Socio-Psychological Peculiarities and Level of Financial Literacy of Russian Debtors

Maria A. Gagarina
PhD, Associate professor
Department of Human Resource Management
Financial University
Moscow, Russia
MGagarina@fa.ru; MGagarina224@gmail.com

Anna A. Shantseva
student
International Finance Faculty
Financial University
Moscow, Russia
Anna.Shantseva@gmail.com

Abstract. This article is devoted to investigation of role of financial literacy and socio-psychological factors in borrowing and debt behavior. Topicality of the problem is caused by necessity to understand the causes, except economic, leading to delays in debt repayment and therefore increasing debt burden. This work presents the basic theoretical approaches to the problem of debtors, debt behavior concepts and connections between debt behavior, financial literacy, social and demographic characteristics and personality traits in accordance with the results of international research. Results of empirical investigation are presented, which reflect differences in financial literacy and socio-psychological characteristics of non-borrowers, borrowers and debtors. In conclusion, debtors do not differ from borrowers, who pay their bills in due course, by social and demographic characteristics, but there is a significant difference in their psychological characteristics. Debtors demonstrate higher tolerance to debts and irrationality in debt behavior and lower level of conscientiousness than non-borrowers and borrowers/payers. Non-borrowers do not differ significantly from borrowers/payers in psychological characteristics but differ significantly from them in socio-demographic characteristics and financial literacy. Results got by the authors are in agreement with the data obtained in Russian and foreign scientific researches.
Keywords: debtor; borrower; borrowing; debt behavior; debt repayment; financial literacy; debt literacy; socio-psychological characteristics; big five personality traits; locus of control; debt attitudes.

Социально-психологические особенности и уровень финансовой грамотности должников

Гагарина М.А.
кандидат психологических наук, доцент
Кафедра «Управление персоналом и психология»
Финансовый университет
Москва, Россия
MGagarina@fa.ru; MGagarina224@gmail.com

Шанцева А.А.
студентка Международного финансового факультета Финансовый университет
Москва, Россия
Anna.Shantseva@gmail.com

Аннотация. Данная статья посвящена исследованию роли уровня финансовой грамотности и социально-психологических факторов в заимствующем и долговом поведении. Актуальность темы исследования обусловлена необходимостью понимания причин, помимо сугубо экономических, побуждающих лиц к несвоевременному погашению задолженности и приводящих к росту долгового бремени. В работе проанализированы основные теоретические подходы к определению должников и долгового поведения, показана связь долгового поведения с психологическими характеристиками респондентов и их уровнем финансовой грамотности по результатам зарубежных исследований. На основании результатов эмпирического исследования представлены различия по социально-психологическим характеристикам и уровню финансовой грамотности у лиц, не имеющих займов, заемщиков, не имеющих задолженности, и должников. Сделан вывод, что должники не отличаются от заемщиков, своевременно осуществляющих платежи по социальным и демографическим характеристикам, но отличаются от них по психологическим характеристикам. Должники, по сравнению с плательщиками и незаемщиками, имеют более нерациональное долговое поведение и более низкие показатели избегания долгов, а также более низкий уровень сознательности. Лица, не имеющие опыта заимствования, не отличаются от заемщиков-плательщиков по психологическим характеристикам, но отличаются по социально-демографическим характеристикам и по финансовой грамотности. Полученные авторами результаты согласуются с данными других отечественных и зарубежных научных исследований.
Ключевые слова: должник; заемщик; заимствующее поведение; долговое поведение; финансовая грамотность; долговая грамотность; социально-психологические особенности; большая пятерка личностных черт; локус контроля; долговые преставления.

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INTRODUCTION

Relevance of the study

The urgency of studying the role of financial literacy and socio-psychological characteristics in debt behavior is underpinned by the growing indebtedness of the population and the need to determine the factors that influence its dynamics. The problem of borrowing and debt is not fully investigated on Russian sample because of two reasons: late emergency of credit card market and the wide-spread habit of borrowing from individuals (relatives and friends) which is difficult to study objectively. These socio-economic and cultural peculiarities of borrowing in our country do not let us simply use foreign scientific experience in debt behavior. In general, the analysis of debt behavior should take into account a variety of factors, such as the financial ability to meet one's debt obligations, readiness and desire to perform, understanding of the mechanisms of debt formation, as well as individual characteristics such as integrity, conscientiousness, responsibility. Another important aspect is a person's ability to see the cause-and-effect relationships between their actions and what is happening in their life.

Knowing what factors play a leading role in the transition from borrowing to "bad debt" behavior will help to develop a more effective system of measures to prevent the growth of debt among the population in the future.

Decisions on borrowing call for knowledge of certain financial products and familiarity with the fundamentals of financial calculations. There is good reason to believe that the higher the level of financial literacy, the more rational decisions, including the ones on borrowing, the respondents will take. Together with the ability to limit oneself and direct available funds to repay debt, these characteristics can be the basis of effective debt management. That is, we assume the following:

in order not to become bad debtor, it is necessary to (1) gain a deep understanding of what a loan is and how it is to be paid; (2) be able to relate the resources available to those that would be required to repay the debt and (3) have certain psychological characteristics, such as emotional stability, conscientiousness, responsibility and internality for action to repay the loan. It is worth emphasizing that the problem calls for a systematic, multi-factor approach. Our previous studies (Gagarina, 2015; Smurygina, Gagarina 2016) have shown that the knowledge of the basic concept like «credit» and «loan interest» does not guarantee in itself the ability to apply this knowledge in practice and make the right decisions, like the ones on the order of loan repayment in case of multiple debts [1; 2433]. However, it goes without saying that the absence of such knowledge adversely affects the decision.

Background

We start our review from the terms which are mentioned in the heading of the article and make an overview of the developments that already exist in the field of debt behavior.

Financial literacy is defined as "a combination of awareness, knowledge, skill, attitude and behavior necessary to make sound financial decisions and ultimately achieve individual financial wellbeing" (Organization for Economic Co-operation and Development (OECD)/International Network on Financial Education (INFE), 2012). In its projects aimed at improving national strategies for financial education, the Organization for Economic Cooperation and Development (OECD) recommends to consider the study of financial literacy as a multistep process that depends on financial, economic and social circumstances of people/households. The initial stage involves the acquaintance with such basic concepts as the characteristics and use of financial products, and then proceeds to more complex steps like the comprehension of financial concepts and development of skills and attitudes necessary for managing personal finances in the short and long term. As a result, all stages of development of financial literacy suggest positive changes in the behavioral patterns of citizens and households.

Research by Lusardi & Tufano (2009) suggests that households with low level of financial literacy tend to borrow money at a higher interest rate. They are also less likely to plan out their retirement savings, have a lower propensity to save, and they prone to experience difficulties with payment of mortgage loans [30].

It is not so easy to define "debt" and "debtors". According to Dronova (2015), in Russian language the word "debt" has at least two different meanings: debt as something borrowed and obligated to be returned back (usually in terms goods or money), as synonym to "indebtedness" and "a loan" it can be met in manuscripts in XII–XIII century; and debt as a moral obligation (like sacred duty, filial duty or duty to the motherland), which can be seen in ancient text in XVI century [4]. Because a single word "debt" is used for both loans and dues, then while speaking about "debt behavior" we have to clarify that we actually mean borrowing. Borrowing behavior can be viewed in different ways. Firstly, it can be divided into institutional and non-institutional borrowing — that is, borrowing from an organization or from an individual. This classification is often used in sociological research, for example, in the PhD thesis A.A. Dikiy (2012) and A.I. Faizullina (2007) [3; 6]. Meanwhile, proponents of this approach refer to this type of borrowing behavior as "debt behavior". Necessity to distinguish between "debt" and "credit" in also of great concern. That is borrowing can be divided in accordance with the degree of repayment: those authors differentiate between loans (credit), outstanding debt (which is often treated as doubtful debt) and bad (distressed) debts. In the first case, we are talking about loans that can be repaid on time and in full; in the second case, there is a late payment on a loan or a payment is made not in full; and in the third case we are dealing with debt that remains unpaid because of the large size of the debt or because the debtor does not intend to pay it. These categories are applied in the works of Lea, S.E.G., P. Webley & R.M. Levine (1993), and Lea, S. E. G., Webley, P. & Walker, C.M. (1995) [27; 28]. Consequently, we can consider "credit behavior" (associated with borrowing in general and credit paid in time and in full) and "debt behavior" (associated with debt outstanding past due date and bad debt). In these studies, as well as in some other ones, debt is seen as a forced inability to make a payment that needs to be made, while credit is a deferred payment that will be made in accordance with the contract between the borrower and lender. In accordance with this approach to debt, we distinguish among the borrowers those who are "non-debtors", "minor debtors" and "serious debtors" (Lea, S. E. G., Webley, P. & Walker, C.M. (1995)) [28].

Thus, we face the question: who should be kept in mind by the term "debtor"? Firstly, it was proved by Dearden, C., Goode J., Whitfield, G. & Cox, L. (2010) that economists and ordinary people understand this in different ways [15, p. 11]. Objective measures are those derived from legal and statistical measures and often use quantitative indicators, while subjective definitions are more qualitative and self-declared by nature. Secondly, one can be a debtor, but not a borrower — how are we to deal with this case?

After analyzing the characteristics of the respondents described in various English-language articles, the title of which included the words "debt", "debt behavior" and "indebtedness", we found out that Achtziger, A., Hubert, M., Kenning, P., Raab, G. & Reisch, L. (2015); Dunn, L. F. & Mirzaie, I. A. (2011); Harrison, N., Agnew, S. & Serido, J. (2015); Jenkins, R., Bhugra, D., Bebbington, P., Brugha, T., Farrell, M., Coid, J. Fryers, T., Weich, S., Singleton, N. & Meltzer, H. (2008) apply the term "debtor" to people who just have mortgages, credit cards, auto loans and education loans [7; 18; 22; 25]; Brown, Taylor, Price (2005) use these works interchangeably [12] and Gathergood, J. (2012); Gathergood, J. & Weber J. (2014); Lusardi, A., and Tufano, P. (2009) apply debt to those who have late payments and arrears on loans [20; 19; 30]. To talk about bad debts, in addition to the term "problem debt" that reflects the inability and/or unwillingness to repay the loan or pay for goods and services on time and in full used in Jones, L.E., Loibl, C. & Tennyson, S. (2015)) [26], another term (not used in Russian language) "over-indebtedness", which implies overdue loans and a subjective definition of borrowing as conjugate with financial problems applied in works of Dunn, L. F. & Mirzaie, I. A. (2011) and Harrison, N., Agnew, S. & Serido, J. (2015) [18, 22].

All in all, in our survey, we distinguished between borrowers/payers (those having loan of any type or borrowing from individuals) and debtors (borrowers with overdue loans and missed payments) and non-borrows.

Debt behavior and borrowing behavior can be analyzed with a focus on their causes. That type of works is devoted to the search of predictors of debt behavior, which include, for instance, self-control and time perspective, like in the study by Webley & Nyhus (2001) [34]. However, it is not always possible to distinguish a sound cause-and-effect relationship between individual characteristics and debt accumulation. For example, Gathergood's works (2012) state that a low level of self-control leads to higher debt, as respondents with weak self-control often use short-term but expensive loans, and the increase in debt is due to low self-control, not financial literacy [20]. Meanwhile, Achtziger, A., Hubert, M., Kenning, P., Raab, G. & Reisch, L. argue in their research (2015) that the link between low self-control and a high level of debt is mediated, and it is related to the inability (or reduced ability) to monitor and control the need to make purchases [7].

Due to the inability to detect cause-and-effect relationships, many works are basically devoted to identification of various characteristics (personal, behavioral, and so on) of debtors and their differences from borrowers and from people who don't borrow at all.

Relatively well developed is the problem of the connection between attitudes and debt behaviors. In their work, Davies, E., Lea, S. E. G. (1995) discovered the relationship between pro- and anti-debt attitudes in students with the amounts of debt outstanding and their readiness to spend money on maintaining certain living standards. Pro-debt attitudes turned out to be positively correlated with the larger amounts of arrears [14]. Besides, there are studies that confirm the link between personality traits and financial decision-making such as unsecure debt and financial assets. Brown, S. & Taylor (2014) have shown that extraversion and agreeableness have a significant positive correlation with the amount of debt, while conscientiousness has a negative correlation with it. The only personality trait that does not give any meaningful correlation neither with the size of the debt, nor with the ownership of assets, is neuroticism [11]. These conclusions contradict the results obtained by other researchers; according to Webley & Nyhus (2001), for example, emotional instability is a positive predictor of debt [34].

Many studies focus on the (generally negative) influence of debts on physical and mental health of debtors. A number of epidemiological studies, like the ones by Gathergood (2012) or Hojman et al. (2013) [20; 23], have shown that the existence of outstanding debt is a significant predictor of depression.

It goes without saying that debt behavior is determined not only by personal traits or attitudes, but also by the knowledge and understanding of economic processes and phenomena — that is, by the level of financial literacy, which was defined at the beginning of this article. This fact is proved by a number of empirical studies. The works by Disney & Gathergood (2013) show the role that financial literacy plays in the formation of one's credit portfolio. To assess the level financial literacy of the respondents, the latter were asked three questions: (1) a simple question on the calculation of interest, (2) a question on the understanding of the accumulation of interest on a loan and (3) the question related to the minimum payment. In addition, two more features were estimated: the level of self-consciousness in relation to financial literacy and the behavior aimed at improving it. The respondents who take consumer loans demonstrate a lower level of financial literacy than those who do not borrow at all. Besides, borrowers with a low level of financial literacy tend to take more expensive loans, as compared with borrowers with a high level of financial literacy. Despite the awareness of their incompetence in financial matters, people with a low level of financial literacy are less willing to attempt to improve their understanding of the credit market — for example, to read the financial press or receive information about new, favorable loan offers [17].

The results of J. Gathergood's research (2012) provide convincing evidence that the lack of self-control and a low level of financial literacy are positively correlated with defaults on consumer loans and self-reports of excessive debt burden. However, the analysis showed that the lack of self-control plays a greater role as the explanation of over-indebtedness, as compared to the financial literacy [20]. It should be noted, however, that the increase in the level of financial literacy can lead to ambiguous consequences; for example, Brown, M., Grigsby, J., van der Klaauw, W., Wen, J. & Zafar, B. (2014) studied the effect of taking courses in finance on the future indebtedness. It turned out that studying mathematics and improving financial literacy does reduce the negative consequences such as bankruptcy and debt accumulation, but at the same time it also stimulates participation in the debt market and leads to an increase in the number of loans, which in turn can result in negative consequences in the future [10]. In addition, Gathergood, J. & Weber J. (2014) revealed the relationship between the high level of financial literacy and the so-called "co-holding" — simultaneous ownership of expensive credits and illiquid deposit accounts. According to the information from their article, 12% of all households are "co-holders". The average amount they owe to the bank is £3,800 and they make regular payments to pay down the borrowed amount and the interest set by the bank, in spite of having enough assets to cover all their credits at once. Co-holders generally have a higher level of financial literacy, their income is above average, and they also tend to be well educated. It was established that co-holding is linked to impulsive purchases and is often used as a way to control one's spending, that is, as coping strategy [19].

So, what are the key factors that determine the level of financial literacy? Grohmann, A., Kouwenberg, R. & Menkhoff, L. (2015) distinguish three main predicators: family, school and work. In their paper, the authors combined two directions of research — the study of financial socialization, defining the role of a child's experience in the formation of financial knowledge and behavior, and studies on financial literacy, describing the impact of financial literacy on the financial behavior of adults [21]. Thus, financial literacy serves as a link between the variables describing childhood experiences and adult economic behavior. Five scales serve as the childhood experience variables: parental education, financial socialization provided by parents, Economics lessons taught at the school, the quality of education, and financial socialization through experience of dealing with money in life or at work. To assess the level of financial literacy the researchers used the method developed by Lusardi & Mitchell — an assessment tool comprising three questions concerning the basic financial concepts: interest rates, inflation and diversification [30]. The researchers also used the number of available types of financial assets (except for savings accounts, which all respondents had) as an indicator of effective financial decision-making. The results showed two main directions to explain the effect of childhood experience on the level of financial literacy of adults. The first is the financial socialization provided by parents through teaching their kids to manage their budget and through encouraging savings behavior, which directly leads to improvement of financial literacy. In addition, provision of financial socialization of children by parents leads to the development of quantitative thinking (numeracy) and thus indirectly improves financial literacy. The second channel used to explain the role of the childhood experience in the formation of financial literacy is learning at school. In this case, the study of economics at school and a higher quality of education have an indirect effect on developing numeracy and thereby also contribute to improving financial literacy. The results confirmed that a higher level of financial literacy is associated with more efficient financial solutions.

METHODS

The aim of our study was to identify the relationship between social and psychological characteristics and the level of financial literacy on the one hand, and borrowing and debt behavior of Russian people on the other. Approximately 252 respondents aged from 18 to 67 took part in assessment; M=38,0 SD10,8; 158 women, 92 men (others not identified). In our survey we used snowball sampling. It is a non-probability sampling technique where existing study subjects recruit future subjects from among their acquaintances.

The survey itself is comprised of approximately 130 questions.

The hypothesis of this study, as has been described above, is that the differences between non-borrowers, borrowers fulfilling their obligations in full, and debtors come in three flavors: firstly, the willingness to borrow money and tolerance for the presence of loan; secondly, theoretical understanding of what a loan is and how it is to be paid, as well as the ability to match the available resources with one's needs (financial and debt literacy); and, thirdly, there are certain psychological characteristics — such as emotional stability, awareness, responsibility and internality — which enable borrowers to take action to repay the loan.

To check the first part of hypothesis we included a block of questions to gather information about gender, age, level of education, marital status, number of children, experience of borrowing and types of borrowing (if any) in the past, existence of outstanding loans at the moment, presence of arrears of payments, expectations about one's own solvency within the next year and the willingness to take advantage of borrowing in microfinance institutions.

The second block included questions on financial (particularly debt) literacy. To determine the level of financial literacy, we used the method described in the works of Lusardi & Tufano (2009) and Disney & Gathergood (2012) [20; 30]. The questions were translated into Russian and adapted: the amount shown in native currency and the interest rates were chosen in accordance with the real-life rates charged by Russian banks. Thus, the block of questions for assessing financial literacy included three questions that reveal one's understanding of the basic concepts:

I. "Marina has a credit card debt in the amount of 10,000 rubles; the annual interest rate is 15% per year. If she does not make payments to cover the arrears, what will be the amount she owes in 1 year, taking into account the interest rate? (Penalties and fines are excluded)"

A) 8,500 rubles; B) 10,000 rubles; C) 11,500 rubles; D)15,000 rubles; E) I don't know

II. "Sergei has a credit card debt in the amount of 10,000 rubles; the annual interest rate is 20% per year. If he does not make payments to cover the arrears, how many years will it take for his debt to double?"

A) Less than 5 years; B) from 5 to 10 years; C) more than 10 years; D) I don't know

III. "David has a credit card debt in the amount of 30,000 rubles; the annual interest rate is 12% per year (1% per month). He pays 300 rubles every month to cover the arrears, eliminating penalties and additional fees for using the card. How long will it take David to repay the debt in full under these conditions?"

A) Less than 5 years; B) from 5 to 10 years; C) more than 10 years; D) He won't repay the loan; E) I don't know

Two additional questions to clarify individual preferences in debt repayment were similar to questions described in Amar, Ariely, Ayal (2011) [8]: "3,000 rubles task" and "30,000 rubles task". "3,000 rubles task". Respondents were asked to imagine that they have two credit card accounts: a MasterCard account with a 3,000 rubles balance and a 19% annual percentage rate (APR), and a Visa account with a 30,000 rubles balance and a 24% APR. If they had just received either a 3,000 rubles or a 30,000 rubles bonus which account they would repay completely or how much would they pay on each account? Task was a multiple-choice test: there were three possible answers. In the "3,000 rubles task" the answers were: A) use all of the money (3,000 rubles) to pay down the debt of 3,000 rubles, B) use all of the money to pay down the debt of 30,000 rubles, C) divide the sum between the arrays. In the "30,000 rubles task" the options were: A) repay the 3,000 rub. debt in full; B) repay the 30,000 rub. debt in full, C) divide the money between the arrears, but not in the proportion of 3,000 rub. and 27,000 rub."

The third block contains psychodiagnostic techniques: "Debt behavior questionnaire by M.A. Gagarina", "Locus of control" method and "The Big Five personality traits" technique. Because our main focus were psychological traits we included full versions of questionnaires. Debt behavior questionnaire by M.A. Gagarina comprises 30 questions which give us five scales (alpha Cronbach >= 0,75): Debt avoidance, Rational debt behavior, Debt attitudes and Internality in debt. Locus of control questionnaire (in Russian) comprises 44 questions which give us 7 scales representing the level of internality in different spheres: general, achievements, failures, family relations, professional sphere, interpersonal relations and health. Big Five (in Russian) comprises 40 questions which give us 5 scales: Extraversion, Neuroticism, Openness to experience, Conscientiousness and Agreeableness.

EMPIRICAL RESULTS

Social and demographic characteristics

Sample characteristics are presented in Table 1.

All respondents are split into three groups (Variable "Group" in further analysis): Non-borrowers, Borrowers/payers, Debtors.

Non-borrowers — are individuals who deny having loans from any institutions or individuals.

Borrowers/payers — are individuals who have taken a loan from a bank or other organization or from an individual. We included word 'payers' to emphasize that they have no overdue loans (and did not have overdue debts in the past as well) and distinguish them from borrowers with delayed or missed payments and bad debts.

Debtors are individuals admitted that they had overdue loans or missed and delayed loan payments.

From Table 1 we can conclude that our typical respondent is a woman from 36 to 45 years old, married, having 2 children, with higher education and working in an organization.

The "non-borrowers" is mainly represented by individuals aged 18–25, with higher education, in most cases having no children and with a similar proportion of married and divorced respondents. In half of the cases the respondents are employed by organizations; the proportions of self-employed and unemployed are nearly equal.

Borrowers/payers tend to fall into the 36 to 45-year-old category, with higher education, usually married and having two children, mostly being hired workers in organizations.

Debtors are mostly are mostly concentrated in the 36 to 45-year-old category, with higher education, usually married and having two children, employed by organizations. In comparison with two other groups, this category contains a higher proportion of men.

The most popular type of borrowing is consumer credit (73% of borrowing among payers and debtors), the next goes borrowing from relatives and friends (31%), then car loans, sometimes combined with consumer credit or borrowing from friends and relatives (22%) and after that comes mortgage (17%), followed by a combination of mortgage and other types of borrowing (13%) and the last are credit card (3%) and educational loan (1%).

No significant differences (Chi-square, $p<0,050$) were found among frequencies of each type of borrowing among Debtors and Payers.

One-way ANOVA was conducted to compare social and demographic characteristics of participants across Debtors, Non-borrowers and Payers. The independent variable (factor) is the Group, the dependent variables include Age, Sex, Marital status, Number of children and Employment status. To move from non-interval (qualitative) data to interval (quantitate) we used the dummy variable technique: we coded social and demographic characteristics in binary system (0 and 1). The results are presented in Table 2 and they confirm the fact that there is a significant difference in social and demographic characteristics.

Summary statistics are presented in Table 3 and show that there are significant differences in Age, Marital status, Number of children between at least two groups.

We continue the Post Hoc analysis (Turkey HSD for unequal sample) for scales with significant values to see which groups differ from one another. The results are presented in Tables 4–7.

Table 4 represents the results for the variable Age: there is a significant difference between the

Table 1. **Sample characteristics**

	Non-borrowers	Borrowers/ payers	Debtors	General sample
N	89 (35%)	131 (52%)	31 (12%)	251
Female	57 (66%)	87 (66%)	14 (45%)	158 (63%)
Male	30 (34%)	44 (34%)	17 (55%)	91 (36%)
Not identified	2 (1%)	0	0	2 (1%)
18–25	42 (47%)	24 (18%)	8 (26%)	74 (30%)
26–35	21 (16%)	13 (15%)	8 (26%)	42 (16%)
36–45	26 (29%)	53 (40%)	11 (35%)	90 (36%)
46–55	7 (8%)	24 (18%)	3 (10%)	34 (14%)
Over 55	9 (7%)	1 (1%)	1 (3%)	11 (4%)
Two higher education or PhD	8 (8%)	23 (19%)	4 (13%)	35 (14%)
Higher education	71 (74%)	82 (66%)	19 (61%)	172 (69%)
Secondary (special) education	17 (18%)	19 (15%)	7 (23%)	44 (17%)
Married	48 (50%)	96 (79%)	21 (68%)	165 (66%)
Not married	41 (43%)	16 (13%)	4 (13%)	61 (25%)
Widow	0	1 (1%)	0	1 (<1%)
Divorced	7 (7%)	9 (8%)	5 16%)	21 (8%)
Married several times	0	0	1 (3%)	1 (<1%)
Not identified	0	2 (1%)	0	2 (1%)
Children: 0	42 (44%)	21 (17%)	10 (32%)	73 (29%)
Children: 1	11 (12%)	35 (28%)	4 (13%)	50 (20%)
Children: 2	35 (37%)	53 (43%)	14 (45%)	102 (41%)
Children: 3	6 (6%)	12 (10%)	2 (7%)	20 (8%)
Children: 4	1 (1%)	1 (1%)	0	2 (1%)
Children: 5	0	1 (1%)	1 (1%)	2 (1%)
Children: 6	0	1 (1%)	0	1 (<1%)
Employed in organization	50 (52%)	77 (62%)	17 (55%)	144 (57%)
Self-employed	21 (22%)	28 (23%)	6 (19%)	55 (22%)
Unemployed	24 (25%)	19 (15%)	7 (23%)	51 (20%)
Parental leave	0	0	1 (3%)	1 (<1%)
Type of borrowing				
All groups	Chi-square	131 (81%)	31 (19%)	162
Comsumer credit	0,06	58 (45%)	15 (48%)	73 (46%)
Borrowing from individuals	0,16	26 (20%)	5 (16%)	31 (19%)
Car loan (car loan plus credit from a bank or an individual)	1,33	20(16%)	2 (6%)	22 (14%)
Mortgage	0,19	13 (10%)	4 (13%)	17 (11%)
Mortgage plus credit from bank or individual	2,75	8 (6%)	5 (16%)	13 (8%)
Credit card	0,71	3 (2%)	0	3 (2%)
Education loan	0,24	1 (<1%)	0	1 (<1%)

Table 2. **Multivariate Tests of Significance (for social-demographics). Sigma-restricted parameterization. Effective hypothesis decomposition**

	Test	Value	F	Effect	Error	p
Intercept	Wilks	0.005	4497.9	10	238	0,000000
Group	Wilks	0.783	3.1	20	476	0,000009

Table 3. **Test of SS Whole Model vs. SS Residual (Social-demographics)**

	Mult	Mult	Adj	SS	df	MS	SS	df	MS	F	p
Male	0.14	0.02	0.01	1.20	2	0.60	56.67	247	0.23	2.62	0.0745
Age	0.33	0.11	0.10	3110.1	2	1555.0	25434.9	247	102.98	15.10	0.0000
Mar ried =1	0.30	0.09	0.08	4.85	2	2.43	50.92	247	0.21	11.77	0.0000
Not married =1	0.37	0.14	0.13	6.25	2	3.13	39.35	247	0.16	19.62	0.0000
Widow =1	0.06	0.00	0.00	0.00	2	0.00	0.99	247	0.00	0.45	0.6368
Divor ced =1	0.11	0.01	0.00	0.22	2	0.11	19.02	247	0.08	1.40	0.2497
Child ren	0.27	0.07	0.06	21.41	2	10.71	277.61	247	1.12	9.53	0.0001
Emp loyed =1	0.08	0.01	0.00	0.43	2	0.21	60.78	247	0.25	0.87	0.4212
Self-emp loyed =1	0.06	0.00	0.00	0.16	2	0.08	42.74	247	0.17	0.47	0.6264
Unemp loyed=1	0.15	0.02	0.01	0.88	2	0.44	39.12	247	0.16	2.78	0.0637

score for Non-borrowers and Borrowers/payers. Non-borrowers are significantly younger (Table 4) and comprise a higher proportion of individuals from 18 to 25 years old (Table 2).

Table 5 represents the results for the variable Children: there is a significant difference in the score for Non-borrowers and Borrowers/payers. Non-borrowers have significantly fewer children (Table 4) than Borrowers/payers. While both groups have a similar proportion of individuals with two children, the Non-borrowers group contains more individuals without children (Table 2).

Tables 6 and 7 represent the results for the variables Married and Not-married. In this case we include both variants in the analysis because they are not just two opposite options — we also have other types of marital statuses, such as widow and divorced and they all were presented in a multiple choice questionnaire. Non-borrowers tend to be married more rarely, as compared to Borrowers/payers and they tend to be single (not married) more often than two other groups of respondents.

We can conclude that Non-borrowers differ from the other groups the most due to their age: they are younger and that is why they tend to be married more rarely and have fewer children than Borrowers/payers.

There is no significant difference between the two other types of borrowers: Payers and Debtors.

Table 4. **Unequal N HSD; variable Age (Social-demographic) Approximate Probabilities for Post Hoc Tests Error: Between MS = 102,98, df = 247,00**

	Group	Payers 41.0	Non-borrowers 33.3	Debtors 37.2
1	Payers 41.0		0.000023	0.308245
2	Non-borrowers 33.3	0.000023		0.285392
3	Debtors 37.2	0.308245	0.285392	

Table 5. **Unequal N HSD; variable Children (Social-demographic) Approximate Probabilities for Post Hoc Tests Error: Between MS = 1,1239, df = 247,00**

	Group	Payers 1.6	Non-borrowers 0.97	Debtors 1.39
1	Payers 1.6		0.000214	0.701796
2	Non-borrowers 0.97	0.000214		0.261311
3	Debtors 1.39	0.701796	0.261311	

Table 6. **Unequal N HSD; variable Married=1 (Social-demographic) Approximate Probabilities for Post Hoc Tests Error: Between MS =,20624, df = 248,00**

	Group	Payers 0.78	Non-borrowers 0.48	Debtors 0.71
1	Payers		0.000040	0.821331
2	Non-borrowers	0.000040		0.098022
3	Debtors	0.821331	0.098022	

Table 7. **Unequal N HSD; variable Not married=1 (Social dempgraphic) Approximate Probabilities for Post Hoc Tests Error: Between MS =,15985, df = 248,00**

	Group	Payers 0.12	Non-borrowers 0.46	Debtors 0.12
1	Payers		0.000022	0.997463
2	Non-borrowers	0.000022		0.003141
3	Debtors	0.997463	0.003141	

Personality traits analysis

In Tables 8 Descriptive statistics for personality traits are presented.

For each scale of Big Five personality test the respondents can earn from 0 to 16 point. In general, Non-borrowers and Borrowers/payers have average results on Extraversion, Neuroticism Openness to experience and above-average results on Conscientiousness and Agreeableness. Debtors have average results on Extraversion, Conscientiousness and Agreeableness and above-average results on Neuroticism and Openness to experience.

Then we used one-way analysis of variance (ANOVA to determine whether there are any statistically significant differences between the means of the three independent groups: Non-borrowers, Borrowers/payers and Debtors. The independent variable is Group, the dependent

Table 8. **Descriptive statistics, Big Five questionnaire**

Group	Payers N=107		Non-borrowers N=54		Debtors N=27		All Grps N=188	
	M	SD	M	SD	M	SD	M	SD
Extraversion	7.3	3.3	7.6	3.1	7.7	3.5	7.4	3.2
Neuroticism	8.4	3.3	8.9	3.7	10	4	8.7	3.5
Openness to experience	9.4	2.8	9.8	2.7	10	3.2	9.6	2.9
Conscientiousness	11.9	3.2	11.6	2.8	9.5	3.1	11.5	3.2
Agreeableness	10.8	2.8	10.4	2.8	9.7	3.5	10.5	2.9

Table 9. **Levene's Test for Homogeneity of Variances (Big Five) Effect: «Group» Degrees of freedom for all F's: 2, 185**

	MS	MS	F	p
Extraversion	1.19	3.52	0.34	0.71398
Neuroticism	5.86	3.96	1.48	0.23016
Openness to experience	0.58	2.88	0.20	0.81661
Conscientiousness	1.71	3.30	0.52	0.59626
Agreeableness	8.68	3.12	2.78	0.06485

Table 10. **Multivariate Tests of Significance (Big Five) Sigma-restricted parameterization Effective hypothesis decomposition**

	Test	Value	F	Effect	Error	p
Intercept	Wilks	0.044562	776.1565	5	181	0.000000
Group	Wilks	0.884870	2.2830	10	362	0.013274

Table 11. **Test of SS Whole Model vs. SS Residual (Big Five)**

	Mult	Mult	Adj	SS	df	MS	SS	df	MS	F	p
E	0.05	0.00	−0.01	5.26	2	2.63	1949.21	185	10.54	0.25	0.7795
N	0.16	0.02	0.01	57.14	2	28.57	2267.56	185	12.26	2.33	0.1001
O	0.08	0.01	0.00	9.81	2	4.91	1518.37	185	8.21	0.60	0.5511
C	0.26	0.07	0.06	129.33	2	64.67	1743.48	185	9.42	6.86	0.0013
A	0.13	0.02	0.01	25.96	2	12.98	1553.02	185	8.39	1.55	0.2156

variables are the scales of the Big Five personality questionnaire — Extraversion (E), Neuroticism (N), Openness to experience (O), Conscientiousness (C) and Agreeableness (A).

To verify the possibility to employ ANOVA we used Kolmogorov-Smirnov test to check the normality of assumption: the dependent variables are normally distributed in each group and then we used Levene's test to ensure that the variances are equal across groups or samples, see Table 9.

From Table 9 follows that there is homogeneity of variances and ANOVA can be used.

In Table 10 results of ANOVA for Big Five traits across groups are presented.

Table 12. **Unequal N HSD; variable Conscientiousness (Big Five) Approximate Probabilities for Post Hoc Tests Error: Between MS = 9,4242, df = 185,00**

	debtors-payers-non	Payers 12.0	Non-borrowers 11.5	Debtors 9.5
1	Payers		0.805992	0.009657
2	Non-borrowers	0.805992		0.034859
3	Debtors	0.009657	0.034859	

Table 13. **Descriptive statistics, Debt behavior questionnaire**

Group	Payers N=107		Non-borrowers N=55		Debtors N=27		All Grps N=189	
	M	SD	M	SD	M	SD	M	SD
Debt avoidance	30.9	4.1	32.6	3.3	27.9	4.7	31	4.2
Rational debt behavior	32	4.7	32.1	3.8	28.8	4.6	31.6	4.6
Debt attitudes	20.3	4.5	21	5.6	22.1	5.9	20.8	5.1
Internality in debt	25.5	4.2	25.7	3.7	24.5	4	25.4	4

Table 14. **Multivariate Tests of Significance (Debt behavior questionnaire) Sigma-restricted parameterization Effective hypothesis decomposition**

	Test	Value	F	Effect	Error	p
Intercept	Wilks	0.013139	3436.193	4	183	0.000000
Group	Wilks	0.835919	4.289	8	366	0.000060

Table 15. **Test of SS Whole Model vs. SS Residual (Debt behavior questionnaire)**

	Mult	Mult	Adj	SS	df	MS	SS	df	MS	F	p
Debt avoid.	0.35	0.12	0.11	405.7	2	202.85	2963.03	186	15.93	12.7	0.0000
Rational debt behav.	0.25	0.06	0.05	240.4	2	120.20	3657.75	186	19.67	6.1	0.0027
Debt attitud.	0.12	0.01	0.00	68.05	2	34.02	4762.06	186	25.60	1.3	0.2672
Inter-nality in debt	0.09	0.01	0.00	26.38	2	13.19	3012.95	186	16.20	0.8	0.4446

The values of Table 10 confirm the fact that there is a significant difference in personality traits across groups. We continue our analysis and found significant difference only in Conscientiousness (Table 11).

The Post Hoc analysis (Turkey honest significant difference HSD for unequal sample), presented in Table 12 shows that Debtors significantly differ from Non-borrowers and Borrowers/payers.

Debtors have a significantly lower level of Conscientiousness than Non-borrowers and Borrowers/payers. No significant difference in Conscientiousness between Non-borrowers and Borrowers/payers was found.

Table 16. **Unequal N HSD; variable Debt avoidance (Debt behaviour questionnaire) Approximate Probabilities for Post Hoc Tests Error: Between MS = 15,930, df = 186,00**

	Group	Payers 31.0	Non-borrowers 32.5	Debtors 28.0
1	Payers		0.073078	0.013301
2	Non-borrowers	0.073078		0.000059
3	Debtors	0.013301	0.000059	

Table 17. **Unequal N HSD; variable Rational debt behaviour (Debt behaviour questionnaire) Approximate Probabilities for Post Hoc Tests Error: Between MS = 19,665, df = 186,00**

	Group	Payers 32.0	Non-borrowers 32.0	Debtors 28.8
1	Payers		0.997753	0.021669
2	Non-borrowers	0.997753		0.019055
3	Debtors	0.021669	0.019055	

Table 18. **Descriptive statistics for Locus of control**

	Payers N=106		Non-borrowers N=52		Debtors N=27		All Grps N=185	
	M	SD	M	SD	M	SD	M	SD
General internality	4.7	1.8	4.8	1.9	4.4	1.5	4.7	1.8
Internality in achievement	5.8	2.1	5.4	2	5.7	1.6	5.7	2
Internality in failure	4.5	2.2	4.8	2	4	1.8	4.5	2.1
Internality in family relation	5.3	1.8	5.5	1.7	4.8	1.4	5.3	1.7
Int. in professional sphere	4.4	1.8	4.6	2	4.2	1.6	4.4	1.8
Int. in interpersonal relation	5.8	1.7	5.7	1.5	5.6	1.5	5.8	1.6
Internality in health	5.2	1.8	5.6	1.4	5.3	2.4	5.3	1.8

Analysis of Debt behavior questionnaire results

For each scale of Debt behavior questionnaire, the respondents can earn from 8 to 40 points. Non-borrowers and Borrowers/payers have average results on Internality in debt, below average results on Debt attitudes and above-average results on Debt avoidance and Rational debt behavior (see Table 13). Debtors have lower results on Debt avoidance and Rational debt behavior.

Normal distribution in all groups (K-S test) and homogeneity of variance (Leven's test) of dependent variables (scales of Debt behavior questionnaire) make it possible to use one-way ANOVA for debt behavior across the groups (Table 14).

The values of Table 14 confirm the fact that there is a significant difference in Debt behavior across groups. We continue our analysis (Table 15). The whole model shows that groups differ significantly in Debt avoidance and Rational debt behavior.

Post Hoc analysis (Turkey honest significant difference HSD for unequal sample) presented in Table 16–17 shows that Debtors have a significantly lower level of Debt avoidance and Rational debt behavior than Non-borrowers and Borrowers/payers.

Non-borrowers do not differ significantly from Borrowers/payers neither in Debt avoidance nor in Rational debt behavior.

Results on Locus of control

The next part of our analysis was Locus of control. Descriptive statistics are presented in Table 18.

In all groups we observe similar results and a low level of internality. External locus of control is on General internality, Internality in failure and Pro-

Table 19. **Multivariate Tests of Significance (Locus of control) Sigma-restricted parameterization Effective hypothesis decomposition**

	Test	Value	F	Effect	Error	p
Intercept	Wilks	0.051981	458.5540	7	176	0.000000
Debtors-payers-non	Wilks	0.924815	1.0021	14	352	0.450508

fessional sphere. Moderate internal locus of control is on scales Internality in achievement, Family and Interpersonal relations and Health. High internal locus of control in any sphere is not fixed in our respondents.

One-way ANOVA for Locus of control across groups shows no significant differences (Table 19).

Results on Financial literacy

The final part was devoted to analysis of financial literacy. Results are presented in Table 20.

The vast majority of our respondent (more than 70%) in each group answered correctly on the first question. Less than a half of Debtors and Non-borrowers gave a correct answer to the second and the third questions, and half of Borrowers/payers managed to solve the third question. Less than a half of respondent in all groups completed task 1 and the lowest proportions is for Debtors group. More than 70% of Non-borrowers and Borrowers/payers (and less than 40% of Debtors) found a correct solution to task 2.

The highest mean number of correct answers in general is for Borrowers/payers, a smaller one — for Non-borrowers and Debtors have the lowest number.

Financial literacy is estimated by five questions (described in Methods), for which 1- is a correct answer, 0 — is a failure and the scale is the Number of correct answers.

One-way ANOVA was conducted to compare Financial literacy across groups: factor — variable Group, dependent variables — Qestion 1, Question 2, Number of correct answers (distribution is normal, homogeneity of variance in all groups). Results are presented in Table 21.

Our groups differ significantly in the level of financial literacy.

Results, presented in Table 22 show that there are differences in question 2 and in the general number of correct answers.

Post Hoc analysis showed that difference is between Debtors and Borrowers/payers.

DISCUSSION

The present study of respondents with different type of borrowing/debt behavior uncovered the following interesting features. Firstly, there is no significant difference in social and demographic characteristics of Borrowers/payers and Debtors. They tend to belong to the same age category, have the same marital and employment status. They take the same types of credits. Meanwhile, the group of Non-borrowers differ significantly from Borrowers/payers. They are younger, rarely married, have fewer children and these results are in agreement with those of Disney and Gathergood (2013) [17]. This group contains higher proportion of participants aged 18 to 25 years and we could expect them to have higher proportion of educational loans but turned out that this type of borrowing is not popular among Russians either because it is provided only by one financial institution (Sberbank) or due to the general attitude towards credit organizations. From sociological researches of Fayzullina A.I. (2007), Dikiy A.A. (2012) conducted on Russian sample we know that common users of credit organization are specialists from 36 to 50 years, working in public and private organizations. Negative attitudes to borrowing in general and credit organizations in particular connected with uncertainty in financial future, low level of trust to financial organizations and lack of knowledge of financial products [3, 6].

The most popular type of borrowing is consumer credit (73% of borrowing among payers and debtors), the next goes borrowing from relatives and friends (31%), then car loans, in some cases combined with consumer credit or borrowing from friends and relatives (22%), after that comes mortgage (17%), followed by a combination of mortgage with other types of borrowing (13%) and the last are credit cards (3%) and educational loans (1%). We can see that borrowing from relatives and friends (it is not the same as *p2p lending*) is rather popular among Russian respondents and this results are confirmed by Central Bank research [5]. A low level of Educa-

Table 20. **Descriptive statistics for financial literacy scores**

Group	Payers	Non-borrowers	Debtors	All Grps
N	131	89	31	251
Question 1	102 (78%)	72 (81%)	23 (74%)	197 (78%)
Question 2	78 (60%)	37 (42%)	14 (45%)	129 (51%)
Question 3	64 (49%)	31 (35%)	15 (48%)	110 (44%)
Task 1	59 (45%)	37 (42%)	9 (29%)	105 (42%)
Task 2	101 (77%)	62 (70%)	12 (39%)	175 (70%)
Correct answers M (SD)	3,1 (1,3)	2,7 (1,5)	2,4 (1,5)	2,9 (1,4)

Table 21. **Multivariate Tests of Significance (Financial literacy) Sigma-restricted parameterization Effective hypothesis decomposition**

	Test	Value	F	Effect	Error	p
Intercept	Wilks	0.224377	283.4565	3	246	0.000000
Group	Wilks	0.941314	2.5175	6	492	0.020745

Table 22. **Test of SS Whole Model vs. SS Residual (Financial literacy)**

	Mult	Mult	Adj	SS	df	MS	SS	df	MS	F	p
Quest. 1	0.05	0.00	−0.01	0.11	2	0.06	42.27	248	0.17	0.33	0.7160
Quest. 2	0.17	0.03	0.02	1.85	2	0.92	60.85	248	0.25	3.77	0.0245
Correct answers	0.19	0.03	0.03	17.18	2	8.59	474.36	248	1.91	4.49	0.0121

tional loan and high level of borrowing from relatives and friends can be considered as the remarkable traits of borrowing for Russian people.

From this part of our results we can conclude that the differences in debt behavior are caused mostly by personal characteristics and the level of financial literacy rather than by social and demographic characteristics of respondents. Economic conditions of households were not directly investigated but employment status can indirectly reflect them.

While there is no difference between Debtors and Borrowers/payers in their social and demographic characteristics they differ significantly in their psychological characteristics.

First of all, they differ in personality traits. Debtors have a significantly lower level of Conscientiousness than Non-borrowers and Borrowers/payers. No significant difference in Conscientiousness between Non-borrowers and Borrowers/payers was found. Thus, one can conclude that Debtors have a lower levels of thoughtfulness, as well asworse impulse control and goal-directed behaviors. They tend to be disorganized and blind to details. They are more likely to break the rules, either because they don't like them or they forgot what they were. Our results are in agreement with those of Nyhus and Webley (2001) which suggest that conscientious individuals are less likely to have ever been in debt [34] and Brown, S. & Taylor, K. (2014) who proved that *conscientiousness* has inverse association with the probability of having credit card debt and negatively related to the amount of unsecured debt whilst other personality traits, where statistically significant, are positively related to the level of unsecured debt [11].

Besides, Caspi, A., Roberts, B. W., Shiner, R. L. (2005) stated that Conscientious individuals are responsible, attentive, careful, persistent, orderly, and planful; while those people who score low on this trait are irresponsible, unreliable, careless, and distractible. The authors said that Conscientiousness/Constraint includes at least six lower-order traits: self-control versus behavioral impulsivity, attention, achievement motivation, orderliness, responsibility, and conventionality [13]. Low level of self-control was described as a trait associated with debt in the works of Gathergood (2012), Gathergood, J. & Weber J. (2014) [19, 20].

In our research conscientiousness is the only trait giving significant differences, but in literature we found other personal traits associated with debt behavior. Nyhus and Webley (2001) found that emotional instability (i.e. neuroticism) is a positive predictor of debt [34]. It was shown in Brown, Taylor (2014) that Extraversion has the largest association (statistically significant and positive) with debt in terms of magnitude [11, p. 204].

Moreover, Debtors have a significantly lower level of Debt avoidance and Rational debt behavior than Non-borrowers and Borrowers/payers. Non-borrowers do not differ significantly from Borrowers/payers neither in Debt avoidance nor in Rational debt behavior. According to Debt behavior questionnaire, high Debt avoidance can be understood as an ability to organize one's own life in such a way as to enable a person not to borrow. For example, such people prefer to restrain from a purchase or delay it if they do not have enough money just now or they will try hard to save money to buy something expensive in the future. They plan their budget and avoid borrowing. Low debt avoidance is expresses in the beliefs that credits make our life better, they let people organize their spending. In our understanding, low Debt avoidance is close to tolerant attitudes towards debt which is associated with high debt in Davies, E., Lea, S. E. G. (1995) [14].

People who scored high on Rational debt behavior analyze the credit market, calculate total cost of the credits and choose the optimal variant before engaging in a credit deal. They understand when and how they will pay their debt back. Low Rational debt behavior can be interpreted as following: sometimes such people borrow without understanding when and how they will pay it back. If they like something they will buy it even they cannot afford it. They are not ready to spend much time on the analysis of credit market, fiddling with documents and waiting long for credit decision. In other words, they make impulsive decisions. It was shown in Gathergood, J. (2012) that lack of self-control and financial illiteracy are positively associated with non-payment of consumer credit and selfreported excessive financial burdens of debt. Consumers who exhibit self-control problems are shown to make greater use of quick-access but high cost credit items such as store cards and payday loans [20].

One-way ANOVA for Locus of control across groups shows no significant differences. But the works of Dessart & Kuylen (1986) and Levingstone & Lunt (1992) gave some evidence that debt is associated with external locus of control [16; 29], while research conducted by in Lea, S. E. G., Webley, P., Walker, C.M. (1995) found no significant difference in locus of control [28].

Finally, our groups differ significantly in the level of financial literacy but the difference is observed only between Non-borrowers and Borrowers/payers. In other words, we can say that Borrowers are more competent but we cannot state the cause-effect relationships. They might be more financially literate because of practical experience — they have to borrow and have to learn about credits; or they might as well have been initially more financially educated, and that encouraged them to participate in the financial market more actively. Research papers by Brown, M., Grigsby, J., van der Klaauw, W., Wen, J. & Zafar, B. (2014) show that economic education leads to an increase in debt market participation [10]. In our research no evidence were found to prove that Debtors are less financially literate, as they were in Gathergood, J. (2012) and Gathergood, J. & Weber J. (2014) [19, 20].

CONCLUSION

In this paper we have analyzed the relationship between social-demographic, psychological characteristics, level of financial literacy and borrowing and debt behavior of Russian people. We predicted that differences between non-borrowers, borrowers fulfilling their obligations in full, and debtors come in three flavors: firstly, the willingness to borrow money and tolerance for the presence of loan; secondly, theoretical understanding of what a loan is and how it is to be paid, as well as the ability to match the available resources with one's needs (financial and debt literacy); and, thirdly, there are certain psychological characteristics — such as emotional stability, awareness, responsibility and internality — which enable borrowers to take action to repay the loan.

Our findings suggest that some psychological characteristics are statistically significantly associated with debts. Debtors have a lower level of conscientiousness, debt avoidance and rational debt behavior than borrowers/payers and non-borrowers. All these characteristics are about responsible, attentive, careful, planful behavior in financial sphere and the ability to control impulses. Conversely, our findings suggest that there is no significant difference in social and demographic characteristics, type of borrowing, financial literacy and locus of control between borrowers/payers and debtors.

We have the opposite results for group of non-borrowers: they differ from borrowers/payers in social and demographic characteristics but not in psychological characteristics. Our research cannot answer the question whether they do not participate on credit market because of strong beliefs against it or just because they are younger than other groups and have not had such possibility yet.

Overall, our hypothesis about the differences in debt behavior is proved in the part connected with willingness to borrow, tolerance for the presence of the loan and in the part about personality traits such responsibility and organized financial behavior. No differences were found in financial literacy between debtors and other groups but they differ in rationality of debt behavior. We can conclude that our empirical analysis confirms the role of psychological characteristics in debt behavior.

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