the concept of financial literacy? There are plenty definitions related to the concept of financial literacy. Nevertheless, the term "financial literacy" summarizes the set of knowledge, skills and attitudes necessary to enable recognition and understanding of the foundations of personal finance, in order to manage financial resources effectively for a lifetime of financial well-being (Huston 2010). Financial literacy can be divided into three components: monetary literacy, literacy price and budget literacy. Informed and literate individuals are able to make responsible decisions.

The relevance of studying the financial knowledge, attitudes and behaviors presented by students is clearly evident and of remarkably importance. One example can be linked with entrepreneurship. If students can be the next generation of entrepreneurs, therefore, it can be argued that promoting financial literacy could impact the level of entrepreneurship, because it can contribute to stimulating and/or motivating entrepreneurial behavior. By improving the level of planning and understanding of financial responsibilities, the "financially literate" entrepreneur improves their investment decisions and removes a potential barrier to their success.

3. Data collection and analysis

This article seeks to find an answer to the question: "What financial literacy have university students?" In order to accomplish that, we defined a survey named *StudentFinance2012* and implement it into a sample of Portuguese university students. Participants were approached in their classes and asked to participate in the research. A total of 612 university students from seven different institutions agreed to participate and complete the survey, and in the editing phase of the data, no respondents are eliminated by very incomplete answers, which resulted in the validation of the 612 surveys received.

Respondents have an average age of 23.67 years, with a standard deviation of 6.640 (minimum and maximum of 17 and 52, respectively). Subsequently, the ages were grouped into four classes according to the quartiles. The Table 1 summarizes the sample characteristics.

		N	%
Age	Less than 20 years	136	22,48%
	Of 20 to 21 years	189	31,24%
	Of 22 to 25 years	146	24,13%
	Over 25 years	134	22,15%
Gender	Male	310	51,07%
	Female	297	48,93%
Course Area	Engineering	327	53,61%
	Management and business	231	37,87%
	Design and tourism	52	8,52%
Course Type	Degree course	540	88,52%
	Master's degree course	70	11,48%
University Type	Public	513	83,82%
	Private	99	16,18%

Table 1: Sample profile

In terms of gender, the sample is balanced, with 51.07% males and 48.93% female. For the course area, the majority of students studies engineering (53.61%) or business and management (37.87%). Most respondents frequent a degree course (88.52%), being the university mostly a public institution (83.82%).

In addition to the questions of characterization, one of the first questions posed to students was related to funding sources. Each respondent was asked to appoint one or more of the three financing options presented: parents or relatives, work on part time or full time work. From Table 2 it is interesting to note that:

- 64.05% of students claim to be solely funded by parents,
- 17.32% has the exclusive source of funding by full time work,
- 8.01% have work part-time as an exclusive source of funding,
- 7.52% of respondents have two funding sources: funding parents and part-time work.

Parents	Part-time	Full time	Count	%
Yes	Yes	Yes	0	0,00%
		No	46	7,52%
	No	Yes	3	0,49%
		No	392	64,05%
No	Yes	Yes	6	0,98%
		No	49	8,01%
	No	Yes	106	17,32%
		No	10	1,63%

Table 2: Students funding sources

Based on these answers we created a new variable that measures “fully financed by parents” (parental funding) by coding the option “*parents or family*” answers as 1 - yes, fully financed by parents; otherwise 0 - no.

We also asked respondents about the financial products owned by them (from a list of eleven financial products). The analysis of Figure 1 identifies the bank account as the main financial product mentioned by 530 respondents, followed by debit card (363), term deposits (248) and credit card (177). The products less cited were marked bonds (8), personal credit (29) and shares (30).

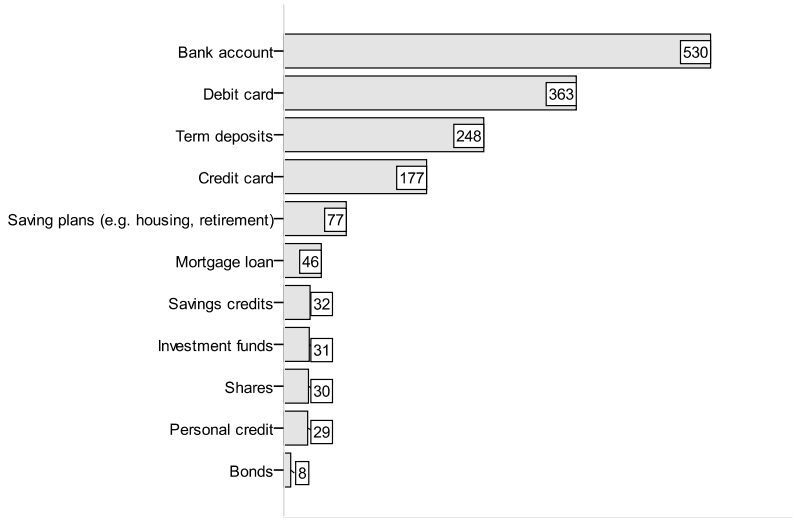

Figure 1: Students' financial products

By analyzing the total amount of financial products indicated by each of the respondents, we obtained an average of 2.57 financial products to a maximum of 8 financial products (0.65% of respondents), and a minimum of zero products (1.63% of respondents). We found also that the majority of respondents has between 1 and 3 financial products: 29.90% hold two financial products, 23.86% three products and 23.69% one product.

It was decided to create a new variable called "financial involvement" based on the number of financial products owned: 1 - "low involvement - one product or less", 2 - "medium involvement - two or three products" and 3 - "high involvement - four or more products". The financial involvement was analyzed as a function of response to issues of demographic characterization of the respondent such as age, gender, course area, course type, type of university and parental funding. Based on chi-square tests, it is concluded that:

- The financial involvement depends on the respondents age (class) ($\chi2$ (6) = 160.862, p <0.01)
- The financial involvement depends on respondents gender ($\chi2$ (2) = 8.442, p <0.05)
- The financial involvement depends on the course area ($\chi2$ (4) = 15.503, p <0.01)
- The financial involvement depends on the type of course (undergraduate or master degree course) ($\chi2$ (2) = 11.396, p <0.01)
- The financial involvement depends on the type of university ($\chi2$ (2) = 22.215, p <0.01)
- Financial involvement depends on the fully financed by parents ($\chi2$ (2) = 132.021, p <0.01)

The Figure 2 and Figure 3 illustrate the distribution of the financial involvement as a function of age and the variable "fully financed by parents".

When analyzing the age and financial involvement, we verified that they are directly proportional: as age increases, the financial involvement also increases (see Figure 2). For example, respondents younger than 20 years have mostly a medium financial involvement (60.29%). In turn, those over 25 years have a significant financial involvement which is characterized by 56.72% of high financial involvement.

Interestingly at Figure 3, students who claim that are not funded by their parents have a financial involvement high or medium (total of 90.00%). In turn, respondents which are funded by parents have a median (58.67%) or low (33.93%) financial involvement.

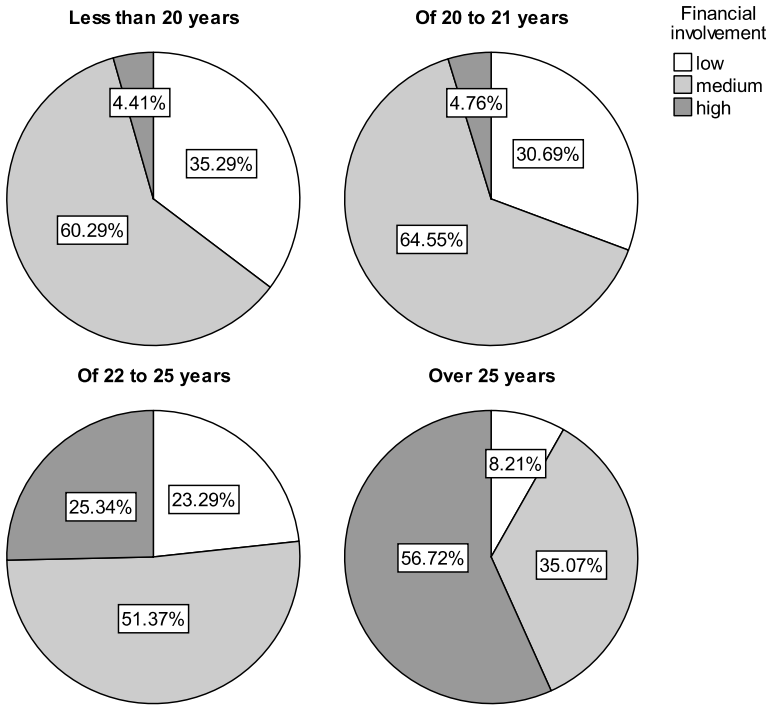

Figure 2: Students' financial involvement and age

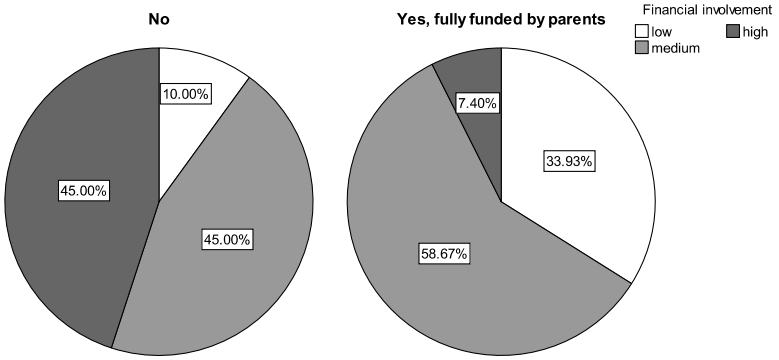

Figure 3: Students' financial involvement and parental funding

To evaluate the financial knowledge of the respondents, the survey presented eight knowledge questions adapted from works by van Rooij, Lusardi and Alessi (2011), DeLaune, Rakow and Rakow (2011) and Gathergood (2012). Each question had four response options, of which a correct option, two wrong options and an "I do not know option" (the exception was the share question with five options). The Figure 4 presents the responses obtain on each question:

- Issues with the highest percentage of correct responses were the AER (annual effective rate; question 4) with 86.93%, followed by interest rate (question 1) with 81.05% and the IRR (internal rate of return, statement 6) with 77.78%
- The questions with the lowest rate of correct answers are related to credit card debit (question 8) with just 29.41% followed by inflation (question 2) with 55.07%. Both questions can be considered as advanced knowledge questions, which may explain results
- The questions with the highest percentage of "Do not know" responses are those relating to credit card debit (question 8) with 23,04% and the inflation (question 2) with 20.92%

By analyzing the total number of correct responses, there is an average of 5.48 right answers, with a maximum of 8 (9.48%) and a minimum of 0 (1.14% respondents did not respond to any question). Subsequently, we created a new variable "financial knowledge" based on the total number of right answers: 1 - "up to 3 correct answers", 2 - "4-6 right answers" and 3 - "7 or more correct answers". When analyzing possible relations of dependence, we have identified the following:

- The financial knowledge depends on the age (class) ($\chi 2$ (6) = 12.225, p <0.10)
- The financial knowledge depends on gender ($\chi 2$ (2) = 20.079, p <0.01)
- The financial knowledge depends on the course ($\chi 2$ (4) = 55.435, p <0.01)
- The financial knowledge depends on the type of course (undergraduate or master degree course) ($\chi 2$ (2) = 9.801, p <0.01)
- The financial knowledge depends on the type of university ($\chi 2$ (2) = 5.993, p <0.10)

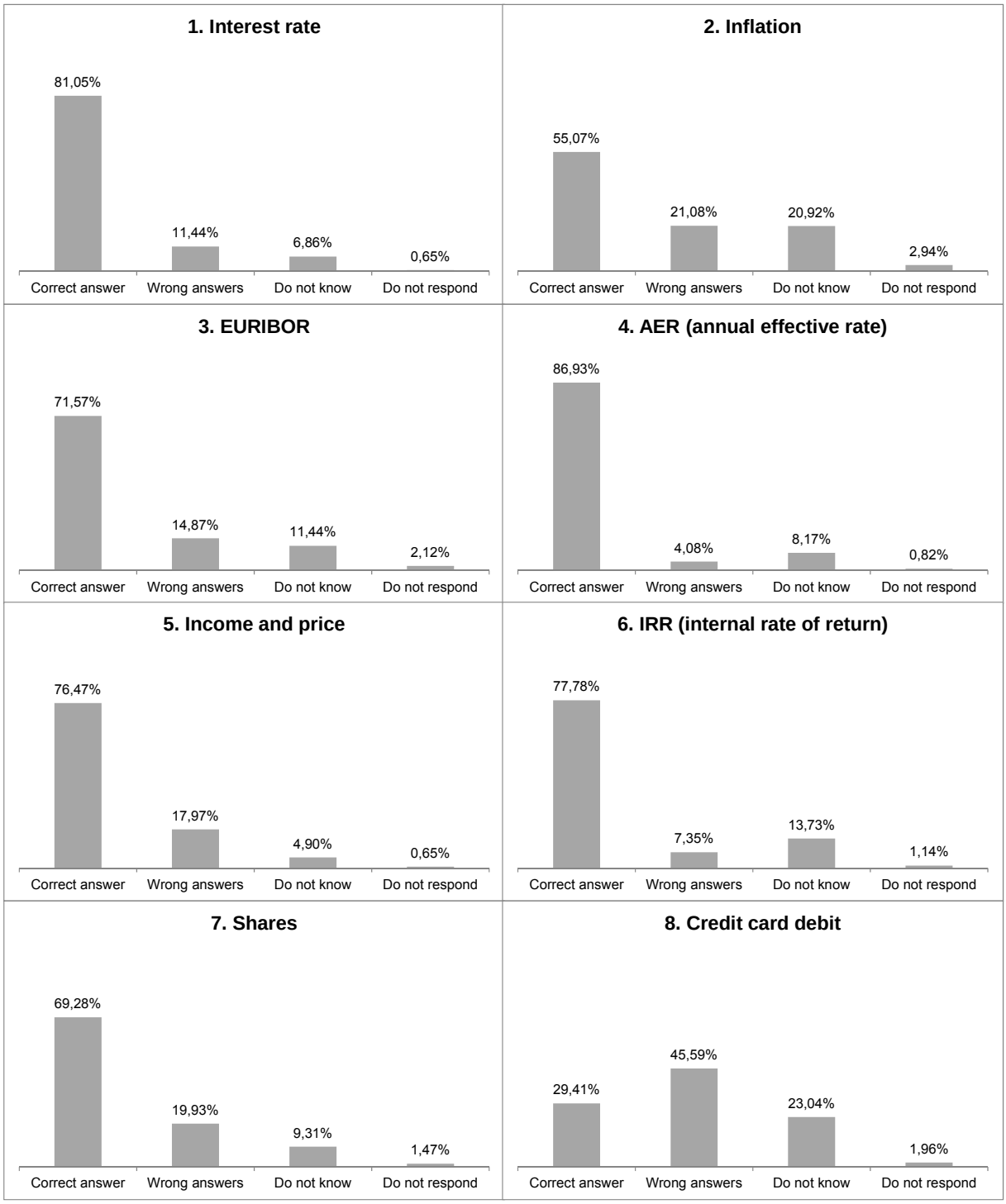

Figure 4: Students' financial knowledge

Figure 5 illustrates the distribution of the financial knowledge considering the course areas. Courses with higher knowledge are courses designated by management and business (total of 94.38% for both high and medium financial knowledge). In turn, the courses of "design and tourism" are the less

knowledgeable with 40.38% of respondents reporting low knowledge (*i.e.*, less than 4 correct answers).

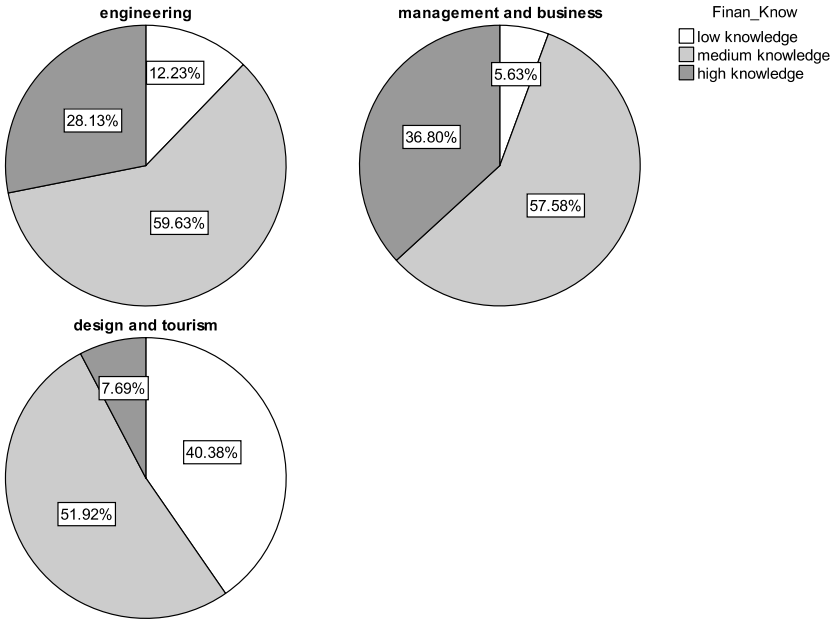

Figure 5: Students' financial knowledge and course area

In our survey, we also considered the influence of parents in education. Based on work by Norvilitis and MacLean (2010), we adapted eight statements concerning parent's contribution in education, and asked respondents about their degree of agreement with a Likert scale of 5 levels (from 1 - "I totally desagree" to 5 - "I totally agree "). The Figure 6 illustrates the results obtained in each claim:

- A significant majority of respondents admitted that their parents taught them how to handle with money (claim 1 with a total of 90.03% of positive responses, *i.e.*, the sum of responses 4 – "I agree "and 5 -" I totally agree ")
- For budgets (claim 2) a majority of respondents recognized the influence of parents (66.50% of total positive responses). Interesting the 16.99% of respondents that "neither agree, nor disagree" with statement
- The management of money (claim 3) also appears associated to education by parents, with most respondents agreeing (total 78.10% of positive responses)
- In the statement about the parents helped save (claim 4) there is clearly a majority in agreement, particularly the 50.65% of respondents that totally agree with the statement (total positive responses is 83.82%)
- Interestingly, a significant percentage of respondents (80.23% of positive responses) recognize their parents as being often worried about money (claim 5)
- The claim concerning the parents in constant debt (claim 6) presents a significant majority that disagrees (total 78.92% of negative responses or discordant, *i.e.*, a sum of responses – 1-"I totally disagree" and 2 - "I disagree")
- With regard to the respondents' exclusion by their parents on topics of money (claim 7) a significant majority of respondents strongly disagreed (63.73%) or disagreed (17.81%).
- Finally, a majority of respondents disagree with the statement of rarely seeing their parents pay their bills (claim 8 with a total negative response of 84.48%)

The statements are divided on the analysis of the perception of the influence and behavior of parents about money, budgeting, saving and paying bills. As is apparent from the analysis of the first four statements, parental influence is perceived as important and positive. In turn, the results for the four behavior statements recognize the importance of money in the parents' lives and the sharing with their children about money and paying bills.

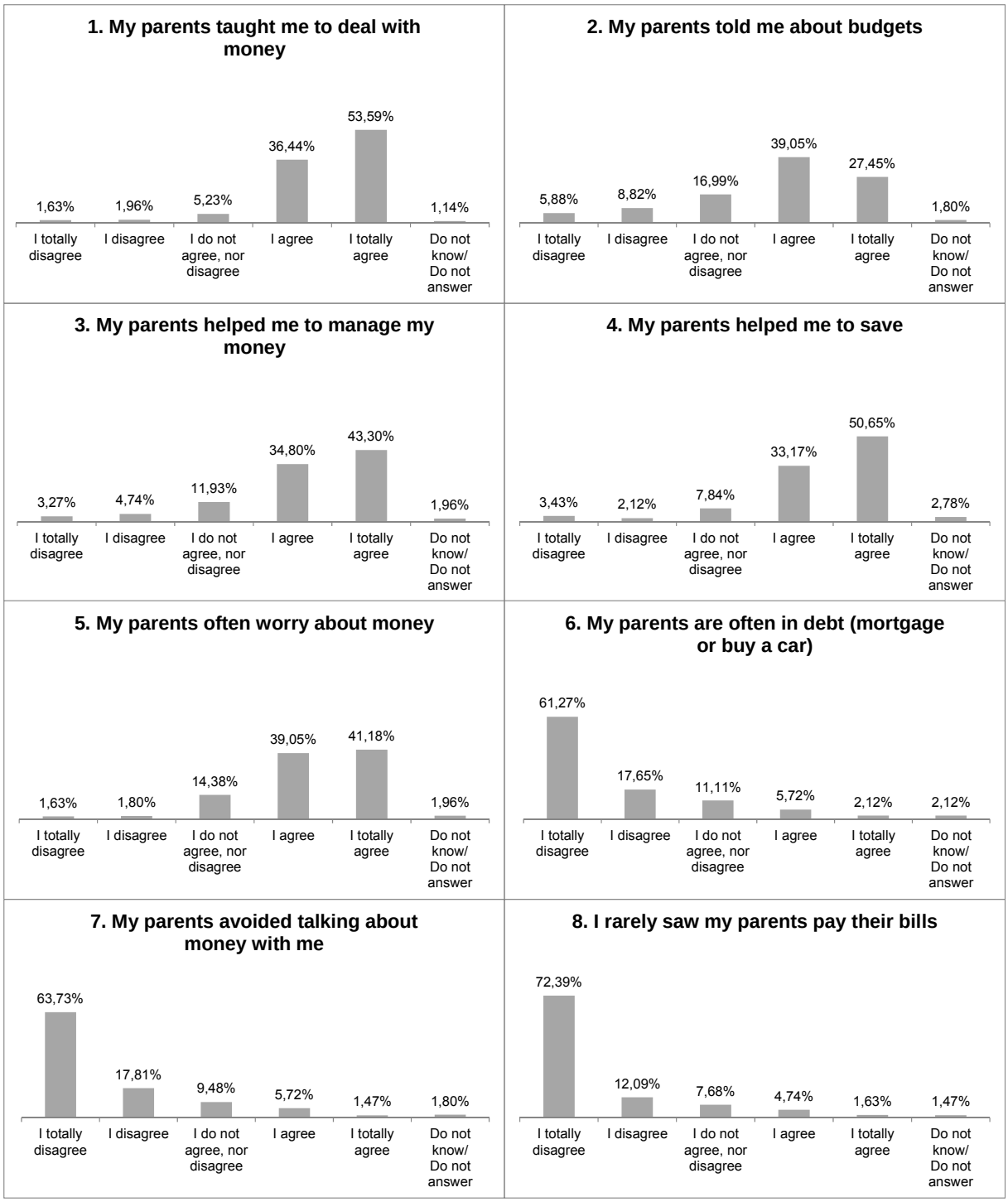

Figure 6: Students' parental education

4. Conclusions

This article presents the preliminary results obtained from the survey StudentFinance2012, which was applied to Portuguese university students. Our study shows that the majority of students surveyed are solely funded by parents and only 17.32% have as only primary source of funding the work in full-time. To explore the impact of being funded by parents, we create a new variable (1- yes, fully funded by parents, 0 - otherwise).

In relation to financial products, the students responded to having between 1 to 3 financial products. The most cited financial products were bank account, debit card and term deposits. To measure students financial involvement, we created a new variable based on the number of financial products that each of the respondents reported. This variable allows us to classify students according to their

financial involvement (low, medium, high) and to explore dependency relationships with other variables, such as age, gender, course area, course type, type of university and parents' funding. The results confirm the existence of dependencies, for example, with the age and the gender of the respondent.

We also measured respondents' financial knowledge with eight questions. Our sample scored an average of 5.48 correct responses which was an interesting and encouraging result. By analyzing the total number of correct responses, we decided to classify students' financial knowledge (low, medium, high). When exploring dependency relationships with other variables, the results confirm the existence of dependencies, for example, with financial knowledge and course area of the respondent.

Our work also explores the parental influence on students' financial education. The analysis of the agreement level concerning eight statements indicates how students perceived the influence and the behaviour of their parents on issues such money, budget and saving. The education received by parents has perceived as a positive influence and parents' financial behavior reveals in general, that money is important and is an issue shared with the family.

The StudentFinance2012 results presented at this paper are promising and provide a comprehensive analysis of the financial literacy of university students. Nevertheless, and since they are preliminary results, we intend a further exploration of answers to achieve new perspectives on the involvement and financial knowledge of university students.

Acknowledgements

The authors wish to acknowledge the support of CGIT and Algoritmi R&D Centre, two research centers at the University of Minho. This work is supported by FEDER Funds through the Operational Programme Competitiveness Factors – COMPETE, and National Funds through FCT - Foundation for Science and Technology under the Projects FCOMP-01-0124-FEDER-022674 and Pest-OE/EME/UI0252/2012.

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