Credit Compliance: Does Economic Literacy Matter?

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ABSTRACT

In this paper we seek to understand the relationship between economic literacy and individuals' over-indebtedness. It may be argued that the lack of basic knowledge about the functioning of markets may have detrimental consequences, in particular reflected in higher exposure to credit. By raising the understanding of the market framework, individuals may better evaluate financial decisions and their consequences. This paper contributes to this line of research, i.e. it provides empirical evidence on the importance of economic literacy for the increase of individuals' capacity to make right decisions about credits, exploring the case of Portugal, a country about which there is little empirical evidence on these matters. The study has been conducted under the research project "Economicando" (PTDC/EGE-ECO/100923/2008), financed by FEDER funds through the Programa Operacional Fatores de Competitividade - COMPETE and by national funds through the FCT - Fundação para a Ciência e Tecnologia.

INTRODUCTION

According to Bank of Portugal the degree of failure in the Portuguese economy continues to increase to record levels, with bad loans reaching the highest levels in 15 years. Moreover, owing to the large debt ratio and job instability, personal bankruptcies reach a 79% increase in 2010. Two in five bankruptcies in Portugal are no longer in business, but individuals. These facts are replicated in many OECD countries.

The rapid growth in household debt and its link to the current financial crisis has emphasized consumer weaknesses, and raises the question of whether individuals' lack of economic and financial knowledge led them to take out mortgages and credit they could not afford. Indeed, the acknowledged widespread lack of financial and economic literacy casts serious doubts on the ability of individuals to make financial decisions. Some studies show that an average household is not able to control household finances in the right way (Atkinson et al. 2006; OECD 2005; Van Raaij, Antonides, and de Groot, 2008).

In recent years, a growing body of literature has shown that financial knowledge affects a wide range of financial behaviors, including not only stock market participation, portfolio diversification, participation and asset allocation, but also indebtedness and responsible financial behavior in general. Indeed, research in the area has typically focused on individuals' knowledge of economics and finance and its effects on financial decisions, usually related to savings, retirement planning, or portfolio choice (Lusardi and Tufano, 2009). There is some indication that economic and financial literacy may affect debt as well. We expect people with higher levels of economic literacy lato sensu, to have better capacity to avoid excess indebtedness. This knowledge influences ones' ability to make simple decisions, for example regarding debt contracts and other decisions in the context of everyday financial choices. However, little research has been done on the relationship between economic and financial literacy and indebtedness.

Economic literacy comprises a set of knowledge and competences allowing agents to improve their personnel decisions in daily activities, this is a wide concept comprising economic and financial concepts. In sum, economic knowledge will apply to daily decisions and financial to money management; it comprises the ability to understand, communicate, manage, decide and forecast the financial issues. The foundation of financial decisions is general economic knowledge. According to Lusardi and Mitchell (2007) financial literacy will give the agent comprehension about economic concepts which will be used to plan, evaluate and accurately decide about financial aspects. In contrast, insufficient financial knowledge leads to low savings, mortgage defaults and financial mistakes, extra fees or excessive interest rates on credit card debt (Banks and Oldfield, 2007; Agarwal et al., 2009; Gerardi, Goette, and Meier, 2010; Agarwal and Mazumder, 2011).

Moore (2003) reported that respondents with lower levels of financial literacy were more likely to have costly mortgages. The results from Lusardi and Tufano (2009) reinforce this concept as they found a strong negative relation between literacy about debt-related issues and debt loads. Generally, individuals with lower levels of debt literacy tended to conduct high-cost transactions (incurring fees and high borrowing rates); the less financially literate were either unable to judge their debt position or reported excessive debt loads. Along this line, Perry and Morris (2005) found individuals who were more knowledgeable about financial matters generally more likely to engage in financially responsible behavior, such as controlling their spending, budgeting and planning for the future.

Other works explored the relationship between financial knowledge and money management (Hilgert, Hogarth, and Beverly, 2003), savings (Lusardi, 2004), retirement savings (Lusardi and Mitchell, 2009, 2011a; Bucher-Koenen, 2009), stock market participation (Christelis, Jappelli, and Padula, 2010; Yoong, 2011; van Rooij, Lusardi, and Alessie, 2011), financial results (Smith, McArdle and Willis, 2010; Banks, 2010) and household wealth management (Lusardi and Mitchell, 2007; Bateman et al., 2011; van Rooij, Lusardi, and Alessie, 2012; etc.).

In this paper we seek to understand the relationship between economic literacy and financial decision-making as well as how they may combine to cause over-indebtedness. The study is based upon data collected through a new survey focused specifically on economic literacy, including a component of financial literacy.

Our main results show that most individuals have insufficient level of economic and financial literacy. Women and those respondents with low educational attainment demonstrated the lowest levels of economic and/or financial knowledge. Most fundamentally, less economically and financially literate respondents are more likely to be over-indebted.

This paper contributes to the existing literature in three ways. First, our research allows us to measure economic literacy, including financial matters, as well as individuals' perception of over-indebtedness. Rather than relying on existing debt indicators, we ask individuals to judge their own debt levels (evaluate their capacity to pay their debts). Finally, we assess how economic literacy is linked to over- indebtedness. Our sample comprises Portuguese citizens with respect to their economic literacy, and their judgments about the extent of their indebtedness.

SURVEY

We implemented an extensive survey, fielded in April 2012, collecting information on individuals' economic and financial knowledge, on demographic characteristics (e.g., age, gender, nationality, education and employment) and information on household income category. We also gathered info on attitudes towards economics as well as data on individuals' judgments about their indebtedness.

The assessment of economic and financial knowledge comprises 29 multiple-choice questions, being that 22 measure economic knowledge and 7 focuses upon financial aspects specifically. We followed an adapted version of the Economic Literacy Test developed by the National Council on Economic Education (NCEE) to evaluate economic literacy. In what concerns financial literacy we followed the Bank of Portugal survey.

According to the literature, financial literacy is a branch of economic literacy; the first is essentially money management, and the second is the ability to accurately understand and decide about daily aspects. Our survey encompasses questions regarding economic and financial knowledge. The ability of the respondents was tested by a set of empirical questions requiring underlying concepts and the correct answers were counted, ranking respondents. There are some national surveys which measure financial knowledge; nevertheless, few specifically endeavor on economics. Thus, two sets of questions were designed to assess economic and financial literacy. The first set of questions relates to economic literacy. These questions comprise the following economic topics: Consumer Economy, Economy and Production, Financial Economy, The Economic Role of Government and International Economy. The second set of questions was designed to measure financial literacy. The questions assess knowledge related to the concept of Euribor and Spread, the degree of risk of a term deposit, the relationship between inflation rate and interest rate, liability to pay a joint loan, identification of the balance of demand deposit as well as identification of changes in the balance of the demand deposit after an operation.

SAMPLE

The study was applied to a sample of Portuguese adults with children at their charge, regarding their economic knowledge and their judgments about the extent of their indebtedness. The questionnaires were collected among the parents of children attending five different primary schools in Portugal. A total of 618 questionnaires, out of the 1061 questionnaires distributed, were returned, which means a response rate of 58%. Table 1 shows that most respondents are women (71%) and have Portuguese nationality (93%). The average age of individuals is about 41. 30% of respondents reported at least some kind of economic/financial education and 59% of them have higher education. About 34% of survey respondents replied to be over-indebted.

MODEL

In order to explore the influence of economic literacy upon the capacity to pay individual's debts we use a probit model. The dependent variable is binary, equaling one if the individual is able to fulfill all his debts (he is not over-indebted), and 0 if he reports difficulties in meeting his debts.

The main explanatory variable in the model is the level of economic and/or financial literacy, measured by the score in the questionnaire (percentage of correct answers).

In addition, we add demographic variables such as: GENDER (dummy: 1 for male and 0 for female), AGE and NAC (nationality). Value 1 is assigned for Portuguese and 0 otherwise. The following three dummy variables: EDC1, EDC2 and EDC3 present education level.

TABLE 1

Summary Statistics (Mean) and description of the variables

Variables		Description	Sample
Dependent variable			
Able to meet credit		1= Meet credits; 0= over-indebted	0.66
Explanatory variables			
Economic and/or Financial literacy			
EF_TOTAL_PERC		Percentage of correct answers (X*100/29)	75.5
E_TOTAL_PERC		Percentage of correct answers in Economics (X_ECO*100/22)	78.3
F_TOTAL_PERC		Percentage of correct answers in Finance (X_FIN*100/7)	66.6
Demographic characteristics			
AGE		Discrete variable for individual's age	41
AGE2		Age squared variable	1699
EDC1	Education level	From 0 to 9 years schooling: 1 yes; 0 no	0.16
EDC2		12 years schooling: 1 yes; 0 no	0.25
EDC3		Higher education: 1 yes; 0 no	0.59
GENDER	Gender	1= male; 0 = female	0.29
NAC	Nationality	1= Portuguese; 0 = otherwise	0.93
Socioeconomic characteristics			
INCOME		1 to 5, from lower levels of income to higher levels of income	2.23
ECON		Attended some kind of training in Economics/ Finance: 1 yes; 0 no	0.30
CNP		1 to 9: 1 corresponds to the activities corresponding to the highest level of qualifications and 9 to the lowest	3.33
Interest and motivation towards economic matters			
FOLLOW		Frequently follows economic matters in the media: 1 yes; 0 no	0.63
IMPORT		Degree of importance of economic knowledge to several situations: 0 to 29	21.8
Attitudes regarding saving			
SAVE		Saves: 1 yes; 0 no.	0.53
AQGOODS	Saves with medium objectives	Saves to acquire durable goods: 1 yes; 0 no	0.51
RETIREMENT	Saves with long term objectives	Saves for retirement: 1 yes; 0 no	0.37

Regarding socioeconomic characteristics we include monthly household income (INCOME), qualification level (CNP), and economic education (ECON). INCOME was measured using a Likert scale from 1 to 5. The ranking of qualifications was defined in accordance with the National Classification of Professional Activities, where 1 corresponds to the highest level of qualification and 9 to the lowest. As for previous training in Economics/ Finance, it is presented by dummy variable being 1 for yes and 0 for no.

A vector of variables was included to grasp individuals' attitudes, interest towards economic matters, and motivations. FOLLOW is a dummy with value 1 if the respondent follows various media regarding economic affairs and 0 otherwise. We measured the importance that respondents attribute to the possession of knowledge in economics for various situations. For each situation we considered a Likert scale of 1 (not important) to 4 (very important). The importance attributed to economics is measured by a weight factor (from 1 to 29, in an increasing scale).

AQGOODS and RETIREMENT are two variables that indicate the motivation to save. AQGOODS is a dummy variable that takes value 1 if the respondent saves essentially for purchase of durable goods and 0 otherwise, and RETIREMENT takes value 1 when respondent save for retirement and 0 otherwise. SAVE is and a dummy variable that takes value 1 if the respondent is able to save a percentage of his disposable income and 0 otherwise. Table 1 presents more detailed information of the variables.

DESCRIPTIVE FINDINGS

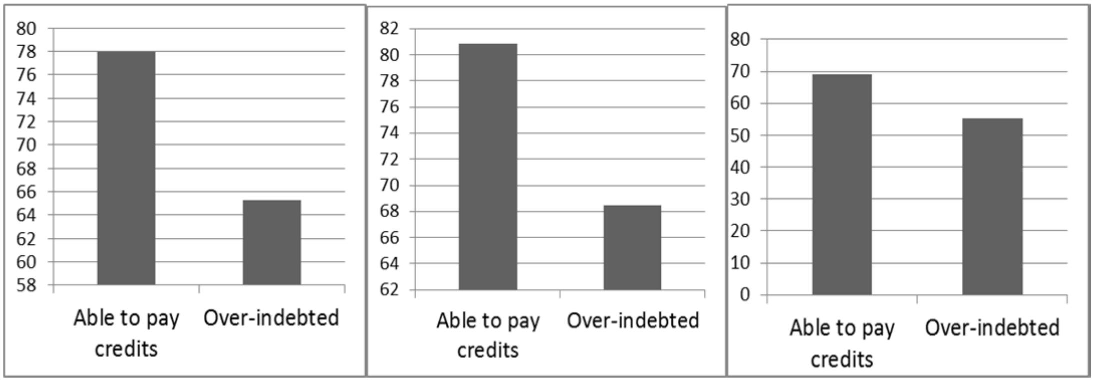
We find a generalized ignorance about economic issues, meaning a poor performance of most individuals. A poorer performance is achieved by women, the youngest and the oldest respondents, which is particularly troubling. The average per cent of correct answers increases with post-school education and household income. The level of financial literacy is significantly lower than the level of economic literacy (results available upon request).

Figure 1 shows three graphs covering economic and/or financial literacy score by capacity to pay the debt. The vertical axis in each graph measures the average of economic/financial (*a*), economic (*b*) and financial (c) literacy score. The respondents who can meet their credits score better, on average, than the other respondents. We use the F test to confirm whether there were differences in economic and/or financial literacy score between individuals who are able to meet commitments and individuals who are over-indebted. The results suggest there are statistically significant differences between literacy scores.

FIGURE 1

(a) Average per cent of correct answers to economic/financial literacy questions by ability to meet contracts, (b) Average per cent of correct answers to economic literacy questions by ability to meet contracts, (c) Average per cent of correct answers to financial literacy questions by ability to meet contracts.

(a) Economic/Financial literacy (b) Economic literacy (c) Financial literacy



We found a significant relationship between demographic characteristics and over-indebtedness. In particular, men and Portuguese respondents are less likely to be over-indebted. About 85% of individuals with higher education are able to meet their commitments, whereas only 46% with lower level of education can actually do so.

In addition, there is strong bivariate correlation between capacity to meet credits and some socioeconomic characteristics. Fewer difficulties in paying off debts can be found among individuals who are able to save some money and among those who frequently follow economic issues in the media. Indeed, individuals with lower income and qualification levels are more likely to have difficulties in paying off credits (results available upon request).

ECONOMETRIC RESULTS

In our study we sought to understand whether people face difficulties paying off their debts and if this situation is related to their knowledge about economic matters. To proxy debt levels, we asked individuals about their capacity to meet the contracts.

Descriptive findings show statistically significant bivariate correlation between economic/financial literacy and capacity to meet commitments. It is interesting to see whether these results remain after controlling for socioeconomic and demographic variables.

At first, we try to understand which factors influence the ability to meet contracts. Our dependent variable is binary, therefore we will consider binary choice models; assuming a homogeneous sample, probit estimation tends to be the most accurate. This model shows no evidence of lack of fit based on the Hosmer-Lemeshow statistic, thus the model is correct.

In Table 2 we report the probit estimation of capacity to meet credits on a wide range of demographic and socioeconomic characteristics, and literacies measures. In column 1 we observe that rising economic and financial literacy, ceteris paribus, the probability to meet credits also rises. An increase on schooling years and monthly income also positively influence the probability to meet credits; furthermore, assigning a proportion of the disposable income to saving also raises the probability of meeting credits.

In column 2 we infer that higher schooling levels, higher monthly income and saving increase the probability of meeting contacts.

Column 3 presents that better financial knowledge, higher schooling levels, higher saving raise the probability of meeting contracts.

We find that self-reported literacy again shows a very strong inverse relationship to over-indebtedness. Those who report higher levels of literacy are more likely to belong to the group who report having no difficulties paying off debt.

TABLE 2

Ability to meet credits and Economic and/or Financial literacy: Probit estimation

Dependent variable:	Meet /Does not Meet credit (Probit Model)		
Explanatory Variables	Model 1(z-statistic)	Model 2(z-statistic)	Model 3(z-statistic)
C	-1.652	-1.832	-1.463
	(-0.476)	(-0.532)	(-0.415)
EF_TOTAL_PERC	0.012***		
	(1.698)		
E_TOTAL_PERC		0.009	
		(1.252)	
F_TOTAL_PERC			0.011**
			(2.096)
AGE	-0.031	-0.023	-0.033
	(-0.203)	(-0.151)	(-0.210)
AGE2	-8.38E-05	-0.0002	-7.04E-05
	(-0.046)	(-0.094)	(-0.038)
GENDER	0.310	0.334	0.315
	(1.412)	(1.527)	(1.438)
NAC	-0.372	-0.292	-0.433
	(-0.657)	(-0.525)	(-0.767)
EDC2	0.934**	0.941**	1.002**
	(2.346)	(2.362)	(2.517)
EDC3	0.871**	0.891**	0.922**
	(1.979)	(2.025)	(2.100)
ECON	-0.266	-0.253	-0.237
	(-1.229)	(-1.166)	(-1.106)
CNP	-0.047	0.045	0.040
	(0.709)	(0.682)	(0.597)
INCOME	0.536*	0.549*	0.535*
	(3.193)	(3.285)	(3.191)
FOLLOW	0.154	0.157	0.140
	(0.735)	(0.752)	(0.667)
AQGOODS	0.336	0.340	0.375
	(1.396)	(1.412)	(1.562)
RETIREMENT	0.020	0.018	0.051
	(0.083)	(0.074)	(0.209)
SAVE	1.161*	1.151*	1.188*
	(5.570)	(5.540)	(5.681)
IMPORT	0.019	0.023	0.021
	(0.702)	(0.859)	(0.768)
Total obs	357	357	357
McFadden R-Squared	0.34	0.34	0.35
LR statistic	121.42	120.11	122.97
Prob(LR statistic)	0.00	0.00	0.00
Hosmer-Lemeshow chi2(8)	11.72	8.15	12.90
Prob > chi2	0.16	0.42	0.12

*1% significance level; ** 5% significance level; ***10% significance level

The effect is not only sizable but it increases with higher scores for self-assessed literacy. Conversely, those who are less literate are much more likely to report having difficulties with debt and again there is an inverse relationship between financial literacy and having too much debt. Although the estimates are less sizable than for those who have or may have difficulties with debt, the unsure also are much less likely to display high levels of literacy. These results are consistent with results of Gerardi, Goette, and Meier (2010), which show significant correlation between mortgage delinquency and numerical ability. The authors found that mortgage delinquency rates are greater among borrowers with inferior financial literacy. Demographic variables are correlated to debt loads as well. Those who are employed and have higher income are much more likely to report they have the right amount of debt. Finally, women and those with low income are more likely to be unable to judge their debt load.

CONCLUSIONS

The results of our study make it possible to conclude that many Portuguese households are over-indebted. Moreover, findings show that Portuguese individuals have limited financial knowledge. In particular, women, the elderly and those respondents with lower level of education showed the lowest levels of economic and/or financial knowledge.

Most fundamentally, those who have the lower levels of economic and financial literacy are more likely to report problems in facing debt. Therefore, these findings point to the fact that widespread lack of economic and financial knowledge is a reasonable cause for concern.

Education concerning wide economic principles, credit and debt issues can be critical for helping people avoid excess indebtedness, mortgage delinquencies and foreclosures, bankruptcies and borrowing that is excessively costly. The proliferation of credit and debt instruments, often with extensive information from written provisions and salespeople, can overwhelm borrowers.

First, we focus attention on the important effect of economic and financial knowledge upon individuals' debt. Secondly, we consider the rich set of variables, attitude and thoughts, experiences that individuals have. Thirdly, we listen to individuals about their own debt levels. Finally, we designed a collaborative research project that blended scholarly research with timely market research. Our conclusions suggest a complex set of interactions among literacy, experience, demographics and debt loads.

Our work suggests that economic and financial literacy is related to the choices that people make, and this in turn affects their income and capacity to meet debt. We interpret this to mean that additional research on economic and financial literacy—and education to enhance financial literacy—can complement, and not substitute for, auto-default and other comparable approaches.

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