

Wealth and credit compliance: does economic literacy matter?

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Abstract

The purpose of this work is to empirically examine the influence of economic literacy upon individuals' over-indebtedness and households' wealth. It may be argued that the lack of economic-financial knowledge may have detrimental consequences, in particular reflected in higher exposure to credit and financial risk. There is scarce literature testing the importance of economic-financial literacy for individuals' over-indebtedness and household wealth. This article provides empirical evidence on the importance of financial literacy, for both individuals' over-indebtedness and household wealth, exploring the case of Portugal, a country about which there is scant empirical evidence on these matters. © 2014 Academy of Financial Services. All rights reserved.

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1. Introduction

A recent report on financial stability from the Bank of Portugal shows that the degree of failure in the Portuguese economy continues to increase to record levels, with bad loans reaching the highest levels in 15 years. In total lending to households, the amount classified as doubtful debts amounted to €5,031 million Euros- the highest on records. The latest figures show that out of €134,15 million of loans to households, 3.73% are of bad loans, meaning deemed uncollectible by financial institutions. In loans to households, out of the

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€5,031 million classified doubtful, €2,229 million are in home loans and €1,539 million in consumer credit (e.g., to buy cars or appliances).

Moreover, owing to the large debt ratio and job instability, personal bankruptcies jumped to 2,400, a 79% increase in 2010. Two in five bankruptcies in Portugal are no longer in business, but individuals. These facts are replicated in many Organization for Economic Co-Operation and Development countries. DeVaney and Lytton (1995) explored the problem with household bankruptcy. However, more detailed analyses are necessary to reduce this trend.

The rapid growth in household debt and its link to the current financial crisis has highlighted consumer weaknesses, and raises the question of whether individuals' lack of economic and financial knowledge led them to take out mortgages and revolving 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.

In this article we seek to understand the relationship between both economic and/or financial 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. This article 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 and financial literacy is linked to over-indebtedness and monthly household income. Our sample comprises Portuguese citizens with respect to their economic and financial literacy, and their judgments about the extent of their indebtedness and levels of income.

In the next section we explore the nexus between economic literacy and over-indebtedness. Section 3 describes the methodology, while the results are reported in Section 4. Section 5 concludes.

2. Economic literacy and over-indebtedness

There is wide recognition that people in general hold low levels of economic and financial literacy. As the Organization for Economic Co-Operation and Development (2005) report on financial literacy documents, the low levels of financial literacy are not exclusive to Portugal, it extend to several countries. Similarly, the Survey of Health, Aging and Retirement in Europe (SHARE) shows that respondents score poorly on financial numeracy and literacy scales (Christelis, Jappelli, & Padula, 2010).

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In recent years, a growing body of literature has shown that financial knowledge affects a wide range of financial behaviors (e.g., stock market participation, portfolio diversification, participation and asset allocation, indebtedness, etc.) that in turn can affect wealth accumu-

lation. 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 & 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 (e.g., 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 addition, economic literacy is about making trade-offs between deficient resources (Dahl, 1998), getting a job and combatting inflation (Buchholz, 1998), understanding the forces that influence the quality of households lives (Farrell, 1999), and increasing competence skills in complex global markets (Gupta, 2006). In summary, economic knowledge will apply to daily decisions about financial to money management; it comprises the ability to understand, communicate, manage, decide, and forecast the financial issues (Remund, 2010). The foundation of financial decisions is general economic knowledge. According to Lusardi and Mitchell (2007) and Pang (2010) financial literacy will give the agent knowledge about economic concepts that will be used to plan, evaluate, and accurately decide about financial aspects. In contrast, insufficient economic or financial knowledge leads to low savings, mortgage defaults and financial mistakes, extra fees, or excessive interest rates on credit card debt (Agarwal et al., 2009; Agarwal & Mazumder, 2011; Banks & Oldfield, 2007; Gerardi, Goette, & Meier, 2010). Moreover, economically illiterate individuals may be intimidated by politicians (Gupta, 2006).

Moore (2003) reports 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 have 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 were generally more likely to engage in financially responsible behavior, such as controlling their spending, budgeting, and planning for the future.

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

Hence, the effect of economic and financial literacy may reflect upon wealth. Bateman et al. (2011) found that financial literacy score increases with household income. Van Rooij, Lusardi, and Alessie (2012) show that financial literacy is positively correlated with household wealth accumulation because economic and financial comprehension enhances the

ability to form plans and make decisions and reduces the cost of collecting and treating information. In this way, analysis of relationship between financial literacy and its effects on household wealth has become important and relevant in the current policy environment.

Based upon the above we expect economic literacy to contribute to explanation regarding over-indebtedness and wealth. These expectations are tested in the following sections.

3. Methodology

3.1. Survey design

We implement an extensive survey, fielded in April 2012, collecting information on individuals' economic and financial knowledge and demographic characteristics (e.g., age, gender, nationality, education, and employment). We also assess attitudes towards economics as well as data on individuals' judgments about their indebtedness. In addition, the survey collects self-reported information on household income.

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. There are national surveys that measure financial knowledge; nevertheless, few specifically focus on economics. The assessment of economic and financial knowledge comprises 29 multiple-choice questions, with 22 that measure economic knowledge and seven focuses upon financial aspects specifically. The economic questions comprise the following economic topics: Consumer Economy, Economy and Production, Financial Economy, and the Economic Role of Government and International Economy. The financial questions cover the concepts of: Euribor and Spread, the degree of risk of a term deposit, relationship between inflation and interest rate, ability to pay a loan, identification of the balance of demand deposit, and identification of changes in the balance of the demand deposit. We follow an adapted version of the Economic Literacy Test developed by the National Council on Economic Education (NCEE) to evaluate economic literacy. For the question on financial literacy section we use the questions applied in a survey conducted by the Bank of Portugal.

3.2. The 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. In total, 618 questionnaires, out of the 1,061 questionnaires distributed, were returned, which means a response rate of 58%. Table 1 reports frequencies (percent) of demographic and socioeconomic variables. Most respondents in our sample are women (70.9%) and have Portuguese nationality (93.2%). The majority of participants (68%) have between 36 and 45 years. About 26% of respondents reported at least

Table 1 Sample: demographic and socioeconomic characteristics

Demographic and socioeconomic variables		%
Gender	Female	70.9
	Male	28.4
	No answer	0.7
Nationality	Portuguese	93.2
	Other	6.6
	No answer	0.2
Age	26–35	14.9
	36–45	67.7
	46–55	15.5
	56–67	1.5
	No answer	0.4
Education level	From 0 to 9th grade	15.8
	12th grade	24.4
	Higher education	58.6
	No answer	1.2
Attended some kind of training in economics or finance	Yes	26.3
	No	62.4
	No answer	11.3
National qualification levels	1st group: Legislators, senior officials, and managers	4.4
	2nd group: Professionals, including teaching professionals	37.8
	3rd group: Technicians and associate professionals	11.8
	4th group: Administrative staff	12.1
	5th group: Service workers and shop and market sales workers	10.2
	6th group: Skilled agricultural workers and fishery workers	0.5
	7th group: Craft and related trade workers	3.2
	8th group: Plant and machinery operators and assemblers	0.2
	9th group: Elementary occupations	4.5
	No answer	15.3
Income	<1,000€	19.4
	1,001€–2,000€	30.5
	2,001€–6,000€	37.3
	6,001€–10,000€	0.8
	>10,001€	0.3
	No answer	11.6
Can you assess your capacity to pay the debt?	I can meet my commitments	66.1
	I cannot meet my commitments	20.2
	I don't have credits	12.0
	No answer	1.8

some kind of economic or financial education and 58.6% of them have higher education. About 66% of survey respondents replied they were able to meet their credit commitments

3.3. Model

To explore the influence of economic literacy upon the ability to pay individual's debts we use a probit model. The dependent variable is binary, equaling 1 if the individual is able to fulfill all his debts, and 0 if he reports difficulties in meeting his debts.

Table 2 Description of variables

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

The main explanatory variables in the model are the level of economic-financial literacy, economic literacy, and financial literacy measured by the score in the questionnaire (percentage of correct answers). Additionally, we have considered variables likely to affect the probability of over-indebtedness. Concerning demographic variables we have: gender (dummy: 1 for male and 0 for female), age and nationality (1 for Portuguese, and 0 otherwise). Income was measured regarding a Likert scale from 1 to 5. Education was proxied by EDC1, EDC2, and EDC3 and previous training in Economics or Finance (dummy: 1 for yes, and 0 for no). The ranking of qualifications were defined in accordance to the National Classification of Professional Activities, being that 1 corresponds to the highest level of qualification and 9 the lowest.

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. 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 the respondent saves 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.

We measure the importance of the respondents knowledge of 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). Table 2 presents a summary of the variables.

4. Results

4.1. Descriptive findings

Table 3 reports percentage of correct answers on Economic and Financial literacy of respondents according all explanatory variables. Based upon statistics presented in Table 3 youngest respondents and minorities exhibit poorer performance in economic and financial literacy, which is particularly troubling. The average percentage of correct responses increases with post-school education and monthly household income. The average percentage of correct answers for economic questions is significantly higher than the average for financial questions, showing that Portuguese citizens have higher literacy level in Economics than in Finance.

Table 4 presents the descriptive statistics on the capability to pay credit payments and economic and/or financial literacy. There is a strong correlation between ability to meet commitments and economic or financial knowledge. Furthermore, a significant differences between those that meet commitments and those that are over-indebted.

Descriptive statistics on capability to pay debts and demographic characteristics are presented in Table 5. We find a significant relationship between demographic characteristics and over-indebtedness. Descriptive findings show that men, Portuguese respondents, and those with higher education are more likely to meet their credit obligations.

Table 6 corroborates the descriptive findings on capacity to pay their credit obligations and socioeconomic characteristics. It is observed that fewer difficulties in paying debts can be found among individuals who are able to save some money and among those who frequently follow economic issues in media. Individuals with lower income and qualification levels are more likely to have difficulties paying credits.

4.2. Econometric results

In our study we seek to understand whether people face difficulties paying their debts and if this situation is related to their knowledge about economic matters. To proxy debt levels, we ask individuals about their capacity to meet their credit obligations.

At first, we try to understand which factors influence the ability to meet credit. Table 7

Table 3 Percentage of correct answers to economic and financial questions

Characteristics		% Correct answers on economic literacy	% Correct answers on financial literacy
Gender	Female*	72.4	60.7
	Male*	83.3	71.3
Nationality	Portuguese*	76.9	65.7
	Other*	56.9	36.6
Age	26–35*	61.7	52.0
	36–45*	78.7	67.0
	46–55*	75.8	61.8
	56–67**	73.9	59.4
Education level	From 0 to 9th grade**	46.8	44.5
	12th grade*	72.8	60.5
	Higher education*	84.0	70.5
Attended some kind of training in economics or finance	Yes*	85.6	73.6
	No*	73.6	62.2
National qualification levels	1st group: Legislators, senior officials, and managers*	84.7	69.2
	2nd group: Professionals, including teaching professionals*	84.2	71.3
	3rd group: Technicians and associate professionals*	78.8	66.0
	4th group: Administrative staff*	78.8	70.2
	5th group: Service workers and shop and market sales workers*	65.7	53.3
	6th group: Skilled agricultural workers and fishery workers	71.0	21.8
	7th group: Craft and related trade workers	64.5	55.3
	8th group: Plant and machinery operators and assemblers	27.0	0.00
	9th group: Elementary occupations**	47.9	42.5
Income	<1,000€*	61.5	50.2
	1,001€–2,000€*	77.4	65.7
	2,001€–6,000€*	86.3	74.7
	6,001€–10,000€	94.0	84.5
	>10,001€	95.0	74.5
Frequently follows economic issues in the media	Yes*	80.8	70.3
	No*	65.7	49.3
To understand political decisions	Very important*	83.0	71.1
	Important*	77.7	66.6
	Not very important*	70.2	58.7
	Not important*	68.4	52.8

(Continued)

Table 3 Continued

Characteristics		% Correct answers on economic literacy	% Correct answers on financial literacy
To get a better paid job	Very important*	74.8	63.6
	Important*	76.6	66.2
	Not very important*	79.1	64.9
	Not important*	68.0	49.9
To become an active citizen and play a fuller part in society	Very important*	77.6	67.7
	Important*	75.9	64.3
	Not very important*	79.0	62.7
	Not important*	66.0	50.0
To make optimal choices about investment and saving	Very important*	80.9	69.0
	Important*	69.5	59.2
	Not very important*	58.3	40.8
	Not important*	41.2	16.5
To make better decisions on consumption now and in the future	Very important*	78.8	67.1
	Important*	76.0	64.5
	Not very important*	72.8	58.2
	Not important*	42.8	21.9
To make optimal choices about loans or credits	Very important*	80.6	68.5
	Important*	72.7	62.3
	Not very important**	61.4	49.9
	Not important*	45.4	15.5
To improve my wealth and well-being	Very important*	77.7	65.8
	Important*	77.5	66.2
	Not very important*	74.9	63.0
	Not important*	55.4	34.7
Are you able to save some money?	Yes*	81.8	69.2
	No*	69.2	58.8
Save to acquire durable goods	Save*	78.6	65.9
	Do not*	74.7	63.8
Retirement savings	Save*	78.7	67.5
	Do not*	75.5	63.3

Note. We calculate an average percentage of economic and financial literacies for each category of explanatory variables. Maximum score is 100%. Moreover, we use paired t-test to compare financial and economic literacy scores.

*1% significance level; **5% significance level.

presents the econometric results. 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.

In Column 1 (first-stage estimation) we observe that higher schooling years and monthly income also positively influence the probability to meet credits; furthermore, assigning a proportion of the disposable income to saving also increases the probability of meeting credit obligations.

In Column 2 we infer that higher schooling levels, higher monthly income, and saving increase the probability of meeting credit commitments.

Table 4 Capacity to pay credits and economic and/or financial literacy

Characteristics	% Correct answers on economic or financial literacy	% Correct answers on economic literacy	% Correct answers on financial literacy
Meet credits	77.99	80.82	69.07
Over-indebted	65.30	68.47	55.31
<i>F</i> -test	50.54	44.70	39.25
<i>p</i> -value	0.00	0.00	0.00

Note. We use one-way analysis of variance to test the hypothesis that the means of economic and/or financial literacy score among two groups are equal. The first group represents respondents, who can meet credits and second who are over-indebted.

Column 3 shows that financial knowledge, higher schooling levels, higher saving increase the probability of meeting contracts.

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

The effect is not only sizable, but it also 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 there is an inverse relationship between financial literacy and too much debt. Although the estimates are less sizable than for those who 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. Mortgage delinquency

Table 5 Capacity to pay credits across demographic characteristics

Characteristics	% Of respondents who are able to pay credits	% Of over indebted respondents
Gender		
Male	81.88	18.13
Female	74.12	25.88
Pearson's $\chi^2(1)$	3.73	
<i>p</i> -value	0.05	
Nationality		
Portuguese	77.47	22.53
Other	60.71	39.29
Pearson's $\chi^2(1)$	4.15	
<i>p</i> -value	0.04	
Education		
From 0 to 9th grade	46.05	53.95
12th grade	74.05	25.95
Higher education	84.83	15.17
Pearson's $\chi^2(2)$	52.25	
<i>p</i> -value	0.000	

Note. We use χ^2 test of association to establish relationship between capacity to meet credits and demographic factors.

Table 6 Capacity to pay credits across socioeconomic characteristics

Characteristics	% Of respondents who are able to pay credits	% Of over indebted respondents
Attended some kind of training in economics		
Yes	82.43	17.57
No	75.99	24.01
Pearson's $\chi^2(1)$	2.47	
<i>p</i> -value	0.12	
National qualification levels		
1st group	64.00	36.00
2nd group	85.12	14.88
3rd group	76.56	23.44
4th group	84.06	15.94
5th group	63.27	36.73
6th group	33.33	66.67
7th group	66.67	33.33
8th group	–	–
9th group	45.00	55.00
Pearson's $\chi^2(7)$	33.92	
<i>p</i> -value	0.00	
Income level		
<€1,000	41.41	58.59
€1,001–€2,000	79.17	20.83
€2,001–€6,000	91.67	8.33
€6,001–€10,000	100.00	0.00
> €10,000	100.00	0.00
Pearson's $\chi^2(4)$	99.72	
<i>p</i> -value	0.00	
Frequently follows economic issues in the media		
Yes	81.16	18.84
No	68.25	31.75
Pearson's $\chi^2(1)$	11.34	
<i>p</i> -value	0.00	
Are you able to save some money?		
Yes	95.17	4.83
No	55.79	44.21
Pearson's $\chi^2(1)$	108.94	
<i>p</i> -value	0.00	

Note. We use χ^2 test of association to establish relationship between capacity to meet credits and socioeconomic factors.

rates are greater among borrowers with lower financial literacy. Demographic variables are correlated to debt loads as well. Those who are employed and have higher income and higher wealth are much more likely to report they have the appropriate amount of debt. Finally, women, and those with low income and wealth are more likely to be unable to judge their debt load.

Monthly income is likely to influence the ability to meet debt. We explore what determines asymmetries of income among families, and investigates the effect of economic knowledge. The relationship between monthly household income and economic and/or financial literacy is confirmed in OLS regression analysis including the same explanatory variables as used previously (see Table 8).

Table 7 Capacity to meet credits and economic and/or financial literacy: Probit estimation

Explanatory variables	Model 1 (z-statistic)	Model 2 (z-statistic)	Model 3 (z-statistic)
C	−1.652 (−0.476)	−1.832 (−0.532)	−1.463 (−0.415)
Economic or financial literacy	0.012 (1.698)		
Economic literacy		0.009 (1.252)	
Financial literacy			0.011** (2.096)
AGE	−0.031 (−0.203)	−0.023 (−0.151)	−0.033 (−0.210)
AGE2	−8.38E-05 (−0.046)	−0.0002 (−0.094)	−7.04E-05 (−0.038)
GEN	0.310 (1.412)	0.334 (1.527)	0.315 (1.438)
NAC	−0.372 (−0.657)	−0.292 (−0.525)	−0.433 (−0.767)
EDC2	0.934** (2.346)	0.941** (2.362)	1.002** (2.517)
EDC3	0.871** (1.979)	0.891** (2.025)	0.922** (2.100)
ECON	−0.266 (−1.229)	−0.253 (−1.166)	−0.237 (−1.106)
CNP	−0.047 (0.709)	0.045 (0.682)	0.040 (0.597)
INCOME	0.536* (3.193)	0.549* (3.285)	0.535* (3.191)
FOLLOW	0.154 (0.735)	0.157 (0.752)	0.140 (0.667)
AQGOODS	0.336 (1.396)	0.340 (1.412)	0.375 (1.562)
RETIREMENT	0.020 (0.083)	0.018 (0.074)	0.051 (0.209)
SAVE	1.161* (5.570)	1.151* (5.540)	1.188* (5.681)
IMPORT	0.019 (0.702)	0.023 (0.859)	0.021 (0.768)
Total obs	357	357	357
McFadden R^2	0.34090	0.33721	0.34526
LR statistic	121.4201	120.1074	122.9730
Prob(LR statistic)	0.00000	0.00000	0.00000
Hosmer-Lemeshow χ^2 (8)	11.72	8.15	12.90
Prob > χ^2	0.1641	0.4188	0.1153

Note. Dependent variable is “Able to meet credits.” All explanatory variables described in Table 2.

*1% significance level; **5% significance level.

The OLS regression shows that both economic and financial knowledge is positively correlated with monthly income. Age, nationality, schooling, and saving are shown to be statistically significant. More concretely, they are positively related to the achievement of higher income levels.

5. Conclusion

The results of this study enable us to conclude that many Portuguese households are not able to meet their credit commitments. Moreover, our findings show that Portuguese individuals have limited financial knowledge. In particular, the youngest and those respondents with lower level of education displayed the lowest levels of economic and/or financial knowledge. These findings are consistent with results of Chen and Volpe (1998).

Most important, those who have the lower levels of financial literacy are more likely to report problems with debt. Moreover, respondents with lower levels of economic and financial literacy reported lower levels of monthly household income. All together, these findings point to the fact that widespread lack of economic and financial knowledge is a reasonable cause for concern.

Table 8 Household income and economic and/or financial literacy: OLS estimation

Explanatory variables	Model 1 (t-statistic)	Model 2 (t-statistic)	Model 3 (t-statistic)
C	−3.114* (−2.750)	−3.183* (−2.804)	−3.178* (−2.800)
Economic or financial literacy	0.008* (3.269)		
Economic literacy		0.006* (2.858)	
Financial literacy			0.005* (2.875)
AGE	0.129** (2.512)	0.132** (2.561)	0.138* (2.708)
AGE2	−0.001** (−2.115)	−0.001** (−2.159)	−0.001** (−2.298)
GEN	0.004 (0.062)	0.016 (0.246)	0.011 (0.176)
NAC	0.757* (4.725)	0.792* (4.975)	0.763* (4.736)
EDC2	0.281** (2.172)	0.286** (2.199)	0.310** (2.403)
EDC3	0.822* (5.977)	0.836* (6.066)	0.856* (6.270)
ECON	−0.066 (−1.014)	−0.065 (−0.989)	−0.043 (−0.672)
CNP	0.005 (0.222)	0.005 (0.218)	−0.003 (−0.121)
FOLLOW	0.026 (0.387)	0.033 (0.498)	0.021 (0.317)
AQGOODS	0.053 (0.748)	0.050 (0.694)	0.082 (1.145)
RETIREMENT	−0.009 (−0.126)	−0.012 (−0.156)	0.006 (0.082)
SAVE	0.399* (6.608)	0.397* (6.530)	0.421* (6.984)
IMPORT	0.007 (0.816)	0.009 (0.953)	0.010 (1.151)
Total obs	394	394	394
R ²	0.48551	0.48216	0.48229
Adjusted R ²	0.46650	0.46303	0.46316
F-statistic	25.5461	25.2060	25.2191
Prob(F-statistic)	0.00000	0.00000	0.00000
Breusch-Pagan $\chi^2(1)$	0.26	0.32	0.10
Prob > χ^2	0.6068	0.5700	0.7542

Note. Dependent variable is “INCOME.” All explanatory variables described in Table 2.

*1% significance; **5% significance.

Education concerning economic principles and credit issues are very important in helping people avoid excess indebtedness, mortgage delinquencies and foreclosures, and bankruptcies and borrowing that are 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 experiences. Thirdly, we listen to individuals about their own debt levels. Finally, we design a collaborative research project that blends 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 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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