Households' Borrowing Intentions During the COVID-19 Crisis: The Role of Financial Literacy

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ABSTRACT

This study aims to determine the role of financial literacy in households' borrowing intentions during the coronavirus pandemic. Employing a survey of 1,300 Polish citizens conducted during the COVID-19 crisis and an instrumental variable analysis, we found that financial literacy significantly increases households' borrowing intentions. This applies to financially sound consumers both in crisis and normal times. In terms of sociodemographic features, young adults and the less educated are less willing to borrow during the pandemic.

JEL Classification: D14, D91, G51, G53

Keywords: borrowing intentions, financial literacy, instrumental variables, quantile regression

1. INTRODUCTION

The coronavirus pandemic is an unprecedented shock for households and, consequently, for the banking sector as well. During this time, the key task of the financial sector (and supervisors) is to maintain the financing of the economy and prevent a credit crunch (many central banks, including Riksbank and the National Bank of Poland, took measures to sustain the economy). However, keeping the economy financed is not only the role of the credit supply. The demand for credit should also demonstrate a counter-cyclical nature, enabling a quick exit from the recession. Looking at the Polish banking sector, the supply of credit during the pandemic was sustained, which did not lead to a credit crunch. However, corporate and household lending declined markedly, driven by low credit demand. At the beginning of 2021, consumer and corporate lending in Poland even reached negative growth rates (National Bank of Poland, 2022). In this

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case, it is important to examine whether financial literacy could have prevented the decline in demand for credit during the pandemic. At the same time, through financial literacy, it is possible to indicate (based on a literature review – e.g. Lusardi & Tufano, 2015) that keeping credit market activity during a crisis period would be associated with healthy financial decisions.

The aim of this article is to determine households' borrowing intentions in the credit market during the coronavirus pandemic and the role that financial literacy plays in these. Financial literacy, understood as the ability to process economic information and make informed financial decisions (Lusardi & Mitchell, 2014), influences consumers' economic behavior throughout their lives. Thus, it is important at the time of both employment and retirement. The outcomes of households' borrowing, saving and investment decisions depend on the level of their financial and numerical abilities (Strömbäck et al., 2017; Smith et al., 2010; Christelis et al., 2010; Lusardi & Mitchell, 2014). Less financially educated individuals are more likely to pay higher transaction costs and fees for financial services (Campbell, 2006; Lusardi & Tufano, 2015), and – according to Mottola (2013) – to engage in a more costly credit card behavior. Therefore, a higher level of financial knowledge is associated with an interest in holding precautionary savings (de Bassa Scheresberg, 2013).

To achieve our research goal, we surveyed a representative sample of 1,300 Polish citizens through June and July 2020 (i.e., during the intensive level of pandemic restrictions). According to statistics from the Bank for International Settlement, credit for the private non-financial sector in Poland amounted to 79.6% of GDP in the first quarter of 2020, which is low compared to the average for advanced economies (164.2%) or even emerging market economies (144.3%). The need to understand customers' decisions in a society with a relatively low credit activity provides additional justification for this study.

Our research contributes to the literature in several areas. Firstly, it verifies the role of financial literacy in managing household finances during the pandemic. Secondly, it identifies the factors influencing consumer intention to borrow, which may be necessary from a prudential policy perspective. Thirdly, it shows that investments in the financial literacy of society play an important role in the context of the rapid recovery of the economy from the crisis.

The paper is organized as follows: in the next section, we review the literature on the household behavior during the economic shock, credit inclusion and the relationship between financial/debt literacy and borrowing willingness. In the third section, we present our research methodology and survey design. Then, we describe our results and discuss our findings; and the last section elucidates the conclusions.

2. LITERATURE REVIEW

Following our research goal (i.e. determining households' borrowing intentions in the credit market during the coronavirus pandemic and the role that financial literacy plays in these), we focused on three areas of the literature review. Firstly, we explore literature on the trend in consumer financial behavior during economic shocks. Our study is conducted during the coronavirus pandemic, hence reviewing existing research on consumer behavior during economic shocks is crucial for a proper understanding of potential consumer decisions. Next, we review the literature on the determinants that encourage households to participate in the credit market. Finally, we examine the importance of financial literacy in shaping "healthy" credit market behavior.

When analyzing household behavior during financial shocks, it is worth referring to the study by Nofsinger (2011). He verified household behavior during two periods – boom and bust economic cycles. His research focuses on the global financial crisis. According to the author, households exhibit pro-cyclical actions. This means that during a boom, households follow trends

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and group-thinking. Such behavior reinforces the threat of speculative bubbles. Conversely, in a downturn, fear of the future leads to selling off assets at low prices. Generally, households in a downturn spend less and repay debts, putting a strain on an already slowing economy. Even if households were willing to borrow, financial institutions would often restrict this possibility during a crisis by tightening credit conditions (Brunnermeier, 2009).

The literature mostly focuses on macroeconomic determinants, and only a few studies consider individuals' characteristics as drivers of the willingness to borrow. Chivakul and Chen (2008) analyzed the determinants of borrowing intentions among households in Bosnia and Herzegovina. Their results highlight that lenders' behavior is influenced by gender (females are more prone to incurring debt), income, and educational qualifications. Moreover, their research confirmed that the borrowing behavior is also determined by the post-conflict and transitional nature of the country. Vissing-Jorgensen (2011) suggests that customers who spend a relatively high portion of their income on luxuries tend to engage in high loss products. Meier and Sprenger (2010) investigated the sources of interest in credit cards (i.e., products that require careful use). According to their findings, present-biased individuals are more likely to use this type of loan. Their survey suggested that the average credit card user is characterized as female with low disposable income, about 36 years old. In our study, from the perspective of household behavior, it is crucial to take into account the period of the analysis. This survey period concerns the first coronavirus pandemic wave and is associated with a shock for the labor market. Therefore, it is critical to look also at the importance of customer expectations regarding their concerns about losing a source of income. At the same time, it is worth emphasizing that greater credit inclusion can strengthen the resilience of the financial system to crises (e.g. López & Winkler, 2019). This is due, inter alia, to diversification effects (Cull et al., 2012) and is often observed in the form of lower Z-score and NPL ratios (Morgan & Pontines, 2014). However, recent studies raise concerns about the relationship between credit inclusion and financial stability. Sahay et al. (2015) find non-linearities and state that the relationship between credit inclusion and financial stability depends on the quality of banking supervision. In our study, in turn, we want to highlight the role of financial and debt literacy.

According to Lusardi and Tufano (2015), debt literacy refers to the ability to make simple decisions regarding debt contracts, applying basic knowledge about compound interest to everyday financial choices. They propose a set of questions specifically aimed at measuring such knowledge and skills. The participants of the survey were asked about interest compounding and credit card debt accumulation, as well as to compare two payment options which dealt with the concept of the time value of money. Lusardi and Tufano (2015) found that the majority of American respondents are debt illiterate, which significantly affects their borrowing and debt behavior. Such individuals pay higher fees and charges, and have problems with assessing their debt position or judge their debt to be excessive. Additionally, literate people are more resilient to economic downturns (Mitchell & Lusardi, 2015), which is more essential than ever in the current pandemic. Moreover, Klapper et al. (2013) used a panel data set from Russia and confirmed that financially literate individuals are significantly less vulnerable to negative income shocks during the global financial crisis. At the same time, the authors suggest that greater activity in the consumer credit market should go hand in hand with financial literacy. Financial literacy also has a secondary mechanism – it makes people less afraid to use credit products because they know how those products operate (Grohmann & Menkhoff, 2020). In our research, we focus on borrowing intention during the pandemic and suggest the following research proposition:

P: *Highly literate and financially sound households are more willing to borrow funds during a pandemic.*

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In this proposition, we combine two mechanisms. Firstly, we point out that financial literacy allows the continuation of credit market activity even during the crisis (which is beneficial for economic growth). Secondly, based on the literature review, we remark that intended credit market activity of highly literate individuals during the crisis is safe from the credit risk perspective.

3. RESEARCH METHODOLOGY AND SURVEY DESIGN

As a first step in addressing our research proposition, we asked respondents three questions to determine their level of financial literacy[2] in three areas: (i) understanding compound interest (FL1); (ii) understanding inflation (FL2); and (iii) understanding risk diversification (FL3). These questions are commonly used in the literature to measure financial literacy (Lusardi & Mitchell, 2011). Moreover, we asked three additional questions to verify the debt literacy of a particular respondent (DLI – DLIII). The content of debt literacy questions is provided by Lusardi and Tufano (2015). The list of three financial and three debt literacy questions, along with possible answers, is presented in Table A1 in the Annex.

The research sample included 1,300 Polish citizens, and the characteristics of the sample were chosen to be as representative of the Polish adult society as possible (see Table 1). Therefore, we applied random sampling with appropriate weights. Compared to the characteristics of the Polish society, the survey sample undercounts the proportion of people over the age of 64. However, from the point of view of the research goal (i.e., borrowing intentions during a pandemic), it is important to focus on people active in the labor market. Moreover, the coronavirus pandemic had the greatest impact on the labor market, which further justifies increased attention to people under the age of retirement. In our research, we use a CAWI method (computer assisted web interview) to collect responses.

Table 1
Respondent profiles

Variable	% (survey)	% (Polish adult society – 2020)
Gender		
Male	49.3%	48.4%
Female	50.7%	51.6%
Age		
18–24	13.8%	8.9%
25–34	26.1%	17.3%
35–44	24.2%	19.7%
45–54	15.2%	15.4%
55–64	12.9%	16.5%
Age > 64	7.8%	22.2%
Degree		
Elementary	10.0%	10.8%
Middle-high	48.3%	61.5%
High	41.7%	27.7%

Note: The table presents the share of a given demographic characteristic in the sample population.

Source: Eurostat database.

[2] Three Questions to Measure Financial Literacy: https://gflec.org/wp-content/uploads/2015/04/3-Questions-Article2.pdf

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The second part of the survey tracked the borrowing intentions (indicated by respondents). We obtained this by asking respondents a question which verified the declared level of monthly loan installment that a given respondent was capable of (C_i) (see descriptive statistics and exact content of the question related to C_i in Table A2 in the Annex). It is worth noting that C_i is based on the possible amount the respondent is able to repay, not the actual amount of installment.

We additionally divided the sample into two groups – the overindebted (i.e. 122 respondents) and those who currently have no problems in settling their debts (i.e. 1,178 respondents). In this way, we will check the asymmetric nature of financial literacy – i.e. depending on the borrower's debt situation. We expect that financial literacy will increase the borrowing intentions of the financially healthy part of the respondents to incur debt during the pandemic. In contrast, for currently overindebted respondents, financial literacy should not further encourage them to incur debt during the pandemic.

We asked respondents to determine the loan installment assuming two levels of net income I_i (i.e., PLN 2,500 and PLN 5,000[3]). The division into two variants is justified by a certain minimum amount spent on the most basic living expenses by a given respondent. Respondents with higher incomes will have a larger income buffer above the minimum cost of living, and their propensity to borrow may be greater. Finally, below, we present the equations explaining the during the pandemic. In the first stage, we use OLS regression.

$$C_{i,\,2500,\,COVID} = \beta DV_i + \delta Income\,f\,ears_i + \theta Savings_i + \upsilon Literacy_i + \varepsilon \quad (1)$$

$$C_{i,\,5000,\,COVID} = \beta DV_i + \delta Income\,f\,ears_i + \theta Savings_i + \upsilon Literacy_i + \varepsilon \quad (2)$$

where DV_i denotes demographic variables (gender, age, and degree) and $Literacy_i$ represents the share of correct answers to the financial and debt literacy questions (see descriptive statistics in Table A3 in the Annex).

Additionally, we included two variables in the regression equation that could potentially affect respondents' credit behavior. The choice of these variables is due to their crucial nature for consumer behavior during the crisis. In the case of savings (see descriptive statistics in Table A4 in the Annex), we expect that a higher level of savings will mean that households will not be afraid of taking a loan (although they do not need it). We added the savings variable mainly due to its role in shaping the broadly understood behavior of households during the crisis (Kostakis, 2012; Finlay & Price, 2015). On the other hand, concerns about losing a source of income in the last months (to some extent, respondent's macroeconomic expectations) may significantly reduce the tendency to take out loans during the coronavirus pandemic (see descriptive statistics in Table A4 in the Annex). Consumer confidence in shaping own borrowing behavior (based on a sample of Polish citizens) was also confirmed by Kłopocka (2017).We also tested possible collinearity; however, no individual VIFs exceed the value of 4, and no median VIF value for each model cross the value of 2.

In our regression, we have to consider the endogeneity issue. The endogeneity of the literacy variable is widely discussed in customer behavior research (e.g., Yeh & Ling, 2021 or Rooij et al., 2012). In our study, the endogeneity issue can be described as a feedback relationship between literacy and the respondent's borrowing intentions. Literacy influences borrowing intentions, but borrowing intentions may also affect financial literacy. We used an instrumental variable analysis to deal with endogeneity. In this analysis, we first estimated $Literacy_i$ with the same explanatory variables as in equations (1) and (2) (we called them $Controls_i$) and then extended the equation by an additional instrument (IV_i).

[3] The average salary in Poland in 2020 amounted to approx. PLN 3,800 net.

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$$\widehat{Literacy}_{\iota} = \widehat{\alpha} Controls_i + \widehat{\gamma} IV_i + \varepsilon_i \quad (3)$$

where $\widehat{\alpha}$ and $\widehat{\gamma}$ are estimated coefficients. If IV_i is uncorrelated with the residuals in equation (1), the $\widehat{Literacy}_{\iota}$ will also not be correlated with residuals. Therefore, in the second stage regression, we can apply $\widehat{Literacy}_{\iota}$ with no endogeneity.

$$C_{i,COVID} = \beta_2 DV_i + \delta_2 Income\ f\ ears_i + \theta_2 Savings_i + \upsilon_2 \widehat{Literacy}_{\iota} + \varepsilon_i \quad (4)$$

The discussion has to be held using an appropriate instrument IV_i. Based on the literature, some authors used instruments such as siblings' education (Van Rooij et al., 2011), numerical skills at the district (Morgan & Trinh, 2019), and respondents' abilities to understand financial questions asked in the survey (Cupák et al., 2019). In our case, we used respondents' experiences in the credit market. We defined experiences as the number of credit types that a respondent had had throughout their life (see descriptive statistics in Table A5 in the Annex). Experience in the credit market clearly influences higher literacy (Lusardi & Tufano, 2015). However, more experiences with repaid credits do not necessarily mean that a given respondent is more inclined to incur debt in the future. It should also be remembered that the C_i variable does not result from the respondent's actual indebtedness, but from their answer about hypothetical willingness to incur debt under certain circumstances during the pandemic. On the one hand, people who used credit extensively in the past may be more cautious about incurring liabilities during the pandemic or they may no longer have the capacity to take out new loans (negative correlation mechanism with C_i). On the other hand, credit skills acquired via experiences can reduce the fear of debt (positive correlation mechanism with C_i). Therefore, recognizing that the correlation between C_i and credit experiences may be bidirectional, we decided to use credit experience as an instrument. We also calculated the correlation coefficient between the experience variable (i.e. the number of credit types that a respondent had had throughout their life) and various variants of C_i presented in the article. The average correlation coefficient is only 0.13. Furthermore, we tested the endogeneity issue and the strength of our instrument with the Wu-Hausmann test and F-statistics for the first-stage regression.

4. RESULTS

When looking at the proportion of correct answers to the financial and debt literacy questions in the research sample, it should be noted that the Polish society is characterized by an average level of financial literacy and a low level of debt literacy. The same questions were asked in different countries and at different times. A summary of the research in this area was presented by Lusardi and Mitchell (2014). The share of respondents who correctly answered all financial literacy questions is 42%, putting Poland behind countries such as Canada, Australia, and Germany. However, this proportion is higher than that observed for Finland, France, or the United States. Nevertheless, it should be noted that these studies were carried out in different years. In terms of debt literacy, the average respondent's score is very low and equals 26.3% (see descriptive statistics in Table A3 in the Annex). Questions about debt literacy were also asked by various researchers (including a sample of Polish citizens). Cwynar (2022), using an internet-based survey on a purposive sample of 1,055 borrowers, obtained very similar results to ours (see Table 2).

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Table 2
Debt literacy questions – different research comparison

Reseach	DLI	DLII	DLIII
Cwynar (2022)	43%	21%	7.5%
Kurowski and Malinowska-Misiąg (2021)	44%	21%	15%

Source: Cwynar (2022).

Comparing the percentage of correct answers by Poles to other international studies (e.g. Lusardi & Tufano, 2015 or Van Ooijen & van Rooij, 2016), it should be noted that Poles score much worse in DL II (the minimum payment question). This may be related to the fact that this questions is more related to mathematical competences, which are challenging for Polish citizens (Cwynar et al., 2019).

In the next step, we checked the importance of financial literacy for the intention to borrow during the pandemic. OLS regression results are presented in Table 3.

Table 3
Regression results for loan installment variable assuming the different levels of income during the pandemic

Reference variable	Variables	(1) Loan PLN 2,500 sound	(2) Loan PLN 2,500 overindebt	(3) Loan PLN 5,000 sound	(4) Loan PLN 5,000 overindebt
Male	Gender (Male)	29.92228 (45.63197)	-105.8954 (140.007)	-146.183 (123.4549)	-472.1427 (459.4724)
Degree Elementary	Middle-high	283.8772*** (59.53164)	184.9255 (152.9491)	260.9087 (161.0597)	507.1173 (501.9455)
	High	365.6988*** (63.35884)	59.1021 (180.9559)	460.5865*** (171.414)	141.6062 (593.8576)
Age 18–34	Age 35–54	135.8758*** (49.60538)	-128.5478 (158.85)	259.1822* (134.2047)	-521.3924 (521.3111)
	Age more 54	-37.34342 (58.85418)	242.7282 (156.1126)	-47.68121 (159.2269)	68.33218 (512.3275)
	Income fears	2.170676 (12.09262)	92.47938*** (31.87419)	-4.975339 (32.71593)	163.3598 (104.6041)
	Savings	7.876928*** (2.118632)	47.07716*** (8.969706)	19.74518*** (5.731846)	51.20116* (29.43661)
	Literacy	534.3928*** (93.18839)	-111.3237 (335.6921)	2523.348*** (252.1163)	1535.188 (1101.668)
	Sample	1178	122	1178	122
	R-square	0.4923	0.4897	0.4666	0.3018

Note: The table presents OLS regression for loan installment during the pandemic that the respondent is willing to pay depending on the level of income (2,500 for columns 1 and 2; 5,000 for columns 2 and 3), with standard error in the brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively. The column with models 1 and 3 estimates parameters for respondents who do not have problems with repaying their debts, while columns 2 and 4 estimate parameters for overindebted respondents.

Source: Authors' calculations.

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According to the regression results, debt and financial literacy significantly influence the borrowing intentions, but only for financially sound respondents (see significant positive parameters in the literacy variable in Table 3 and models 1 and 3). The direction is positive – higher literacy is associated with higher borrowing intentions. People with greater financial and debt literacy are possibly financially better prepared for the pandemic period and do not reduce the intentions to borrow. This anticipation is also supported by the positive and significant parameter near savings. A higher level of savings means that respondents could have accepted higher indebtedness. As expected, financial literacy does not play a significant role if we look at the sample of overindebted people (see insignificant parameters in literacy variable in Table 3 and models 2 and 4). According to Lusardi and Tufano (2015), financial literacy by itself reduces overindebtedness. However, our study showed that during the pandemic, financial literacy does not increase the intention to borrow for overindebted individuals (oppositely to financially sound respondents).

Looking at the other variables, it should be emphasized that borrowing intentions during the pandemic are higher among middle-aged and more educated respondents. According to the results, young adults (18–34 years old) are significantly less willing to borrow during the pandemic than people aged 35–54. Faced with lower incomes, young people are reluctant to take on liabilities hence their intentions to borrow are limited. Older people, often of retirement age, are also unwilling to take on debt in times of a pandemic.

In the next stage, we explored the validity of treating the literacy variable as endogenous. According to Wu-Hausmann test results (see Table 4), this variable is endogenous. Therefore, it was reasonable to conduct a second stage regression after estimation of the literacy variable with an appropriate instrument (IV_i). We used credit experience as an instrument (i.e., the respondent's indication of whether they had ever taken out a given type of loan out of eight possible options[4]). The F-statistics presented in Table 4 indicates that our instrument has adequate strength. The level of estimated parameter near the literacy variable and its significance confirms, to even greater extent, that literacy increases a given consumer's intention to borrow during the pandemic (but it is valid only for financially sound respondents).

Table 4
Literacy parameters estimations for 2SLS regression

Variable	Loan PLN 2,500 sound	Loan PLN 2,500 overindebt	Loan PLN 5,000 sound	Loan PLN 5,000 overindebt
Literacy	3003.279** (972.609)	4025.57 (4255.522)	7957.843*** (2441.983)	4977.57 (9553.422)
Wu-Hausmann	11.5947***	2.6482	6.9121**	0.1589
F-statistics	19.4127***	1.6871	19.4127***	1.6871

Note: The table presents the coefficients of literacy variables in 2SLS regression (see equation 4). The dependent variable is indicated in the first row and concerns the pandemic period. The standard error is given in parentheses under the coefficient value. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively.

Source: Authors' calculations.

In addition, we verified whether the conclusions regarding the borrowing intentions are also applicable for the pre-crisis periods (during normal times). To accomplish this, we asked respondents a question about the possibility of loan repayment a year before the coronavirus pandemic and re-calculated the dependent variable C_i, which we explained with the same explanatory variables as in previous stages of the analysis. Some descriptive statistics for C_i in

[4] The types of credit that could be selected were car loan, mortgage loan, renovation loan, installment loan, overdraft, credit card loan, cash loan, and loan for students.

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the pre-COVID period are presented in Table A2 in the Annex. Moreover, Table 5 demonstrates OLS regression results for the pre-COVID C_i, while the literacy variable coefficients assuming endogeneity have been shown in Table 6.

Table 5
Regression results for loan installment variable assuming the different levels of income one year before the pandemic

Reference variable	Variables	(1) Loan PLN 2,500 sound	(2) Loan PLN 2,500 overindebt	(3) Loan PLN 5,000 sound	(4) Loan PLN 5,000 overindebt
Male	Gender (Male)	-7.158041 (48.11053)	-163.661 (161.8376)	-292.391** (133.4168)	-630.4376 (415.4251)
Degree Elementary	Middle-high	280.6303*** (62.76518)	285.9632 (176.7977)	397.137** (174.0561)	465.0405 (453.8265)
	High	331.3703*** (66.80025)	144.7581 (209.1714)	600.2362*** (185.2458)	454.235 (536.9275)
Age 18–34	Age 35–54	161.8479*** (52.29976)	-58.49017 (183.6187)	288.4703** (145.0341)	-205.9774 (471.3356)
	Age more 54	-48.02436 (62.05091)	157.3307 (180.4545)	-8.095711 (172.0753)	567.1901 (463.2132)
	Income fears	13.4055 (12.74944)	84.17458** (36.84417)	21.85163 (35.35587)	182.4372* (94.57625)
	Savings	8.828286*** (2.233708)	43.82315*** (10.36831)	20.99245*** (6.194363)	34.6391 (26.61467)
	Literacy	670.5187*** (98.25004)	146.0685 (388.0349)	2609.86*** (272.4602)	1110.327 (996.0567)
	Sample	1178	122	1178	122
	R-square	0.5183	0.4817	0.4773	0.3682

Note: The table presents OLS regression for loan installment one year before the pandemic that the respondent is willing to pay depending on the level of income (2,500 for columns 1 and 2; 5,000 for columns 2 and 3), with standard error in the brackets. *, **, and *** denote a statistical significance at 10%, 5%, and 1%, respectively. The column with models 1 and 3 estimates parameters for respondents who do not have problems with repaying their debts, while columns 2 and 4 estimate parameters for over-indebted respondents.

Source: Authors' calculations.

Table 6
Literacy parameters estimations for 2SLS regression

Variable	Loan PLN 2,500 sound	Loan PLN 2,500 overindebt	Loan PLN 5,000 sound	Loan PLN 5,000 overindebt
Literacy	3660.316*** (1078.982)	3105.998 (3956.213)	9491.827*** (2756.206)	10734.76 (11101.05)
Wu-Hausmann	14.8369***	0.9466	9.3298**	1.3762
F-statistics	19.4127***	1.6871	19.4127***	1.6871

Note: The table presents the coefficients of literacy variables in 2SLS regression (see equation 4). The dependent variable is indicated in the first row and concerns the pre-pandemic period. The standard error is given in parentheses under the coefficient value. *, **, and *** denote statistical significance at 10%, 5%, and 1%, respectively.

Source: Authors' calculations.

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Re-conducted analyzes confirm that our conclusions are also applicable in normal times. From the perspective of our proposition, it has been proven that financial literacy will significantly improve the borrowing intentions for financially sound individuals. Again, for the overindebted, financial literacy proved to be an insignificant variable.

5. DISCUSSION

According to our findings, financial literacy increases borrowing intentions for financially sound individuals. It is probably because financial literacy raises awareness and knowledge of banking products principles, eliminating the fears associated with the use of financial services. In this regard, our results align with other reports on the role of financial literacy in promoting healthy financial behavior.

Our research showed that middle-aged groups are more willing to borrow. Younger age groups have significantly higher debt aversion. This may be due to the fact that the younger generation is more cautious about the future (see the income fears variable in Table A4) and responds to the pandemic by reducing their borrowing intentions (it is also applicable to the pre-pandemic period). In this context, Henry (2017) also confirmed that young adults would increase their savings for unknown future needs. Also, Keese (2012) showed that household heads older than 45 years have a higher debt burden than younger household heads, supporting our conclusions about younger age groups' debt aversion.

Borrowing intentions in our research are not gender dependent. The mechanism of gender influence on credit decisions varies and conflicting results have been proposed in different reports. Chivakul and Chen (2008) highlighted that females are more likely to incur debt. On the other hand, Almenberg et al. (2020) found that women are more likely to be uncomfortable with debt. Considering financial attitudes, females are generally more risk-averse than males (Levin et al., 1988; Pinjisakikool, 2018). Similar to other studies on the sample of Polish citizens (Filipek et al., 2019), we also confirmed the existence of the gender gap in debt literacy.

The impact of education on borrowing intentions is also worth mentioning. According to our findings, the higher the level of education, the greater the willingness to borrow. These results are consistent with previous research. According to Tang and Guo (2017), each additional year of a household's head education would increase the probability of borrowing by 2.5%. The increased likelihood of "healthy" borrowing among educated people is often due to a better understanding of loan applications and debt management (Akram et al., 2008; Chandio et al., 2020).

6. CONCLUSIONS

The restrictions related to the coronavirus pandemic had a significant impact on the situation of households and their behavior in the credit market. The aim of the article was to determine how financial literacy influences household borrowing intentions during the coronavirus pandemic. In the literature, we can find research confirming the positive impact of financial literacy on healthy financial behavior in terms of savings, pension planning, and participation in the financial market and welfare. To a lesser extent, the research investigates the financial behavior of households in crisis times. Conducting a CAWI survey among 1,300 Polish citizens in June and July 2020 (i.e., during the peak of pandemic restrictions) made it possible to assess the role of financial literacy for borrowing intentions during the coronavirus pandemic.

Our study confirms that highly literate households are better prepared for a pandemic period and do not reduce the willingness to borrow. Respondents with a higher level of financial literacy are less hesitant to use credit products during the pandemic. Our findings are applicable to

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normal (non-crisis) times as well. Considering sociodemographic factors, debt aversion (in terms of limited borrowing intentions) is a feature of young adults and low educated people. Our conclusions are supported by OLS regression and an instrumental variable analysis.

During the coronavirus pandemic, the growth rate of loans in Poland (especially in the consumer loan segment) decreased to a level slightly above 0% (from 8% at the end of 2019) (National Bank of Poland, 2020). This research confirms that a financially literate society wants to continue borrowing even during a pandemic. This behavior allows a quick recovery from the recession. Importantly, financial literacy only strengthens the willingness to borrow for those who are financially sound. In the future, it will be intriguing to repeat the survey after the pandemic period. On the one hand, it will allow checking the impact of the coronavirus pandemic, and on the other hand, it will show whether households have drawn the right conclusions about personal finance management.

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ANNEX

Table A1
Literacy questions

Question	Answers
Financial Literacy I (FL I): Suppose you had PLN 100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?	a) More than PLN 102; b) Exactly PLN 102; c) Less than PLN 102;
Financial Literacy II (FL II): Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?	a) More than today; b) Exactly the same; c) Less than today;
Financial Literacy III (FL III): Please tell me whether this statement is true or false. "Buying a single company's stock usually provides a safer return than a stock mutual fund."	a) True; b) False;
Debt literacy I (DL I): Suppose you owe PLN 1,000 on your credit card and the interest rate you are charged is 20% per year compounded annually. If you didn't pay anything off, at this interest rate, how many years would it take for the amount you owe to double?	a) 2 years; b) Less than 5 years; c) 5 to 10 years; d) More than 10 years;
Debt literacy II (DL II): You owe PLN 3,000 on your credit card. You pay a minimum payment of PLN 30 each month. At an annual percentage rate of 12% (or 1% per month), how many years would it take to eliminate your credit card debt if you made no additional new charges?	a) Less than 5 years; b) Between 5 and 10 years; c) Between 10 and 15 years; d) Never, you will continue to be in debt; e) Do not know;
Debt literacy III (DL III): You purchase an appliance which costs PLN 1,000. To pay for this appliance, you are given the following two options: (a) Pay 12 monthly installments of PLN 100 each; (b) Borrow at a 20% annual interest rate and pay back PLN 1,200 a year from now. Which is the more advantageous offer?	a) Option (a); b) Option (b); c) They are the same; d) Do not know

Source: Own work.

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Table A2
Suppose you do not have any debt but would like to take out a loan. What maximal amount currently (or a year ago, before the coronavirus pandemic) would you be able to spend on monthly loan repayment if the average monthly earnings per person in your household were PLN 2,500 (or PLN 5,000) net?

Variable	Number	Intended monthly loan repayment during COVID-19 (income PLN 2,500)	Intended monthly loan repayment during COVID-19 (income PLN 5,000)	Intended monthly loan repayment pre-COVID-19 (income PLN 2,500)	Intended monthly loan repayment pre-COVID-19 (income PLN 5,000)
Financially sound respondents (n = 1178)					
Gender					
Male	586	666.56	1655.87	748.29	1906.71
Female	592	734.88	1788.52	800.94	1908.84
Age					
18–34	479	662.72	1588.76	729.10	1773.69
35–54	463	788.44	1903.60	878.95	2084.41
Age > 54	236	609.50	1644.41	665.22	1833.50
Degree					
Elementary	110	528.44	1161.25	571.65	1105.03
Middle-high	559	655.50	1599.66	741.47	1802.93
High	509	789.35	1981.38	856.23	2196.46
Overindebt respondents (n = 122)					
Gender					
Male	56	487.78	954.46	590.67	952.71
Female	66	659.45	1632.16	758.93	1782.75
Age					
18–34	40	703.22	1732.65	774.85	1648.00
35–54	48	419.16	1025.00	618.75	1120.58
Age > 54	34	406.50	762.50	535.41	770.83
Degree					
Elementary	20	699.25	1046.00	614.00	1098.00
Middle-high	69	591.37	1431.11	730.49	1420.05
High	33	486.36	1257.75	620.72	1547.57

Source: Own work.

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Table A3
Financial literacy/debt literacy questions: Share of correct answers to a particular question.

Variable	FL I	FL II	FL III	DL I	DL II	DL III
Gender						
Male	75.7%	72.4%	75.9%	48.4%	25.1%	14.8%
Female	68.7%	54.1%	61.6%	39.1%	15.7%	14.3%
Age						
18–34	68.6%	53.6%	58.0%	42.8%	20.8%	15.8%
35–54	72.8%	67.1%	73.6%	44.0%	19.8%	15.7%
Age > 54	77.8%	74.1%	79.6%	44.8%	23.3%	10%
Degree						
Elementary	66.2%	50.8%	59.2%	33.8%	5.4%	12.3%
Middle-high	71.2%	61.1%	67.7%	42.0%	19.9%	12.9%
High	74.7%	68.5%	72.0%	48.0%	25.8%	17.0%

Source: Own work.

Table A4
Income fears question: On a scale of 0 (no worries) to 5, rate how concerned you have been in recent months about losing your source of income. **Savings question**: How many months is your household able to survive based only on its savings?

Variable	Income fears (from 0 to 5)	Savings (in months)
Gender		
Male	2.47	9.30
Female	2.89	6.08
Age		
18–34	2.87	7.23
35–54	2.83	7.89
Age > 54	2.01	7.20
Degree		
Elementary	2.48	5.45
Middle-high	2.70	6.89
High	2.70	8.68

Source: Own work.

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Table A5
What type of loan have you used in your life?

Variable	Car	Mortgage	Installment	Student	Cash	Renovation	Credit card	Overdraft
Gender								
Male	17.3%	23.1%	36.2%	3.9%	38.2%	8.7%	28.7%	17.2%
Female	15.0%	16.8%	30.0%	6.1%	34.3%	10.6%	22.0%	13.1%
Age								
18–34	14.3%	17.9%	26.6%	8.1%	32.4%	9.8%	17.0%	9.6%
35–54	18.2%	26.2%	37.8%	3.3%	38.6%	9.6%	29.7%	17.4%
Age > 54	15.9%	11.9%	36.7%	2.2%	39.3%	9.6%	33.0%	21.1%
Degree								
Elementary	8.5%	10.8%	31.5%	0.8%	31.5%	10.0%	13.8%	12.3%
Middle-high	13.2%	15.4%	31.8%	4.0%	39.5%	8.1%	22.9%	12.7%
High	21.4%	27.3%	34.9%	7.2%	33.6%	11.4%	30.8%	18.5%

Source: Own work.

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