Formal credit institutions in agriculture of Kazakhstan (micro-econometric analysis)

Sholpan Gaisina

Innovative University of Eurasia, 45, Lomov str., Pavlodar 140000, Kazakhstan
sholpan66@yahoo.com

Abstract

The financing of agricultural producers is one of the most acute problems along the entire scope of economic reforms in Kazakhstan. The issue is: What kind of financial sources could maintain the development of agricultural production?

Internal sources such as profit, depreciation capital, and various reserve and insurance funds can not be considered as a key financial base. State financial support of agriculture in Kazakhstan (which plays a significant role in the most developed countries), is episodic in nature, small in size and typically does not reach the recipients. In these circumstances, a potential supplier of financial and investment resources could be a banking system and such non-banking credit institutions as credit cooperatives.

Econometric analysis is used to analyze the determinants of credit access. Results suggest that access to subsidized credit has a significant role in determining access to bank credits and investment activity of agricultural enterprises. Major determinants of credit rationing are the size of arable land possessed by the agricultural enterprise and the cost of equipment, expressing an ability of borrower to use them as collateral.

1 INTRODUCTION

Rural financial market development is of high importance for Kazakhstan, as the country has about 44% of its population living in rural areas and about 24% of the total population is engaged in agricultural production. There are three main sources of formal credit in the agricultural sector of Kazakhstan: commercial banks, rural credit partnerships (RCP), and micro-credit organisations (MCO). However, their shares in the total loans for agriculture are far from parity. Commercial banks have the major share of all loans for agriculture, more than 90%, the RCPs' share is declining and accounting for about 5%; the MCOs take less than 1% of the total loans (Table 1).

Table 1: Shares of loans to agriculture in Kazakhstan

	2005	2006	2007
Total (million KZT)	198728.3	254677.5	298172.3
Share of credit (in %):			
Commercial banks	90.2	95.5	94.5
Rural Credit Partnerships (RCPs)	9.3	3.8	5.1
Micro Credit Organisations (MCO)	0.5	0.7	0.4

Notes: KZT – Kazakh Tenge (Kazakhstani currency)
Source: Ministry of agriculture of Republic of Kazakhstan, http://www.minagri.kz

Despite commercial banks having such a big share of the loans for agriculture, there is no well-developed rural banking system currently existing in the country. Moreover, only two commercial banks of thirty have limited networks of branches in rural areas. In comparison with urban areas, rural clientele in Kazakhstan are more dispersed, with a low average population density of six individuals per square kilometre. According to the statistical data, all banks grant loans to agricultural producers; however, the share of agricultural banking in the total bank loan portfolio is quite insignificant. Additionally, commercial banks prefer to provide loans to large-scale agricultural enterprises; in 2007, the latter obtained as much as 95.5% of total credit to agriculture whereas the share of loans to private family farms has been continually decreasing. Banks generally consider lending to small rural households and private family farms as having an unacceptably low return rate, a high risk, a small size of demanded loan, and high transaction costs (Table 2).

Table 2: Loans provided by commercial banks to agriculture in Kazakhstan

	2005	2006	2007
Loan volume (billion KZT)	189.5	243.2	282.0
Share of agricultural lending in total loan portfolio (in %)	6.3	4.6	3.5
Share of agricultural enterprises in loans granted to agriculture (in %)	96.3	96.0	96.5
Nominal interest rate (in %)	14	13.6	15

Source: National Bank of Kazakhstan, http://www.nationalbank.kz

Even large-scale grain producers routinely experience credit difficulties, self-finance remains the main investment source in agricultural production in Kazakhstan (Figure 1).

Figure 1: Structure of investments in agriculture in 2006
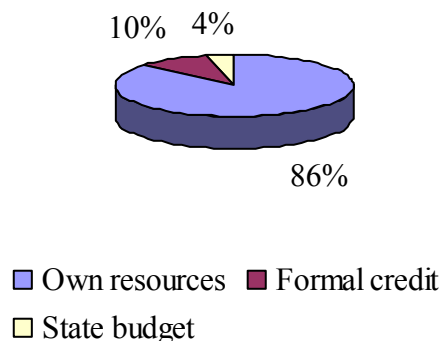
Source: Agency of statistics of Kazakhstan, www.stat.kz

Thus, access to bank credit could be considered as a key factor influencing economic growth in rural areas of Kazakhstan. However, a source of financing such as RCP could considered as having good prospects in the near future. A rural credit partnership system is a new form for Kazakhstani agriculture. The history of its development is only 7 years, including 2 years in the pilot project period. According to the project idea, RCPs had to become prototypes of rural credit cooperatives. However, it is still too early to make a strong analogy between RCPs and rural credit cooperatives of their classical form. According to a regulating law on Rural Credit Partnerships, the latter are not allowed to take deposits; they are partly state-owned organisations (although private ones are permitted, none exists) and all credits come from the state budget. Membership in the RCP is very restricted and depends heavily on the production type and size of land plot.

As for MCO, taking into account the fact that large-scale enterprises take a major part in the grain production of Kazakhstan, the role of micro-crediting is insignificant.

In this study two sources of agricultural financing (commercial banks and rural credit partnerships) and one type of agricultural producers (agricultural enterprises) are discussed.

2 THEORETICAL BACKGROUND OF CREDIT RATIONING

According to Petrick (2003), credit rationing could be understood as a situation when a lack of sufficient credit reduces desirable investments. It means that a potential borrower (in our study this is an agricultural enterprise) could be considered as being credit rationed if its demand for credit is not met at all or is only met partly, even if the borrower is ready to pay a higher interest rate. In other words, credit rationing arises when lenders are not willing to offer as much credit as demanded by borrowers.

Credit rationing becomes the main reason for too little or underinvestment in agriculture. Thus, agricultural producers are not able to provide an optimal distribution of resources in the short-term (profit - liquidity effect), resulting in a decline of long-term investments into land and equipment (investment demand effect) (LERMAN and SUBBOTIN 2004).

The analysis of credit rationing is focused on a main question: Is the borrower really credit rationed? In other words, there are difficulties to obtain formal credit, even though the borrower is willing and able to pay the required interest rate to a bank. If one can positively answer the question, then it would be reasonable to know what factors mainly influence access to the bank credit. That is, a lack of credit does not necessarily mean that there is a problem of access to credit.

One can distinguish price rationing and non-price rationing. According to Boucher and Carter, 2002, the former is connected to the profitability of a borrower; in other words, related to the ability of a borrower to pay a required interest rate for the credit. In turn, non-price rationing is connected to such aspects as a maturity of the loan, collateral required, length and value of the "customer relationship", an amount of compensating balance, and a risk of partial and complete default on the loan (JAFFEE 1968).

In the model a probability to have formal credit was used as a dependent variable, regardless how much the borrower should and ready to pay.

3 ECONOMETRIC ANALYSIS OF ACCESS TO THE FORMAL CREDIT MARKET BY AGRICULTURAL ENTERPRISES

The analysis presented here is based on a static model that uses cross-sectional data from a specific production period (the year 2006). Data on agricultural enterprises was obtained from the Regional Agency of Statistics (Pavlodar Region, Kazakhstan), which records data, submitted annually (sometimes quarterly) to local statistical offices, on all medium and large-scale agricultural enterprises. Data on agricultural land was obtained from the Regional Land Committee (Pavlodar Region, Kazakhstan), which has records of the amount of arable or pasture land (measured in hectares: ha) rented or owned by agricultural enterprises.

The study focuses on middle and large-scale agricultural enterprises, the successors of kolkhozes (collective farms) and sovkhozes (state farms). Only grain producing agricultural enterprises with more than 40 ha of arable land were taken into consideration. The reason for this selection was that, in the rural credit market, commercial banks provide about 90% of all credit and give the overwhelming majority of this credit to large-scale enterprises. In the Pavlodar region large-scale enterprises mostly specialize in grain production. State agricultural enterprises and enterprises that produce livestock were excluded from the sample.

Of a total of 157 registered agricultural enterprises only 93 enterprises had submitted reports to the Agency of Statistics in 2006. The final study sample of enterprises covered 81% of the total number of agricultural enterprises reporting to the Agency of Statistics

while employing 91% of the population employed in agricultural enterprises and covering 75.5% of the agricultural land in the region. The following variables were defined: labour, which was a measure of the number of people employed by the enterprises and land which was measured in terms of value which also took into account quality and marketability. The output of an agricultural enterprise was measured as the gross production in metric centner. It should be noted that this paper is confined to an analysis of the agricultural side of the enterprise. Determining the value of capital was problematic because the necessary details at a regional and an enterprise level were not always available. The value of capital was taken to be the costs of expenditure (seeds, fodder, mineral fertilizers, oil products, energy, spare parts, etc) and the cost of buildings and machinery calculated using a depreciation sum from annual reports measured in Kazakh Tenge (KZT, as for 2006 1US dollar = 130 KZT). Regional price indices for aggregated agricultural output were used. Description of data used for the analysis is represented in the Table 3.

Table 3: Descriptive statistics of data (N=76)

	Minimum	Maximum	Mean	Std. Deviation
Capital (1000 KZT)	138.00	139808.00	21646.6	34016.8
Labour (persons)	1.0	193.0	27.3	35.8
Arable land (ha)	43.0	37016.0	5157.4	7198.3
Crop production (metric centner)	92.0	227231.0	22793.2	40441.2
Revenue (1000 KZT)	202.0	499908.0	50144.9	88970.5
Profit (1000 KZT)	-42450.0	349082.0	25254.3	56995.5
Average wage per person per year (1000 KZT)	24.0	641.0	123.8	92.2
Distance (km)	7.0	295.0	151.9	75.9

According to an approach proposed by Lerman and Subbotin (2004), one can cluster factors influencing access to formal credit by agricultural enterprises in Kazakhstan into three groups. The first two groups describe internal characteristics of an agricultural enterprise as a producing entity: such factors as sources of cover both the principal and the interest rate; other factors characterise the extent of reliability and sustainability of an enterprise, in other words, an ability to cover any debts with collateral. A third group includes external factors which could influence commercial bank decision on credit rationing.

Thus, these groups include the following variables:
1. The first group includes such a factor as profit margin. These variables express an ability of an enterprise to have a level of income that could guarantee banks will be paid both the principal and the interest rate of credit.

2. The second group includes factors such as the cost of equipment, size of arable land and size of circulating capital. These variables show whether the agricultural enterprise could be sustainable even in non-favourable conditions, in other words, whether the borrower could meet all the obligations to credit institutions in the case of default. One can suggest

3. The third group includes two external factors: having access to a subsidized credit line and the distance to a city. The first variable could be considered as an additional factor of the sustainability of the enterprise, if one would not take into consideration corruption existing in a process of subsidized credit distribution. Thus, this variable could give information whether the borrower has some close links with local authorities and in some cases it could make it easier to obtain bank credit. The second variable of this group is the distance to the nearest city. It would be logical to suggest that if an enterprise is situated at a short distance from the city the opportunity to get credit is higher, because the bank would spend less money for the monitoring and appraisal.

Unfortunately, it was impossible to obtain information on those enterprises that applied for credit but were rejected by the credit institution or, on the contrary, did not apply at all. Therefore, we cannot make any conclusions on their real willingness to borrow money from the formal credit institutions.

The relation between one or more continuous determining variables and a single attribute could be described by applying binary discrete probability models (CRAMER 2003), in this study a binary logit regression is used to predict access to the formal credit market by agricultural enterprises and to describe the factors influencing this access. Logit regression allows for estimating a probability that an event occurs or not, by predicting a binary dependent outcome from a set of independent variables (VASISCHT 2009). The dependent variable is a dichotomous one and binary varying between 1 and 0, where 1 stands for credit access and 0 for lack of credit access.

For k explanatory variables the general model is:

$$\ln(p/(1\text{-}p)) = \Sigma\, \alpha + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k, \tag{1}$$

where p is the probability of an agricultural enterprise obtaining a credit; β_k represents the estimated parameters and x_k stands for the explanatory variables. As in ordinarily linear regression the x's may be either interval-level variables or dummy variables. In the equation for the binary logit model there is no random disturbance term (ALLISON 1999). Explanatory variables include factors which could give information on what type of credit rationing is the most significant: price or non-price rationing.

An ordinary linear regression model is used to show quantitative relations between a dependent variable - an amount of formal credit borrowed by an agricultural enterprise, and independent variables. The general model for k explanatory variables is:

$$y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k, \tag{2}$$

where y is an amount of formal credit granted to the agricultural enterprise, β_k represents the coefficients of the explanatory variables and x_k stands for the explanatory variables. The model includes the data for 2006 and contains 76 observations.

3.1 Credit from commercial banks

As a first step of this study a general analysis of the sample was undertaken. In table 4 the results of the t-test for mean values of factors characterising two groups of agricultural enterprises (with and without bank credit) are represented. According to the results, the differences between the compared groups regarding the size of arable land and the cost of equipment are significant. It means that those enterprises that have a larger land plot and more expensive (consequently more modern) equipment have more opportunities for obtaining bank credit. Also, access to subsidized credit very strongly distinguishes the groups of enterprises. The level of revenue has less significance, but still can influence the possibility to be found in the group with bank credit rather in the group without bank credit. Profit, revenue, and distance are not significant. It probably means that the most important factor in the decision-making concerning granting credit to an agricultural enterprise is collateral. Other factors could be taken into account, but are less important for commercial banks. Such a variable as profit leads to conclusions of unwillingness of agricultural enterprises to apply for commercial bank credit and of an ability to cover independently the needs in financial investment from their own resources. Even though this analysis gives some information on existing general tendencies, it is not sufficient to describe how each factor influences access to the bank credit (LERMAN and SUBBOTIN 2004).

Table 4: Comparison of two groups of enterprises, with and without bank credit

Factors	Entire sample (N=76)	With bank credit (N=15)	Without bank credit (N=61)	t-statistics	p-value
Average profit (1000 KZT)	4215.3	8623.5	3203.5	0.97	0.35
Average size of arable land (ha)	5157.4	9892.5	3993.0	2.13	0.05*
Average cost of equipment (1000 KZT)	5712.9	14758.1	3488.7	2.24	0.04*
Subsidized credit	17.1	13.2	3.9	4.78	0.00***
Distance (km)	151.9	143.2	154.1	-0.45	0.65

Note: *** = significant at a level of 0.1%;
       * = significance at a level of 5%

The binary logit model used for the study of influence of factors on the bank credit obtaining is:

$$\ln(p/(1-p)) = \Sigma\alpha + \beta_1 \text{EQUIPMENT} + \beta_2\text{LAND} + \beta_3\text{DISTANCE} + \beta_4\text{SUBCRED} +$$

$+\beta_5 \text{PROFITMARG}$ (3)

The logit model has been analyzed using SPSS. Table 5 shows a description of variables used in the model. The independent variables are classified by the belonging to a certain group of factors.

Table 5: Description of variables used in the binary logit model of access to bank credit

Group	Variables		Hypothesis
Dependent	CREDITBANK	credit from the commercial bank (1, if enterprises has a credit, 0, if not)	
2	EQUIPMENT	equipment, the value of depreciation sum (mln. KZT)	+
2	LAND	arable land (thousand ha)	+
3	DISTANCE	distance (km)	-
3	SUBCRED(1)	subsidized credit, dummy (1, if an enterprise has a subsidized credit, and 0, if not)	-
1	PROFITMARG	profit margin	+

The likelihood ratio chi-square of 39.4 tells us that the model as a whole fits significantly better than the empty model. Based on the Hosmer and Lemeshow Goodness-of-Fit Test one can see the p-value is equal 0.6 and indicates that the logistic model is a good fit. That is, if the Hosmer and Lemeshow Goodness-of-Fit test statistic is 0.05 or less, we reject the null hypothesis; if it is greater, we fail to reject the null hypothesis, implying that the model's estimates fit the data at an acceptable level (Garson 2009). Also one cannot observe homoscedasticity and the estimation of dependent variables is 88.0% correct.

Table 6 shows the estimated parameters, standard errors, the Wald Chi-Square statistic, associated p-values and odds ratio (Exp(B)). If the Wald statistic is significant (i.e., less than 0.1) then the parameter is significant in the model. The explanatory variables EQUIPMENT, LAND, DISTANCE and SUBCRED in the model are significant at the level of at least 10% while the variable PROFITMARG is not.

According to the results of the logit model one can say that for a unit increase in the explanatory variables, the odds of having access to formal credit (versus not having access) increased by a factor of (Exp(B)). Odds ratios less than 1.0 correspond to decreases and odds ratios more than 1.0 correspond to increases in odds. Odds ratios close to 1.0 indicate that unit changes in that independent variable do not affect the dependent variable level (GARSON 2009).

The table 6 shows that machinery and buildings (EQUIPMENT) have an increased effect on access to credits; this variable is significant at the level of 1%. It could be explained by the fact that even though most of Kazakhstani agricultural enterprises possess obsolete and

worn-out machinery and buildings, exclusively machinery and buildings could be considered by commercial banks as suitable collateral.

It is not very surprising to have such a variable as agricultural land with a significance of 5%, but a negative sign by a coefficient is surprising. It means the more land operated by the enterprise the less probability it has to having bank credit. However, taking in to consideration the fact that all large-scale enterprises in the Pavlodar region are situated in the remote area from the city, one can suggests that for commercial banks the land located too far away is not acceptable as collateral. That is, commercial banks prefer to accept as collateral exclusively land plots within an urban area or very close to it to be able to sell those land plots without additional problems in the case of a borrower's default. Also, taking into consideration an underdeveloped agricultural land market in Kazakhstan and a very low level of private ownership of land by agricultural producers, the reluctance of formal credit institutions to take agricultural land as collateral is not so surprising.

The distance from the nearest city has appeared as a significant at the level of less than 10%; and this variable has a negative sign as was expected. It proves the statement of an inverse relation between a probability to have credit from the bank and distance from the city. A short distance from the city means a higher opportunity to have bank credit.

Access to the subsidized credits has the highest significance of 0.1% and a negative sign, which means that if agricultural enterprises could use state subsidised credits, they would be not in big need of applying for the bank credit with the significantly higher interest rate and more strict requirements.

One could expect that such a variable as profit margin should appear as a significant one, however, it seems that agricultural enterprises prefer to finance purchasing of inputs and making investments from own recourses rather then via third parties (BUCHENRIEDER G. 2002).

Table 6: Logit estimates of the probability to have access to bank credit, 2006

	B	S.E.	Wald	df	Sig.	Exp(B)
EQUIPMENT	.19	.08	5.64	1	.017***	1.21
LAND	-.27	.15	3.57	1	.059**	.75
DISTANCE	-.012	.01	2.46	1	.12*	.98
SUBCRED(1)	-5.68	1.69	11.20	1	.001***	.003
PROFITMARG	-.13	.15	.71	1	.40	.88
Constant	4.85	2.31	4.44	1	.035	128.78

Note: *** = significance at level of 1%; ** = significance at a level of 5%
* = significance at a level of 10%

According to annual reports as much as 19.7% of reported agricultural enterprises had obtained bank credit. Taking into account that commercial banks prefer to finance exclusively large-scale grain producing agricultural enterprises, this number shows strict credit rationing by commercial banks and a rather high unwillingness of producers to apply for bank credit.

Thus, one can recognise that non-price rationing is more important in the process of bank crediting for agricultural enterprises than price-rationing. Agricultural enterprises willing to pay the market interest rate for bank credit are rationed by their ability to submit proper collateral. In the conditions of Kazakhstan, when the largest part of agricultural land is rented, but not in private ownership, commercial banks could use as collateral only land use rights, but not land itself. All the bankers say that they do not know how they could use such collateral, if there is not a developed land market in Kazakhstan and clear legal regulations regarding land use rights.

3.2 Credit from rural credit partnerships

A general analysis of the sample as was presented in the previews case with commercial bank credit was undertaken for RCP credit. In the table 7 results of the t-test for mean values of the factors characterising two groups of agricultural enterprises (with and without RCP's credit) are represented. Difference between two groups with respect to size of arable land, cost of equipment, profit, revenue, distance, fuel and seed are not observed. The groups differ only regarding subsidized credits. Having in mind that RCP credit could also be considered as subsidised credits distributed by means of partly state agencies, one can conclude those enterprises which have access to subsidized credit (say through personal relations or even by means of bribes), should have also access to RCP's credit using the same channels.

Table 7: Comparison of two groups of enterprises, with and without RCP credit

Factors	Entire sample (N=76)	With RCP credit (N=15)	Without RCP credit (N=61)	t-statistics	p-value
Average revenue (1000 KZT)	50144.9	51249.4	49776.8	0.06	0.95
Average profit (1000 KZT)	4215.3	5814.2	3672.8	0.51	0.62
Average size of arable land (ha)	5157.4	6798.2	4610.4	0.91	0.37
Average cost of equipment (1000 KZT)	5712.9	6173.3	5559.5	0.19	0.85
Average cost of fuel (1000 KZT)	5738.0	6224.8	5575.8	0.32	0.75
Average cost of seed (1000 KZT)	4455.3	3980.0	4613.8	-0.50	0.62
Distance (km)	151.9	145.7	154.0	-0.43	0.66

Note: [*] = significance at a level of 5%

The binary logit model used for the study of influence of a number of factors on a probability to have credits from the RCP is:

$$\ln(p/(1-p)) = \Sigma\alpha + \beta_1 \text{ EQUIPMENT} + \beta_2 \text{ REVENUE} + \beta_3 \text{LAND} + \beta_4 \text{ DISTANCE} + \beta_5 \text{SEED} + \beta_6 \text{FUEL} + \beta_7 \text{ PROFIT} \quad (4)$$

The table 8 shows a description of variables used in the binary logit model. The independent variables are classified by the belonging to a certain group of factors described in a section 3.1.

Table 8: Description of variables used in the logit model of access to RCP credit

Group	Variables		Hypothesis
Dependent	ACC	credit from the RCP (1, if enterprises have a credit, 0, if not)	
2	EQUIPMENT	equipment, the value of depreciation sum reported (mln. KZT)	+
1	REVENUE	revenue (mln. KZT)	+
2	LAND	arable land (ha)	+
3	DISTANCE	distance (km)	-
2	SEED	cost of seed (mln. KZT)	+
2	FUEL	cost of fuel (mln. KZT)	+
1	PROFIT	profit (mln. KZT)	+

The likelihood ratio chi-square of 73.6 tells us that the model as a whole fits significantly better than the empty model. Based on the Hosmer and Lemeshow Goodness-of-Fit Test one can see the p-value is equal 0.9 and indicates that the logistic model is a good fit. One cannot observe homoscedasticity and that the estimation of dependent variables is 80% correct

Table 9 shows the most significant variables in the model are LAND and FUEL (at 5%). Indeed, decisions regarding granting credit are made by a committee of the Agricultural Credit Corporation (ACC). The RCP itself bears only group responsibility for the borrowed money. Thus, for the ACC the most important factor is the size of land plots because, being a state owned company, the ACC has no problems of dealing with agricultural land in a case a borrower default of payment. The second variable, FUEL, is related to a main aim of RCP credit: financing a sowing-harvest campaign. In other words, agricultural enterprises (members of RCP) mostly take out short-term credit to cover their needs in a circulating capital (mostly for purchasing fuel and seeds). The variable SEED is significant on the level of 6%, but has a negative sign by the coefficient. This could be explained by the influence of special state programs that are aimed to provide grain producers, in particular larger firms, with seeds during the sowing period. In other words, if a borrower has access to the state program, the probability that it has credit from an RCP goes down. Variables REVENUE and EQUIPMENT are significant at the level of 9% and both have a negative sign. These results are very surprising because according to information of the regional office of ACC machinery and buildings possessed by agricultural enterprises are important basis for granting credit. However, taking into consideration that RCP credits are generally much smaller than commercial bank credits, the enterprises that have a higher cost of equipment can afford to apply for bank credit. The variable DIST is not significant and has a negative sign as it was expected. This insignificance could be explained by the fact that RCPs' head quarters are located in almost each rural district of the Pavlodar region. Thus, managers of RCPs are able to carry out monitoring and appraisal at a very low cost. However, the negative sign shows that the most remote enterprises have less valuable land plots from the point of view serving as collateral. The variable PROFIT is not significant probably because enterprises are unwilling to borrow from third parties if they have some of their own resources for investment.

Table 9: Logit estimates of the probability to have access to RCP credit, 2006

	B	S.E.	Wald	df	Sig.	Exp(B)
REVENUE	-0.02	0.01	2.88	1	0.09*	0.98
PROFIT	0.05	0.05	0.97	1	0.32	1.05
LAND	0.24	0.12	4.17	1	0.04**	1.27
EQUIPMENT	-0.14	0.08	2.92	1	0.09*	0.87
SEED	-0.35	0.19	3.47	1	0.06**	0.71
FUEL	0.34	0.17	4.12	1	0.04**	1.41
DISTANCE	-0.001	0.00	0.06	1	0.80	0.99
Constant	-1.21	0.72	2.75	1	0.09	0.29

Notes: ** = significance at a level of 5%, * = significance at a level of 10%,

CONCLUSIONS

The major results of this study could be summarized as follows. First of all, access to subsidized credit has the highest significance among other factors and has a negative sign. The role of this factor in determining access to bank credit and investment activity is as follows: if an agricultural enterprise has an opportunity to be granted with a subsidized credit (mostly through corruption), it is not in need of applying for commercial bank credit with a significantly higher interest rate. Major determinants of credit rationing are the size of arable land and a cost of equipment expressing an ability to submit them as collateral. Indeed, commercial banks as well as RCPs in Kazakhstan are reluctant to have any dealings with agricultural enterprises having no sufficient collateral to submit. Taking into account that the overwhelming majority of agricultural producers have very worn-out and obsolete machinery and buildings, they are very strictly rationed by formal credit institutions. Additionally, underdeveloped land market and unclear regulations concerning implementation of the land use rights in Kazakhstan make commercial banks to accept as collateral the land preferably situated in urban areas or very close to them, to be able to sell it without problems in the case of borrower's default. As for RCPs, those enterprises which have large enough land plots have a high probability to be granted with credit. Additionally, those enterprises, whose production capacities are higher, that is, they need more fuel and seeds could be considered as the most reliable borrowers.

Second, the analysis shows that variables characterizing price rationing are not very significant. Such a variable as profit is non-significant and probably expresses unwillingness of agricultural enterprises to apply to the third part if they have own recourses for financing their investment needs.

The results of this study are consistent with the following policy implications. Although agricultural enterprises make their credit decisions conditional on the availability of subsidized credit and own recourses, funds are very restricted and cannot cover all

investment needs, in particular as for long-term investments. According to Petrick: "This might be taken as evidence for a band-wagon effect, i.e. small loan amounts are taken on favourable terms to finance consumption activities, whereas there is no actual investment project available." (PETRICK 2003).

The results provide evidence that having formal credit is positively related to enterprise's size, it reflects existing in Kazakhstan agricultural policy aimed on the enlargement of agricultural enterprises in particular as for grain producers.

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