

## Financial literacy in rural areas of Kazakhstan – determinants and characteristics

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**Abstract:** *There are few studies considering financial literacy and financial behavior of people in developing and transition economies. Following experiences of rich countries, governments in emerging and developing economies started to pay more attention to this problem.*

*In Kazakhstan according to the World Bank data, in 2014 some 8.1 million or about 46.7% of the population lived in rural areas and a significant part of the rural population is officially employed in the agricultural sector, about 36.4%. Financial literacy in rural areas of such countries as Kazakhstan is critical for growth. However, existing government education programs either aimed at urban population or cover a tiny fraction of rural households.*

*The study took place in Pavlodar region of Kazakhstan in spring 2014. Based on the survey we were able to acquire information for 405 individuals living in villages of four rural districts located in different distances from the city. The survey collected information on individual levels of financial literacy (knowledge of interest rate, understanding of inflation, and understanding of mortgage), as well as information on financial services (the use of bank accounts and formal credit).*

**Keywords:** *Rural, household, finance, literacy, transition*

### Introduction

Financial literacy problem has received rising interest over the past two decades in both high-income countries and poorer parts of the world (Holzmann, 2010). Much of financial literacy study is limited to developed economies, there are few studies considering financial literacy and financial behavior of people from developing and transition economies.

The importance of financial literacy in Kazakhstan became obvious for population and government just recently. A main reason of this changed attitude towards this issue is an emergence of new more complicated financial products in modern financial markets, as well as an increased quantity of financial products (OECD, 2005).

Some governmental measures related to financial education have been undertaken in Kazakhstan. Those activities include a Committee established to promote financial knowledge among population, specifically designed educational programs for urban and rural population, and provision of funds to non-government organizations engaged in financial trainings. Those programs being new for Kazakhstan are designed without taking into account specific needs of different strata of Kazakhstani population.

Agricultural production is a main source of income for the majority of rural population in Kazakhstan, more than 6.5 million rural dwellers depends on this sector of economy. There is a substantial population of rural unemployed and rural poor whose economic prospects depend heavily on income from subsidiary small households.

This paper studies the relation between a level of financial literacy of rural population in Kazakhstan and such determinants as financial experience, presence of financial institutions in the rural areas, socio-demographic characteristics.

## Literature review

### Definitions of financial literacy

Financial markets become more sophisticated consisting of a range of new types of entities as on-line banks and brokerage firms and constantly offering new financial products and instruments (OECD, 2005). People must be prepared to make well-informed financial decision in an increasingly risky and globalized marketplace; it is true for both developed economies and emerging economies (Lusardi et al., 2011). Even in developed countries the level of financial literacy of population is reported as poor and not corresponding to innovative financial products emerging worldwide; a lack of basic economic and financial knowledge is an important impediment in effective financial decision-making (Gaurav et al., 2012). Conclusions based on financial literacy surveys in OECD countries show that understanding financial issues among people is low, in particular among specific groups, such as less educated and having low levels of income (OECD, 2006).

Individuals who are more financially literate tend to make fewer mistakes in financial decisions and as a result are in better financial conditions (Meier et al., 2008).

There are different definitions of financial literacy presented in literature. According to Orton (2007) financial literacy is the ability to understand and distinguish financial options, feel comfortable talking on personal finance topics, make decisions protecting against future insecurities as well as be prepared to solve every day financial problems effectively. Financial literacy could be also defined as an ability of a person to understand and process information to be able to make a proper financial decision (Gaurav et al., 2012). Financial literacy is very often associated with knowledge on saving and borrowing, which means in turn possessing sound financial management skills and habits (Hogarth et al., 2002).

Financial literacy could be considered from two points of view, the first one is related to the financial knowledge which includes such things as understanding the concept of interest rate, inflation rate, different types of loans etc.; the second point related to a confidence component such as self-estimated level of financial knowledge and self-reported abilities to make effective financial decisions (PRI, 2004).

There exist very few studies investigating financial literacy and factors affecting the level of financial literacy in rural areas of transition economies, since most researches are aimed at the national level without focusing on rural population. Even people with limited resources, in particular from rural areas, who would never afford to have a mortgage or own a big amount of money, need to be able to perform some financial calculations because their incomes are highly vulnerable and difficult to be predicted. Such low-income population needs to be financial literate to be able to make decisions without the expertise of paid consultants (Willis, 2008).

It is generally assumed that financial literacy could change people's behavior towards financial services and products, however, as West emphasizes financial literacy does not provide sustained changes in and optimal of financial behavior (West, 2012).

According to Hogarth (2006) financial education is considered differently by different people. Some people would esteem themselves as financial educated if they possess quite broad range of financial knowledge as understanding complicated macroeconomic issues and their effect of everyday household financial decisions. At the same time others would focus exclusively on basic routine money management. However, apparently financial education covers both macro and narrow ranged topics.

Financially literate people according to Bhushan and Medury (2013) are “... able to sail through tough financial times” because financial literacy is directly correlated with positive financial behavior.

### **Determinants of financial literacy**

Hira (2012) believes that financial behavior is affected by both external and internal factors. Among internal factors one can consider education, financial skills, income level, and a family size.

Many studies show that household’s financial behavior is determined significantly by financial literacy (Lusardi et al., 2013). At the same time being more financially experienced can be a source of getting financial knowledge and improving financial literacy. Those who report keeping day-to-day management over their finance and being involved in some formal financial operations such as formal credit or a deposit account indicate that this experience is the most important source of financial knowledge (Monticone et al., 2010).

Klapper, Lusardi, and Panos (2013) surveyed 160 individuals from seven federal regions in Russia in 2008 and 2009. A questionnaire included four financial literacy questions covering interest rate, interest compounding, inflation, and sales discount. The questionnaire was similar to ones used in studies investigating financial literacy in the USA and Great Britain. Their findings indicate a significantly positive effect of financial literacy on the probability of the respondents to have a bank account and to have formal credit. At the same time financial literacy is negatively correlated to getting credit from informal sources. This study shows that respondents with higher financial literacy are more resistant to income shocks and have higher spending capacity levels.

Rooij et al. (2011) used data from the 2005 De Nederlandsche Bank’s Household Survey (DHS) containing over 2,000 households. Their questionnaire included two sets of questions aimed to assess financial literacy of the respondents. The first set was designed to estimate basic financial literacy and the second one had a goal to assess more advanced financial knowledge. The results show that lack of literacy prevents households from participating in the stock market.

Meier and Sprenger (2008) showed that financial knowledge is positively related to the income level. Monticone (2010) studied 3,992 households using data of a survey conducted by the Bank of Italy in 2006. The respondents were given questions regarding financial literacy; results of the analysis indicate that financially wealthy respondents and those having greater education show higher levels of financial literacy. In general, the study concluded that the Italian population’s average financial literacy is quite low compared with the United States and other European countries.

Willis (2008) claims that people’s financial literacy self-assessments measure the confidence, and apparently overconfidence; however do not provide a robust measure of actual financial literacy. She says that those individuals who believe in the effectiveness of their own financial decision making must be able to prove it by making decisions at hand. Mistaken financial decisions could happen due to both overconfidence and underconfidence, when people either do not ask for help or to shy away from engaging in the information search literacy (Willis, 2008). OECD (2005) reports that respondents in the United States, the United Kingdom, and Australia often feel that they possess enough financial knowledge than is actually the case.

According to Lusardi and Mitchell (2011) there is a significant difference in the level of financial literacy between male and female respondents as well as between younger/older and middle-aged ones. They showed that respondents with higher level of education are more financially knowledgeable (Lusardi et al., 2011). Monticone (2010) showed that there is some evidence of an inverse U-shaped age profile of financial knowledge, when middle-aged respondents reported higher scores than younger and older counterparts and also positively

related financial experience and the level of financial literacy; she reports that the respondents consider financial experience as their most important source of financial knowledge (Monticone, 2010).

Availability of financial services is determined by the availability of financial institutions in the area. Berry says that the scarcity of bank branches in low-income and minority neighborhoods prevent some households from being allowed to have an account (Berry, 2004) and as a result become less financially experience and knowledgeable. Such so-called “under-banked” or “under-served” people who are little engaged in the conventional banking system, whose access to information on even basic financial goods and services is limited (Orton, 2007) have potentially little financial experience and consequently are less financially educated. Studies show that in Russia financially literate people are more likely to borrow from formal banking rather than from informal financial institutions. The authors warn that the rapid growth of consumer loans in Russia over past several years combined with low financial literacy of population could lead to the dangerous consequence (Klapper et al., 2013).

Hogarth et al. (2005) using data from Survey of Consumer Finances for a number of years conclude that the households’ ability to manage and understand financial products is an impediment to having bank accounts (Hogarth et al., 2005). They also indicated that those who lack knowledge regarding the use of specific devices such as ATMs, personal computers, and mobile phones for banking transactions would prefer likely informal financial institutions over formal ones (Hogarth et al., 2005).

Studies show that financial literacy is affected by financial behavior and financial experience emphasizing that the latter can be a source of learning (Monticone, 2010). Monticone also refers to the Michigan Survey of Consumers in 2001 describing a positive influence of personal financial experience on financial knowledge of respondents, as well as she refers to the study of credit literacy of Lyons, Rachlis, and Scherpf (Lyons et al., 2007), who found that reported financial experience had a positive effect on knowledge about credit reports.

Lusardi et al. (2010), using the National Longitudinal Survey of Youth fielded in 2007-2008, analyzed relationship among financial literacy and a set of socio-demographic factors, family and peer characteristics. They found that female respondents are less likely to give correct answers, to the identical results Lusardi and Tufano (2009) came, studying 1000 respondents in the USA (the survey was fielded by the staff of Taylor Nelson Sofres Global). This research reports that there is a significant difference between male and female debt literacy levels. For all the questions in survey related to financial literacy women gave less correct answers than their male counterparts (Lusardi et al., 2009).

Christelis et al. (2010) found that individuals with higher education are more financially sophisticated, as well as the financially wealth respondents are more likely to become stockholders (Christelis et al., 2010). According to Hogarth (2006) more educated people could create so-called “economic ripples” making better financial decision not only for themselves but also for their families (Hogarth, 2006). Calvet et al. (2009) used the Swedish panel covering four years (1999-2002) to investigate three types of investment mistakes; according to the results respondents with higher education make smaller investment mistakes (Calvet et al., 2009).

## **Methodology**

### **Financial education in Kazakhstan**

Kazakhstan belongs to a group of upper-middle-income economies with per capita GDP of about US\$ 7510 in 2016 and with a GDP growth rate of 6% in 2013 which decreased to 1.2% in 2016 due to recent changes in the world oil market and economic sanctions in Russia (World Bank, 2015).

The literacy rate in Kazakhstan is among highest in the world accounting for about 99.8% in 2009 (UNESCO, 2009). Access to primary and secondary education is very high and accounts for 91% of net enrolment rate with the net attendance ration of 98% (UNICEF, 2015).

Financial education has begun to be cared by the Kazakhstani government a few years ago. In 2008 the “Informational and educational centers” (Centers) began their activities in all regions of Kazakhstan. Centers provide free workshops and consultations for citizens (Regional Financial Center Almaty (RFCA), 2015). Additionally, in 2009, a TV training talk-show “Vash vykhod” (Your solution) was launched on a weekly basis. The Program discusses such topics as banking, pension, insurance, and securities markets.

Created in 2011 under the National Bank supervision the “Committee on consumer’s protection in financial services” is responsible for the development of specific instruments aimed to improve financial education among Kazakhstani citizens. Those instruments include mass media, websites, and trainings for consumers. The Committee’s web-site, [www.fingramota.kz](http://www.fingramota.kz) (finliteracy), is the informational-educational website providing basic knowledge in finance.

In 2013 the first non-government organisation “International Centre of Economic Literacy” (ICEL) aimed to improve financial literacy of Kazakhstani people and protect rights of consumers of financial services was founded. One of its first projects in 2014 was a large-scale study aimed to assess the financial literacy of Kazakhstani population. According to this survey conducted in all 14 regions of Kazakhstan, around 44% of the Kazakhstani population prefers to keep their savings at home; around 38% of respondents do not keep records of family budgets, while 43% of the respondents were not aware of deposit insurance mechanisms. Only 6% of respondents were aware of the maximum value of the deposits insured and 63% admitted that they usually ran out of money before next salary payments (Interfax-Kazakhstan, 2015). According to the data 67% of respondents believe that they would not face any punishment if they would fail to meet the legal obligations of a formal loan and 50% indicated that they do not plan to pay their loans back (Table 1).

**Table 1:** Results of surveys, in %

	RFCA survey	ICEL survey	Pavlodar region, rural areas, own survey
Used any type of financial services	62.5		72
Used any type of formal loans	32		65
Used consumer loans			52
Have a deposit account	8.5	8	3
Keep savings at home		44	21
Save exclusively in livestock			37
Do not keep records on family budget	55	38	37
Self-estimation of financial literacy as high		44	69
<b>Sources of financial knowledge</b>			
TV programs	36.9		8
Internet resources	24.3		15
Newspapers	20		
Consultancy	23		27
Special training and workshops	17.1		23

Sources: RFCA, ICEL, Own calculations

State-owned company „Kazagroinnovation” (KAI) is the only agency responsible for the financial education among rural people and farmers. In 2009 this company launched a pilot project “Centers for knowledge dissemination” (CKDs). The CKDs, along with the educational activities, are aimed to assess specific needs of rural people for extension/training/advisory service (Fileccia et al., 2010). According to the project idea those centers, initially supported by the state, subsequently should become either entirely or partly independent.

Major activities of CKDs are:

- a. Research based trainings;
- b. Practical instructions;
- c. Improvement of existing knowledge;
- d. Scientific conferences and workshops.

A number of problems CKDs faced during the starting phase caused their low efficiency, among the reasons are:

- a. Lack of sufficient equipment and teaching technologies;
- b. Insufficient provision with manuals and training materials;
- c. The content of trainings does not always meet the needs of trainees;
- d. Underdeveloped monitoring system (Yespolov et al., 2012).

Despite all the state programs aimed to improve access to knowledge by rural people in Kazakhstan, a large number of small rural households are still under-served. Moreover, the current banking system is not favorable to a large majority of rural population, specifically to those whose income generated exclusively in rural households. The lack of basic knowledge in financial area makes access to formal financial services and financial instruments significantly difficult. At the same time, better financial literacy of consumers will definitely improve the performance of financial services providers who “... have a responsibility to

understand their market, and respond with a range of appropriate and affordable services” (Cohen, 2011).

### **Data source and sample description**

Since the subsistent majority of rural population in Kazakhstan depends heavily on income from their small subsidiary households, the access to formal financial services is of a significant importance for them. At the same time one of the reasons of being underbanked is the low financial literacy among rural dwellers.

A main objective of our study is to determine and measure factors affecting the financial literacy level of rural households in Kazakhstan.

A sample consists of rural households, since rural people in Kazakhstan are in a very vulnerable financial position.

To measure basic financial literacy the questions adopted from the “Supplementary Questions: Optional Survey Questions for the OECD INFE Financial Literacy Core Questionnaire” (OECD, 2012) were used:

1. Suppose you had USD 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 USD 102
  - b. Exactly USD 102
  - c. Less than USD 102
  - d. no answer
2. 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
  - d. no answer
3. A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less.
  - a. True
  - b. False
  - c. no answer

We studied what and to what extent factors characterizing financial experience, education, socio-demographic status, and the representativeness of financial institutions determine the level of financial literacy of respondents living in rural areas of Kazakhstan. The study is based on a static model with cross-sectional data for a specific year - 2014.

The study took place in Pavlodar region in spring 2014. We were able to acquire information for 405 individuals living in villages of four rural districts located in different distances from the city. The surveys collected information on individual level on financial literacy (knowledge of interest rate, understanding of inflation, and understanding of mortgage), as well as information on financial services (the use of bank accounts and formal credit). The information covers such areas as: respondent’s experience of dealing with formal financial

institutions, a measure of the objective and subjective financial literacy, respondent's income level. As well as the dataset provides information on respondents' socio-demographic characteristics and their opinion regarding financial education. The survey covers such questions as loans from formal financial institutions for past five years, information on keeping records on a family budget, and the respondents' opinion regarding formal financial institutions characteristics.

The share of female respondents in the sample is 52.3%; it corresponds to the national level of 51.85% in 2013. The average age in the sample is around 40 years. Households with 3-4 family members make up 45% and families with more than four members makes up 26.7%. The percentage of formally employed respondents is around 61%, self-employed respondents make up about 6.7%, unemployed 19.8% while others including retirees, students and housewives make up about 12.5% of all the respondents.

The literacy level of respondents is high enough: 42.96 % of respondents have tertiary education and 45.2% of them have secondary education. According to the World Bank statistics, in Kazakhstan a secondary education enrollment rate in 2012 was 97.1%, while the tertiary enrollment rate was 44.53% (World Bank, 2015).

Among respondents with secondary and tertiary education majority of respondents is formally employed, 56.3% and 71.8% respectively. However, among those who indicated their status as unemployed, the respondents with secondary education make up the biggest share of 54.6%.

The respondents were asked to provide self-measurements of their financial knowledge. Most respondents assessed their financial knowledge being above average: 32.84% of respondents stated their level is 3; 25.93% that their level is 4 and 10.86% that their level is 5. At the same time, only 6.67% reported that they do not have any knowledge in finance. There is no strong correlation between objective and subjective literacy (Table 2).

**Table 2:** Correlation between objective and subjective literacy level

	ANSWERS	FINLITSELF
ANSWERS	1.0000	
FINLITSELF	0.1535	1.0000

On average, 63.95% of respondents correctly answered the question on interest rate; 12.1% correctly answered the question on inflation; and 46.4% correctly answered the question on mortgage payments. However, 20% of respondents were not able to provide correct answers.

We can rank respondents who provide correct answers to at least two financial literacy questions as the "high" financially literate respondents, a fraction of such respondents is 34.1%. It was expected that the fraction of those who gave correct answers to all three questions would be small enough, in our survey it is 4.2% of all the respondents.

Financially literate respondents are more likely to be female, out of those who provided correct answers on two questions 38.51% are female and 29.53% are male. The most financially literate respondents' age is between 25 and 54 years old.

Financially literate respondents are more likely to have secondary/technical education or tertiary education, respectively, 45.65% and 46.38 of those who gave correct answers on two questions.

Those, whom we consider as "highly" financially literate respondents, belong to a formally employed group. However, the percentage points of those who are self-employed and answered with high scores are also high enough and amount for 33.33%.

Those who indicated having no income showed the lowest scores of financial literacy. However, there is not big difference in terms of financial literacy among low and high income groups.

Respondents with tertiary education indicated that they prefer to use information obtained from independent sources not affiliated with any financial institution, 43.1%. At the same time respondents from the group with secondary and high school level would rely mostly on consultants from financial institutions. A third group with lower level of education prefers to make decision regarding the choice of the financial institution based on advertisement.

We can observe a moderate positive association between financial literacy and a number of financial institutions operating in the area NUMBERFI, representing a variable characterizing financial inclusion. In the questionnaire respondents were asked to indicate whether they have in their area following financial institutions: branches of commercial banks, post offices, ATMs, Rural Credit Partnerships, Micro Credit Organizations, Insurance companies (Table 3).

**Table 3:** Correlation between objective literacy level and number of financial institutions in the area

	ANSWERS	NUMBERFI
ANSWERS	1.0000	
NUMBERFI	0.1583	1.0000

We did not use in our analysis such a variable as a deposit account, since this variable will not show the real inclusion of the respondent into the financial activity. In Kazakhstan almost all the formally employed people are provided by the employer with a so-called salary account in the assigned bank. This account is used exclusively to withdraw the salary and cannot be used for other financial activities.

### Hypotheses

The study is aimed to answer following questions:

- a. What is the relationship between financial literacy and provision of financial services?
- b. What is the relationship between financial literacy and socio-demographic characteristics such as age, family status, education, financial experience?

Following hypotheses are formulated, based on the questions and objectives of the research:

- H 1. Following Klapper et al. (2013) we assume that financial literacy is positively related to participation in financial markets.
- H 2. Following Lusardi and Mitchell (2011) we suppose that there are significant differences between men and women in financial literacy.
- H 3. Following Monticone (2010) we expect that there is a positive significant relationship between financial literacy and age.
- H 4. Following Christelis et al. (2010) we expect that higher level of education would lead to higher scores of financial literacy measurements.
- H 5. Following Berry (2004) we expect that the higher representativeness of financial institutions leads to higher financial literacy.
- H 6. Our assumptions that there is a positive relationship between objective and subjective financial literacy we based partly on conclusions made by Willis (2008).

H 7. Following Hogarth et al. (2005) we hypothesize that there is a positive relation between an ability to manage own finance and financial literacy.

### **Dependent variable**

We use ordered probit model to investigate the relationship between financial literacy and socio-economic factors.

In our research we summarized information about financial literacy resulting from three questions and used it as a dependent variable coded “ANSWERS” varying from category “0” meaning that the respondent either did not give a correct answer or did not know the correct answer till a category “3” meaning that the respondent gave correct answers on all three questions.

### **Explanatory variables**

A choice of explanatory variables was based on recommendations of Kempson (2009) as well as studies of Lusardi et al. (2010 and 2011), Klapper et al. (2013). The explanatory variables include:

- a. a set of variables measuring financial inclusion and financial experience of the respondents: whether the respondent had credit from the formal financial institution for past five years, whether the respondent has such a habit in his/her family to keep records on the family budget, and how many formal financial institutions are available in the area;
- b. a set of variables characterizing socio-demographic status of the respondent, such variables as gender, age, educational level, type of employment;
- c. a variable indicating a level of financial literacy based on individual's self-estimation

We used eight independent variables (predictors) for three regressions:

- a. GENDER – a binary variable, where “0” - male and “1” – female;
- b. AGE – a discrete variable grouped into six levels: 16-24; 25-34; 35-44; 45-54; 55-64; older than 65;
- c. EDUCATION – a discrete variable grouped into five levels: Tertiary = 1; Post-secondary/technical school = 2; High School = 3; Middle School = 4; Primary School = 5;
- d. CREDIT – a binary variable that refers to the respondent's having or nor having got a credit for past five years: with credit = 1; without credit = 0;
- e. RECORDS – a binary variable that refers to the respondent's keeping regularly records on the family budget: yes – 1; no – 0;
- f. EMPLOYMENT – a discrete variable grouped into five levels: formally employed – 1; self-employed – 2; unemployed – 3; others (including retirees and students) – 4;
- g. NUMBERFI – a continuous variable that measures the number of financial institutions available in the area without determining what kind of institution;
- h. FINLITSELF – a continuous variable that measures the level of financial literacy ascending from “0” to “5”.

## **Empirical Results**

We see that all 405 observations in our data set were used in the analysis. The likelihood ratio chi-square of 55.6 with a p-value of 0.0000 tells us that our model as a whole is statistically significant, as compared to the zero model with no predictors.

**Table 4:** Ordered probit model results of financial literacy measurement

<b>ANSWERS</b>	Coef.	Std. Err.	p - value
GENDER	0.244**	0.112	0.029
AGE	-0.09*	0.046	0.05
EDUCATION			
2	0.134	0.122	0.272
3	-0.044	0.208	0.832
4	-0.012	0.439	0.979
5	0.259	0.783	0.741
CREDIT	0.333***	0.120	0.006
RECORDS	0.289*	0.213	0.175
EMPLOYMENT			
2	-0.233	0.223	0.295
3	-0.427	0.351	0.224
4	-0.446***	0.130	0.001
NUMBERFI	0.181***	0.063	0.004
FINLITSELF	0.077*	0.042	0.069

Notes: \* a significance level of 10%, \*\* a significance level of 1%, \*\*\* a significance level of 0.5%

Almost all variables are significant at different levels (Table 4). Only one of eight variables is not significant, a variable EDUCATION, however, a sign of this variable meets our expectations. We can explain it by the fact the overall literacy level in Kazakhstan, including rural areas, is greater than 99%. Moreover, the literacy level in Kazakhstan does not mean merely an ability to read and write, but a particular level of education. Therefore, the education of respondents does not directly correspond to the financial literacy.

The variable AGE has a negative sign and a significance level of 10%, it means we can expect a decrease in the log odds of being in a group with higher answer scores by 0.08 when the respondent's age is increasing.

Being a female increases log odds of being in a group with higher answer scores.

We believe that having some experience of dealing with formal financial institutions as well as keeping records of the households' income and expenditure could mean that the respondent has some level of financial literacy. We expected these variables to be significant. The variable CREDIT is significant at the level of 0.5% and the variable RECORDS is significant at the level of 10%.

We can observe a link between financial literacy and some type of financial behaviors. We found a strong dependence of financial literacy on whether the respondent had any type of

credit over past five years. We would say that for a one unit increase in CREDIT (i.e., going from 0 to 1), we expect a 0.34 increase in the log odds of being in a higher level of answer scores, given all of the other variables in the model are held constant. Also, we found that keeping day-to-day financial management by a household would positively affect financial literacy, with a one unit increase in RECORDS (i.e., going from 0 to 1), we expect a 0.32 increase in the log odds of being in a group with higher answer scores.

A variable EMPLOYMENT is significant at the level of 0.5% for a group of retirees, students and housewives and insignificant for the groups of self-employed and unemployed. At the same time, the variable has a negative sign for all the groups. It means being in a group of retirees and students in comparison with formally employed respondents, will decrease by 0.44 in the log odds of being in a group with a higher level of answer scores, given that all of the other variables in the model are held constant. Formally employed respondents in comparison with other employment groups provide better scores.

The number of financial institutions located in the area is a significant variable at the level of 0.5% and positively affects the dependent variable. Going towards greater number of financial institutions would increase the log odds of being in a group with higher answer scores by 0.18.

The financial literacy self-estimation is significant at the level of 10% and has a positive sign. For a one unit increase in the financial literacy self-estimations, we would expect a 0.07 increase in the log odds of being in a higher level of answer scores, given that all of the other variables in the model are held constant.

We also obtained predicted probabilities to be able to observe how the probabilities of belonging to each category of answer scores change as the variable CREDIT is varied holding the other variables at their means (Table 5).

**Table 5:** Predicted outcomes of correct answers under the variable CREDIT

CREDIT	Margin	Std. Err.	z	p - value
Predicted outcome = 0, not correct answers				
1	0.245	0.033	7.410	0.000
2	0.151	0.020	7.350	0.000
Predicted outcome = 1, one correct answer				
1	0.466	0.027	17.360	0.000
2	0.433	0.026	16.600	0.000
Predicted outcome = 2, two correct answers				
1	0.271	0.032	8.450	0.000
2	0.375	0.028	13.420	0.000
Predicted outcome = 3, three correct answers				
1	0.019	0.007	2.840	0.005
2	0.041	0.011	3.840	0.000

As we can see, the predicted probability of being in the category with no correct answers is 0.25 for the respondent who did not get any type of credit from the formal financial

institutions over past five years and 0.15 if the respondent indicated having credit. It means for those who had some financial experience, the probability to give incorrect answers is lower. For the category of respondents who provided one correct answer, the predicted probabilities are 0.46 and 0.43, indicating an insignificant difference between those respondents with and without credit. At the same time, for the respondents from the group with two correct answers the predicted probabilities are 0.27 for the respondents without credit and 0.37 for ones who had it. It means for those respondents who dealt with financial institutions during the past five years the probability to give two correct answers is higher than for those who did not have such an experience. Respectively, the predicted probability to provide three correct answers is greater for those with some financial experience, 0.04 in comparison to those without any experience, 0.02.

As the variable NUMBERFI (number of financial institutions in the area varying from 1 financial institution to 3 different financial institutions) is varied the predicted probabilities of being in each category of answer scores is as follows (Table 6).

**Table 6:** Predicted outcomes of answers under the variable NUMBERFI

NUMBERFI	Margin	Std. Err.	z	p - value
Predicted outcome = 0				
0	0.250	0.035	7.170	0.000
1	0.196	0.021	9.260	0.000
2	0.150	0.021	7.310	0.000
3	0.112	0.025	4.420	0.000
Predicted outcome = 1				
0	0.467	0.027	17.410	0.000
1	0.457	0.026	17.330	0.000
2	0.434	0.026	16.520	0.000
3	0.401	0.033	12.240	0.000
Predicted outcome = 2				
0	0.265	0.033	8.070	0.000
1	0.320	0.024	13.160	0.000
2	0.375	0.028	13.220	0.000
3	0.428	0.040	10.630	0.000
Predicted outcome = 3				
0	0.018	0.007	2.710	0.007
1	0.027	0.008	3.600	0.000
2	0.041	0.011	3.860	0.000
3	0.060	0.018	3.330	0.001

We can see that the predicted probability increases for the categories of two or three answer scores as number of financial institutions in the area of residence increases. At the same time the fewer financial institutions in the area the greater the probability of not providing any correct answers.

Unlike results in Lusardi and Mitchell (2008), Lusardi, Mitchell and Curto (2010), and Lusardi and Tuffano (2009), who found that female respondents show low scores, in our study rural women showed higher level of financial literacy (Table 7). We can explain it by the fact, that traditionally in rural families with many children; women are responsible for keeping family

budget. Despite they have less than male population access to formal finance; women are more experienced in making home budget decisions.

**Table 7:** Composition of correct answers on specific questions by gender groups

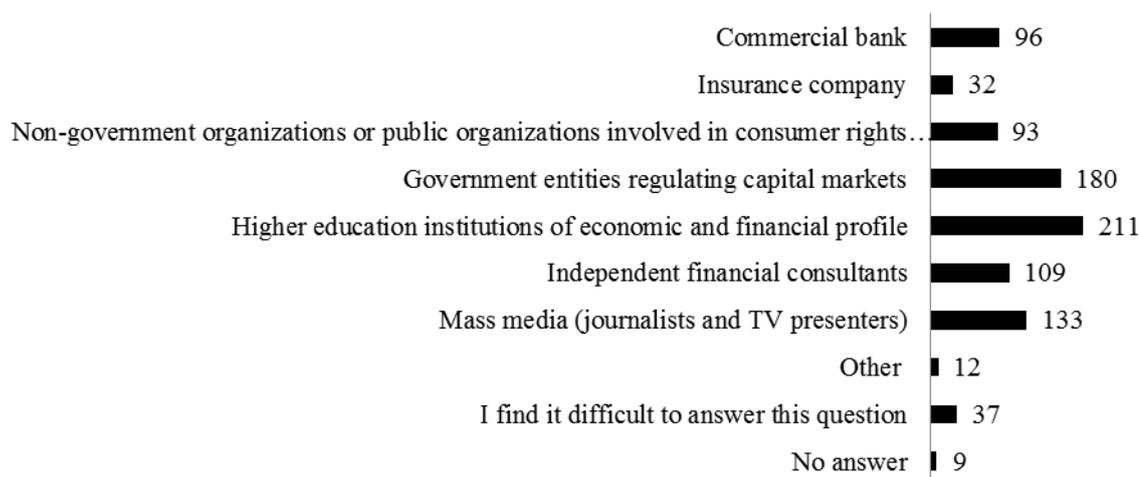
	Questions		
	Interest	Inflation	Mortgage
Female	123	30	104
Male	136	19	84
Total	259	49	188

In general, we found that financial literacy was severely lacking among respondents with lower level of education, however, the share of people with primary or middle school levels of education is insignificant, only about 2.5%. Only 64% could do simple interest rate calculations, about 46.4% knew about particularities of mortgage, and only 12% were able to provide a correct answer on a question regarding inflation.

## Discussion

Our study contributes to the literature and existing knowledge by explaining the relation between the level of financial literacy of rural people in Kazakhstan and a set of socio-economic and behavioral factors. The study explores what rural people know and do not know as determined by questions assessing the financial literacy.

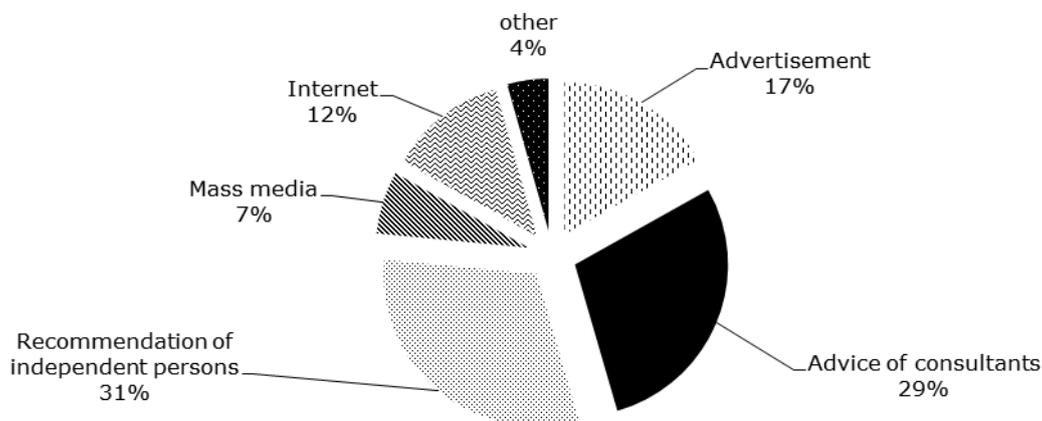
Delavande et al. (2008) consider the acquisition of financial knowledge as a human capital investment. Our study also provides information on important channels which respondents consider as important for acquiring financial knowledge. Majority of respondents think that specialized education institutions are the best sources of financial knowledge. On the second place they put state agencies responsible for financial regulation. It means, that rural people are not really trustful towards financial institutions as they think, the latter are interested to get more clientele and probably would provide misleading information. Rather people would trust independent financial consultant (Fig. 1).



**Figure 1:** Preferences of financial knowledge sources

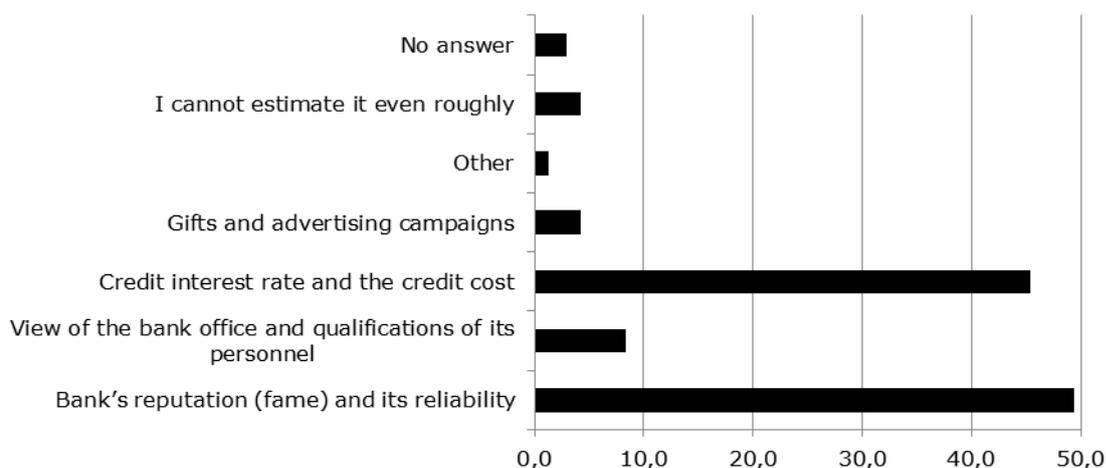
Delavande et al. (2008) suggest that common people usually lacking knowledge necessary to construct financial decisions rely on a wide range of professional financial advice as private or public sources, amateur advice, self-help books, newspapers and magazines.

Respondents in our survey answered a question regarding their opinion on what sources are more preferable when they need to choose what financial institutions to deal with. Majority would prefer to talk to their friends and relatives and to make a decision based on others experience rather than to ask for advice consultants or to believe advertisement (Fig. 2).



**Figure 2:** Preferences of information sources regarding financial institutions

Answering a question “In your opinion what should be the primary attention when someone compare the banks in order to choose the one where to take a credit from or to make deposit in?” most respondents indicated that the bank’s reputation is of greatest importance for them, followed by a level of interest rates and fees. These results corresponding to the previous ones mean that good reputation of financial institutions spread over by reliable people as friends and relatives is determining factor in the decision making process (Fig. 3).



**Figure 3:** Preference criteria in choosing a financial institution

Findings of this research could be considered as a valuable source of information related to financial literacy in rural areas of Kazakhstan and could be used by politicians for designing measures protecting rural household’s financial security. Despite some activities undertaken recently by the Kazakhstani government, rural people still have very limited access to financial education programs; suffer from the lack of financial experience due to the insufficient presence of financial institutions in rural areas; have low level of income which is one of the most important impediments in having access to financial services. Additionally, rural population should not be considered as a homogeneous group. Rather gender, educational attainment and other observable characteristics should be considered by policy

makers in their activities aimed at the improvement of financial literacy of rural people (Lusardi et al., 2008).

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