

FINANCIAL EXCLUSION OF FARMERS AND RURAL ENTREPRENEURS

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Abstract. Financial exclusion appears to be greater in rural areas than in cities. The article concludes that the problem is connected not only with the people of low incomes but also individuals running their own businesses e.g. farmers and small entrepreneurs. The extent and reasons for financial exclusion among such entities have been identified and accompanied by the analysis of access to banking services – the key to effective management. The source of empirical data relied on survey questionnaires of farmers and small entrepreneurs in the rural areas in the south-eastern region of Poland. It was stated that in case of persons running their own businesses financial exclusions is mainly connected with a limited access to bank credit, yet the reasons for this situation are diverse. Apart from the internal factors associated with businesses (e.g. low and unstable incomes, aversion to risk, lack of confidence in banks etc.), significant determinants lie on the side of banks and the structure of financial system in rural areas.

Key words: financial exclusion; banking services; farmers; rural entrepreneurs

INTRODUCTION

Financial exclusion is a complex phenomenon which presents considerable difficulties in providing the term unambiguous definition. Theoretically, it is a situation when an individual has no or limited access to financial services: here the *limited access* denotes both geographical, economic and social factors as well as behavioral and information conditioning which altogether result in

insufficient level of prospective consumers' awareness regarding their participation in the financial system and the resultant advantages (Buko, 2013).

Furthermore, it is important to perceive financial exclusion as a process of one's gradual isolation/exclusion from the market of financial services due to its mismatch to the customer's needs, low income or financial straits. In this context, financial exclusion could be viewed not only as a situation which afflicts individuals as consumers but also individuals as business owners and entrepreneurs. In rural areas, this group consists of farmers and proprietors of non-farming businesses. In their case, of particular importance are the restrictions on access to a bank credit, which do not allow them to shape the optimal financing structure of economic activity, which reduces the economic efficiency of their business and hinders its development. In case of the clients that are threatened with financial exclusion, banks, even if they grant credits, are eager to terminate credit agreements due to not only objective but also subjective reasons (resulting from the difficulties in assessing the situation of their clients), to the deterioration of the conditions of using a granted credit in case of temporary financial difficulties or limiting an access to the credit, for example by demanding excessive security (Korenik, 2009).

MATERIAL AND METHODS

The aim is to define the scale and reasons for financial exclusion of farmers and small rural entrepreneurs. In

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the article, this problem is considered on the basis of Poland and limited to banking services. Its approach results from the conviction that the entities functioning on rural areas (in local environments) may encounter much more limitations in access to banking services than the entities acting on the areas with a greater level of developing financial infrastructure.

The source of empirical material relied on survey research of farms as well as small enterprises, natural persons with their seat on rural areas. The research tool was a standardised questionnaire of an interview with a farmer or a company owner. The survey research of farmers was conducted in 2008 and 2009 on a randomly selected sample of 736 individual users of farms with an area of more than 1ha, gaining direct subsidies from the EU. The spatial range included the region of south-western Poland (podkarpackie, małopolskie and świętokrzyskie voivodeships). The selection of farms was made by quota sampling so as to provide the representativeness of the research sample for agriculture of the macro-region in the aspect of the agrarian structure of farms.

The research on micro and small companies¹ conducting registered business activity, was done on the area of Podkarpackie and Lubelskie voivodeships in 2011. The research sample included 112 firms from rural areas of four poviats i.e. rzeszowski, ropczyko-śędziszowski, bieszczadzki and zamojski, with a differentiated location due to greater social and economic centres and separate character of rural areas (suburban, typically agricultural and peripheral). Performing the selection of companies for the research, the structure of economic entities conducting business activity in selected poviats, based on GUS data (Local Data Bank). In the randomly selected research sample micro-enterprises constituted 96.1% of the surveyed, small ones 3.9%.

PROBLEM OF FINANCIAL EXCLUSION OF PERSONS RUNNING THEIR BUSINESS IN RURAL AREAS

Limited access to bank credits may be a significant barrier for functioning and development of economic entities on rural areas. Many studies present that the SME (OECD, 2006; European Commission, 2003) and

¹ Micro-enterprises are the firms that employ fewer than 9 employees, small enterprises – from 10 to 49 employees.

agriculture (Chaves et al., 2001; Petrick and Latruffe, 2003; Fałkowski et al., 2010) sectors belong to the sector that is mostly threatened by the problem of insufficient access to credits. Not using external returnable financing may result from the lack of such a need or conscious selection of this development path which prefers self-financing or other e.g. unreturnable sources of financing. In many cases, however, limited access to credits or even exclusion from the credit market is the consequence of certain limitations (*credit constraints*), which are the derivatives of functioning financial institutions or the financial market (credit discrimination, contractual and informative reasons, prices and conditions of gaining credits etc.) or result from external determinants (Fig. 1).

The research conducted in south-eastern Poland indicates that the scope of banking services that have been used by farmers is still narrowed, limiting to a bank account and its basic operating services (Table 1). Obviously, all surveyed farmers held a bank account (as it is connected with gaining direct subsidies), however, the majority of them use it in a passive manner. It is confirmed by the fact, that only 19.6% of the surveyed declared that they use the account for non-cash transactions such as standing orders or transfer orders etc. More open to such types of services are rural entrepreneurs, among which 84% performs such financial operations.

Trade credits were used by 22.2% of the farmers whilst investment credits by 21.2% (in 2004–2007). The debt due to bank credits at the end of 2007 was indicated by 20.1% of the surveyed, including investment credits 16.2%. In the annual report, the percentage of farmers reaching agricultural credits did not exceed 8%. Apart from agricultural credits, 12.6% of the farmers used the debt in their current account, 6.4% from consumer credits, 2.2% from mortgage credits for housing purposes (Table 1). Totally, 40.6% of farmers used bank credits for various purposes (including consumption), 36% of farmers used agricultural credits.

The percentage of farmers using bank deposits amounted to 19.2% and investment funds 3.5%. Very few farmers used bank guarantee and consulting services (Table 1).

Small entrepreneurs in rural areas also used traditional banking services (Table 1). Every fifth of the surveyed used the credit in their bank account as the instrument for financing the operating activity of their

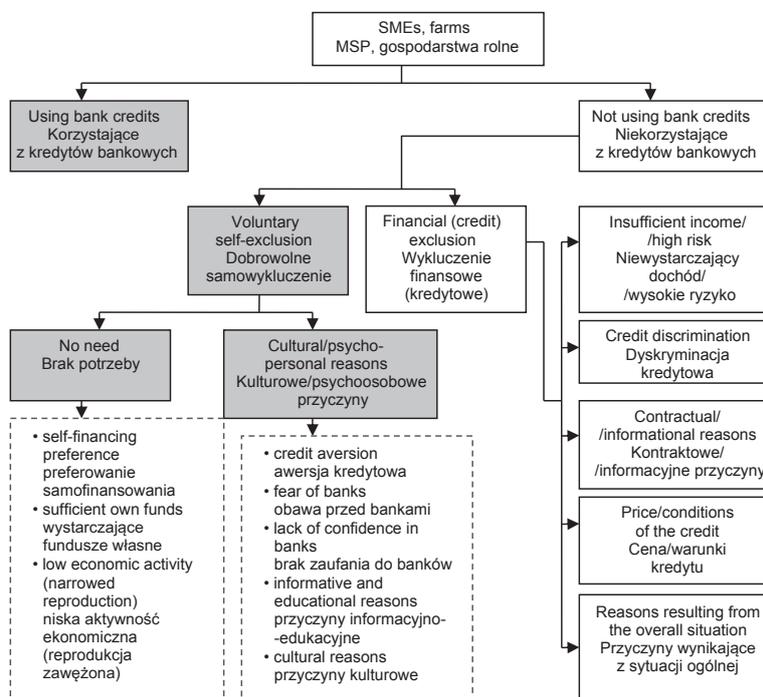


Fig. 1. Access of farmers and entrepreneurs to bank credits

Source: own study on the basis of World Bank, 2008.

Rys. 1. Dostęp rolników i przedsiębiorców do kredytów bankowych

Źródło: opracowanie własne na podstawie World Bank, 2008.

firms (15.6%). However, there was a relatively low percentage of entrepreneurs using trade credits (17%), as well as investment credits. This credit was taken by 12.5% entrepreneurs within the period of four years since the moment of the research. At the end of 2010, the percentage of indebted companies due to trade and investment credits amounted to 23%. Long-term deposit accounts were held by 13.4% surveyed entrepreneurs, in comparison to 3.6% of savings in investment funds. Comparing, the Table 1 also presents the results of nationwide research regarding the use of bank services by micro-enterprises. It is clearly visible that the entrepreneurs from rural areas use bank services in a limited scope. In particular, it regards the services of financing and it undoubtedly results not only from fewer needs in this capacity of the firms acting in rural areas (due to averagely smaller scale of economic activity in comparison to urban firms), but also greater credit limitations which are encountered by entrepreneurs acting in rural areas.

Respondents who had not used the credit were asked about the reasons for such a situation. According to the declarations of 54.4% farmers and 36.6% entrepreneurs, lack of interest in credits resulted from the lack of such a need (Table 2). For 44.3% farmers and 17.9% entrepreneurs was the only reason for not using credits. It may be assumed that at least part of these surveyed had sufficient funds so as to perform their development path of their household or firm. In fact, such an answer was given mostly by the owners of relatively small and economically weak farms and firms which within the last 4 years had not performed any investment undertakings. The lack of demand for credits resulted from the freezing developmental undertakings, narrowed reproduction of assets or even lack of economic activity.

Self-exclusion from the credit market regards also those farmers and entrepreneurs who declared “aversion to taking any credit”. Those individuals are characterised by “aversion” to crediting and preventive credit mentality, i.e. limitations with a psychological

Table 1. Percentage of farmers and entrepreneurs using banking services

Tabela 1. Odsetek rolników i przedsiębiorców korzystających z usług bankowych

Service Usługa	Number of farmers Liczba rolników n = 736	Enterprises – Przedsiębiorcy	
		Micro and small from rural areas Mikro- i małe przedsiębiorstwa z obszarów wiejskich n = 112	Micro in the country in total Mikroprzedsiębiorstwa łącznie w całym kraju n = 800
Current account Rachunek rozliczeniowy (bieżący)	100.0	100.0	100
Foreign currency and investment account Rachunek walutowy, inwestycyjny	1.4	8.0	14
Credit cards Karty kredytowe	4.3	17.0	42
Current account debt ^a Kredyt w rachunku bieżącym ^a	12.6	19.6	26
Trade credits ^a Kredyty obrotowe ^a	22.2	17.0	20
Investment credits ^b Kredyty inwestycyjne ^b	21.1	12.5	15
Mortgage credits ^b Kredyty hipoteczne ^b	2.2	8.0	6
Term deposits Lokaty terminowe	19.2	13.4	17
Investment fund Fundusz inwestycyjny	3.5	3.6	10
Leasing ^b	0.5	6.3	12
Financial and investment consulting ^b Doradztwo finansowo-inwestycyjne ^b	3.5	7.1	9
Credit guarantees ^b Poręczenia i gwarancje kredytowe ^b	0.4	2.7	3

^a Regards the units indicating the debt due to credits within the last 12 months.

^b Regards the last 4 years since the moment of the research.

Source: own survey research (column 3 and 4) and Idzik, 2011 (column 5).

^a Dotyczy jednostek wykazujących stan zadłużenia z tego typu kredytów w ciągu ostatnich 12 miesięcy.

^b Dotyczy ostatnich 4 lat od momentu badania.

Źródło: własne badania ankietowe (kol. 3 i 4) oraz Idzik, 2011 (kol. 5).

character, having its base in the fear of banks and complicated banking procedures. These attitudes are the effect of previous negative own experiences or observed in others in the aspect of crediting economic activity.

Totally, among those who have not used bank credits, more than half of the owners of the firms acting in rural areas and 2/3 of farmers do not consider as sources of financing. Many of them indicated more than one reason for non-use of credits, combining e.g. the lack of needs

Table 2. Reasons for not using bank credits according to the survey

Tabela 2. Przyczyny niekorzystania z kredytów bankowych według wskazań ankietowanych

Main reason Przyczyna główna	Specific reason according to the order of respondents' indications Przyczyna szczegółowa wg kolejności wskazań respondentów	Percentage of declaring a given reason*: Odsetek deklarujących daną przyczynę*:	
		farmers rolników	entrepreneurs przedsiębiorców
No need – Brak potrzeby		54.4	36.6
Bank's rejection (negative handling of the credit application) Odmowa banku (negatywne rozpatrzenie wniosku kredytowego)		3.6	15.2
Unfavourable crediting conditions Niekorzystne warunki kredytowania	high interest and commissions wysokie oprocentowanie i prowizje burdensome procedures uciążliwe procedury short term of repayment, no grace periods krótki okres spłaty, brak okresu karencji	22.7	20.5
Difficulties in gaining credits on the side of banks Trudności w uzyskaniu kredytu ze strony banku	too high requirements regarding collateral and creditability za wysokie wymagania co do zabezpieczeń i zdolności kredytowej no information and consulting assistance brak informacji i pomocy konsultingowej	11.0	18.8
Internal situation of a household/enterprise Sytuacja wewnętrzna gospodarstwa/ /przedsiębiorstwa	fear of taking any credit niechęć do brania jakiegokolwiek kredytu fear of difficulties in credit repayment obawa przed trudnościami w spłacie kredytu limiting activity ograniczanie działalności	33.1	29.5
Limitations resulting from the overall situation Ograniczenia wynikające z sytuacji ogólnej	low profitability of production niska dochodowość (rentowność) produkcji unreliability of selling products niepewność zbytu produktów instability of management conditions niestabilność warunków gospodarowania lack of support from the side of the State brak wsparcia ze strony państwa	21.7	25.9

* Answers do not add up to 100% due to the fact that the surveyed could indicate more than one reason.

Source: own research.

* Odsetek odpowiedzi nie sumuje się do 100%, ponieważ ankietowani mogli wskazywać więcej niż 1 przyczynę

Źródło: badania własne.

with other reasons. It regards particularly farmers and confirms that many of them (33.5%), even if there was a need for crediting a farm, would not reach for credits for fear of debts, inability to cover formal requirements or strong aversion to risk.

A separate issue is the lack of access to credits due to the exclusion from the credit market. There is a group of farmers (21.7%) and small entrepreneurs in rural areas (42.8%) which show interest in credits but they cannot

use them. The problem of insufficient accessibility to credits is multidimensional and the reasons for unsatisfied demand for financial resources are partially on the side of banks.

The large carefulness of banks in crediting of small enterprises is result from:

- sense of informative asymmetry due to less reliable financial statements than in case of greater and audited firms,

- low assessment of competences in the scope of finance management,
- greater – in the banks' opinion – probability of disloyal behaviours.

Similar reasons shall be seen in the aversion of many banks to credit farms. In particular, it regards huge commercial banks, for which financing of this sector, despite the aforementioned problems, is less attractive due to a small, scattered and unstable demand of farmers for credits, averagely low volume of agriculture credits or burdensome reporting requirements in case of the credits subsidised by the state (Kata, 2010). Another problem relies on the lack of tools and skills needed for assessing the creditability of farmers as the assessment systems applied by commercial, computerised banks are not suitable for such clients. As a result, the banks are eager to resign from crediting farmers referring them to local banks (cooperative banks). There are also cases of commercial banks whose internal guidelines in the scope of strategy of credit activity, ordering avoidance in crediting farmers. In Poland, gradual withdrawal of commercial banks from credits for farmers may be observed.

One of the reasons for financial exclusion of farmers and small entrepreneurs is the price and “contract” policy of banks. The report of the NBP (2009) indicates that in the 2nd quarter of 2009, average interest of short-term credits for small firms was greater by 1.71% than credits for big companies and by 2.34% greater in comparison to very big companies (more than 2000 employees). In case of long-term credits, small enterprises, would have to pay interest by 1.63% higher than big companies and 1.57% higher than very big companies. This situation is maintained for many years, and also relates to farmers. Despite that they are very reliable credit users (level of risky credits has been the lowest) it is not reflected in credit interest and other conditions deciding on the credit cost (Daniłowska, 2009).

Farmers and entrepreneurs as barriers in gaining credits also indicated other elements defining costs and conditions of credit transactions such as high bank commissions and costs of security, for a short term of repayment, no grace period as well as requirements of banks in the scope of credit security (Table 2). Some of the farmers (5.5%) and entrepreneurs (10.7%) also indicated tiring procedures as well as no proper information and consulting assistance from banks.

It is obvious that the factors influencing the current economic situation cannot be omitted which causes the prolongation of credit decisions by farmers and rural entrepreneurs. Such reasons were stated by 21.7% farmers and 25.9% entrepreneurs. Within the framework of this group of reasons, the farmers indicated mainly low profitability of agricultural production (18% of surveyed) and instability of selling products (11.7%). Moreover, entrepreneurs indicated unstable conditions of management (16.1%), as well as instability sales of many products and lack of state assistance.

It is worth remembering that only 3.6% of farmers applying for bank credits gained rejection from the bank (negative handing of the credit application). In case of entrepreneurs, this rate is four times higher (15.2%). Low ratio of farmers gaining credit rejection resulted from the fact that in many cases the farmers resigned from applying for a credit at the informative stage.

ENDOGENIC DETERMINANTS OF FINANCIAL EXCLUSION OF FARMERS AND RURAL ENTREPRENEURS

As indicated, the reason for financial exclusion of farmers and rural entrepreneurs is a limited access to bank finance services. This problem is seen not only in the factors remaining on the side of banks but also in the internal factors defining farmers and rural entrepreneurs as well as their businesses. These endogenic determinants may contribute to an increase of credit risk from the viewpoint of banks and may cause problems of the information nature hindering taking right credit decisions. In order to separate endogenic determinants which increase a probability of financial exclusion of farmers and rural entrepreneurs, various statistical analyses have been performed. The correlation analysis of variables and a logit model has been estimated. The dependent variable (Y) had a binary feature (0/1) and assumed the value 1 in the situation of financial exclusion, or 0 when this situation was not observed.

As independent variables, social and personal features of farmers and entrepreneurs were assumed, as well as the variables defining their activity in the scope of gaining non-returnable external funds, keeping accounting books, attitudes and intentions of the surveyed in the scope of developing the workshops also confidence to banks in the studied group and financing economic activity with bank credits (Table 3).

Table 3. Statistical correlations between financial exclusion and social, personal and behavioural features of farmers and rural entrepreneurs

Tabela 3. Zależności statystyczne pomiędzy faktem wykluczenia finansowego a cechami społeczno-osobowymi i behawioralnymi rolników i przedsiębiorców wiejskich

Description Wyszczególnienie	Value of chi ² test Wartość testu chi ²	V-Cramer, Fi (φ) ^a	Direction of correlation ^b Kierunek oddziaływania ^b
X ₁ – general education (points 1–7) ^c X ₁ – wykształcenie ogólne (pkt 1–7) ^c	13.77*	0.1368	–
X ₂ – financial competences (points 1–7) ^d X ₂ – kompetencje finansowe (pkt 1–7) ^d	43.21*	0.2423	–
X ₃ – conviction that the business is developing (0/1) ^e X ₃ – przekonanie, że prowadzony biznes jest rozwojowy (0/1) ^e	112.82*	–0.3915	–
X ₄ – use of EU structural funds (0/1) ^e X ₄ – korzystanie z funduszy strukturalnych UE (0/1) ^e	15.85*	–0.1472	–
X ₅ – keeping accounting records (0/1) ^e X ₅ – prowadzenie ewidencji księgowej (0/1) ^e	9.71*	–0.1152	–
X ₆ – changes in production resources (–5;5 points) ^f X ₆ – zmiany zasobów produkcyjnych (–5;5 pkt) ^f	69.86*	0.3081	–
X ₇ – intention to increase the scale and scope of activity (0/1) ^e X ₇ – zamiar zwiększenia skali i zakresu działalności (0/1) ^e	20.27*	–0.1554	–
X ₈ – employment only at own business (0/1) ^e X ₈ – zatrudnienie tylko we własnym podmiocie (0/1) ^e	3.63	–0.0702	n
X ₉ – confidence in bank; bank employee as a good advisor (0/1) ^e X ₉ – zaufanie do banku; pracownik banku jako dobry doradca (0/1) ^e	53.91*	–0.2672	–
X ₁₀ – conviction that a credit is available (0/1) ^e X ₁₀ – przekonanie, że kredyt jest dostępny (0/1) ^e	54.27*	–0.2643	–
X ₁₁ – conviction that a credit is a trap (0/1) ^e X ₁₁ – przekonanie, że kredyt stanowi pułapkę (0/1) ^e	27.43*	0.1930	+

*Statistically significant correlation at $p \leq 0,05$.

^a Coefficient Fi (φ) applied for the tables 2×2 , in other cases V-Cramer coefficient has been used.

^b Sign “+” means a positive influence, “–” means a negative influence, however “n” means no statistical significance.

^c 1 point primary school education, ..., 7 points higher education.

^d Ordinal point meter defining, in the scale of 1 to 7 points, financial competences of a farmer/entrepreneur on the basis of answering the questions regarding financial knowledge as well as experiences in relations with banks.

^e Answers 1 – yes, 0 – no.

^f Point meter regarding the changes in the assets of the farm/firm implemented within the last 4 years, which totally caused a change in the value of assets by at least 20% (± 1 point), max 5 points (change $\geq 100\%$).

Source: own research.

* Statystycznie istotna współzależność przy $p \leq 0,05$.

^a Współczynnik Fi (φ) stosowano dla tabel 2×2 , w pozostałych przypadkach współczynnik V-Cramera.

^b Znak „+” oznacza wpływ dodatni, „–” wpływ ujemny, zaś „n” brak istotności statystycznej.

^c Kolejno 1 pkt wykształcenie podstawowe, ..., 7 pkt wykształcenie wyższe.

^d Miernik porządkowy punktowy określający w skali od 1 do 7 pkt kompetencje finansowe rolnika/przedsiębiorcy na podstawie odpowiedzi na pytania dotyczące wiedzy finansowej oraz doświadczeń w relacjach z bankami.

^e Odpowiedzi 1 – tak, 0 – nie.

^f Miernik punktowy uwzględniający zmiany w aktywach gospodarstwa/firmy zrealizowane w okresie ostatnich 4 lat, które łącznie powodowały zmianę wartości aktywów co najmniej o 20% (± 1 pkt), max 5 pkt (zmiana $\geq 100\%$).

Źródło: badania własne.

The fact of financial exclusion (understood as self exclusion too) has been determined on the basis of observations of the studied entities. Financially excluded entities included those farmers or entrepreneurs who used only a bank account and simple operations by means of an account (cash and non-cash payments), however, they did not use any other bank services. Concurrently, those persons indicated a need for obtaining bank credits² but they did not use the credits. It was caused rejection of the credit application by the bank or resignation from applying for a credit due to external or internal factors (credit price, terms and conditions of the credit agreement, lack of possibility of satisfying the requirements of bank credits, etc.). The group of financially excluded entities also included other persons which underwent self-exclusion due to psychological and personal reasons (credit aversion, information and educating reasons). The sample has not included the entities who declared total lack of interest in credits and have not used any other banking services (beyond possessing a bank account) which resulted from their low economic activity (e.g. farmers producing only for their self-supply). This situation regarded 104 entities (12.2% of the whole).

In the sample, it has been defined that the variable Y assumes the value of 1 (meaning financial exclusion) in case of 242 entities (32.5%) out of 744 entities qualified for the statistical analysis. Considering factual and statistical premises, 11 explanatory variables have been distinguished, out of which 8 are dichotomous features (0/1), however 3 area features were defined in the ordinal point scale.

In order to distinguish explanatory variables, the following selection criteria have been assumed:

- Statistically significant correlation with the explanatory variable has been assumed;
- It has been assumed that for binary variables, the number of entities with the value 1 for a given variable will be greater than 10% of observation number;
- It has been assumed a possibly small correlation of independent variables among themselves (chi-square tests, Spearman's rank correlation coefficient).

Correlation among the fact of financial exclusion (Y) and explanatory variables has been indicated by means of chi-square tests of independence. By means of

V-Cramer or F_i and τ -Kendall coefficients, the force and direction of this dependence have been defined³.

The analysis indicates the existence of a statistically significant correlation ($p \leq 0,05$) between financial exclusions and independent features excluding the variable X_8 defining the fact of employing the owner of the farm or firm in his economic activity only (Table 3).

The positive dependence has been indicated between the dependent variable and the conviction of the farmers and entrepreneurs that a credit constitutes a trap. It has been according to theoretical assumptions indicating that one of the reasons for financial exclusion is credit aversion i.e. fear against indebtedness and unwillingness to take credits.

Financial exclusion is connected with poor education of farmers or entrepreneurs as well as their poor financial competences (poor financial knowledge, low experience in relations with banks). In the second case, the correlation is much stronger (which is indicated by the value of F_i coefficient). Concurrently, negative correlation has been indicated between financial exclusions and keeping accounting books by the surveyed. This feature, as well as aforementioned ones, decide on the evaluation of the credit risk, as well as the weight of the problems of an information nature, i.e. availability of credits.

Negative dependence has been indicated between the explanatory variable and the conviction of the surveyed that their business is developing. Such a result is compliant with the theses formulated in the literature (Karwat-Woźniak, 2005) arguing that a positive assessment of farmers with regard to the perspectives of development of their businesses determine their functions and economic situation, as well as engagement of farmers for the benefit of their modernisation and economic growth. Positive perception of the perspectives of development of a firm is a success factor in non-farming businesses (Lemańska-Majdzik, 2006). In this context, the negative correlation between financial exclusion and pro-developmental attitude of farmers and entrepreneurs will not be surprising, expressed in declarations regarding an increase of the scale and scope of the conducted economic activity. A reversed correlation is between the

² The financially disadvantaged were not included the persons who had not used the credits due to the lack of such a need.

³ τ -Kendall coefficient assumes the values from the section $[-1,+1]$, its sign defines whether correlation between the features has a positive or negative character. The force of the correlation is defined by the V-Cramer coefficient $[0,1]$.

explanatory variable and activity of farmers and entrepreneurs in gaining EU funds for the development of business, as well as implementation of developing undertakings in form of investments in fixed assets. Such an activity is characteristic for developing entities with a good economic condition. Moreover, a significant effect of this activity are stronger bonds of farmers and entrepreneurs with market environment and its institutions including banks which favours a greater vulnerability to gain bank credits as well as it increases their availability.

In order to estimate the influence of microeconomic features on financial exclusion of farmers and rural entrepreneurs, the analysis of regression has been performed. As the explanatory variable has a dichotomous character, the logit model has been applied, being a kind of an internally non-linear regression (Gruszczyński, 2002).

Logistic regression connects probability of one of the two possible results of a variable Y with explanatory variables and is expressed by the equation:

$$P(Y=1|x_1, \dots, x_k) = \frac{\exp\left(a_0 + \sum_{i=1}^k a_i x_i\right)}{1 + \exp\left(a_0 + \sum_{i=1}^k a_i x_i\right)}$$

where:

$a_i, i = 0, 1, 2, \dots, k$ – structural parameters in the model of logistic regression,

x_1, x_2, \dots, x_k – independent variables which may be measurable or qualitative.

From the logit model estimated by means of the function of the greatest reliability results that the statistically significant influence ($p \leq 0.05$) on the variable Y (financial exclusion) has 6 out of 10 quality features included in the analysis (Table 4). All of these variables in the estimated model has a minus sign, which means that an increase of their value increases probability of obtaining zero (no financial exclusion).

Table 4. Model of logistic regression for the variable determining financial exclusion of farmers and rural entrepreneurs

Tabela 4. Model regresji logistycznej dla zmiennej określającej wykluczenie finansowe rolników i przedsiębiorców wiejskich

Description Wyszczególnienie	Coefficient Współ- czynnik	Standard error Błąd stan- dardowy	t-statistics Statystyka t	p level poziom p	Quotient of chances Iloraz szans
Stable – Stała	2.4884*	0.520	4.784	0.000	12.042
Variable – Zmienna					
X ₂ – financial competences (1–7) X ₂ – kompetencje finansowe	–0.1518*	0.074	–2.053	0.040	0.859
X ₃ – conviction that the business is developing (0/1) X ₃ – przekonanie, że biznes jest rozwojowy	–1.3776*	0.204	–6.749	0.000	0.252
X ₆ – changes in production resources (–5,5) X ₆ – zmiany zasobów produkcyjnych	–0.1603*	0.059	–2.677	0.007	0.851
X ₇ – intention to increase the scale and scope of activity (0/1) X ₇ – zamiar zwiększenia skali i zakresu działalności	–0.8665*	0.353	–2.454	0.014	0.420
X ₉ – confidence in bank (0/1) X ₉ – zaufanie do banku	–1.0583*	0.195	–5.421	0.000	0.347
X ₁₀ – conviction that a credit is available (0/1) X ₁₀ – przekonanie, że kredyt jest dostępny	–0.7437*	0.219	–3.394	0.000	0.475

Model statistics: total loss 347.27; $\chi^2 = 221.12$; $p = 0.0000$.

Statystyki modelu: całkowita strata 347,27; $\chi^2 = 221,12$; $p = 0,0000$.

Source: own research.

Źródło: badania własne.

Among the statistical features, connected with financial exclusion, decreasing probability of this problem, are: higher financial competences, positive assessment of development perspectives of the conducted business, confidence in banks (connected with the confidence in employees as advisors), conviction that the credit is available. Regarding the quotient of chances, it may be concluded, for example, that probability of financial exclusion decreases by 14%, when the level of financial competences increases by one unit (1 point in the scale from 1 to 7 points), with other stable features. The parameters of the logit model indicate that the probability of financial exclusion decreases when the farmer or an entrepreneur performed developing undertakings by means of investments in fixed assets or when he shows pro-developmental attitudes.

CONCLUSION

The research confirmed the thesis that financial exclusion, in particular credit one, is experienced by individuals conducting economic activity in rural areas. It was provided that almost 60% of farmers do not use bank credits, however, 64% do not use credits in financing current and developmental activity of their farms. Among small entrepreneurs, more than 70% do not use investment or trade credits. This situation results from self-exclusion of these individuals from the credit market, as well as influences of credit limitations of an endogenous character and institutional (resulting from actions of banks and functioning the financial system in villages).

The reason for voluntary resignation from bank credits by farmers and entrepreneurs is the lack of need in this capacity as well as the preventive credit mentality as well as aversion to risk connected with crediting a farm/firm. It should be emphasised that the lack of credit needs for many small farms (as well as firms) results from their low economic activity, narrowed reproduction of assets and other recessive processes.

Almost 22% of farmers and 43% of small entrepreneurs are faced with the lack of access to credits or may obtain credit under worse conditions in comparison to other groups of bank clients. Many of these problems are the result of credit discrimination of farmers and small entrepreneurs on the side of banks or rationalising credits by banks for this type of customers (e.g. as a result of high requirements regarding credit security).

It confirms the rightness of the doctrine formulated in banking that “not price but accessibility of credits is the important factor presenting its magnitude” (Mathews and Thompson, 2007). The increase in the credit demand on the side of farmers and entrepreneurs required easing credit external and institutional constraints.

Among the internal determinants which influence the probability of financial exclusion of farmers and rural entrepreneurs, the psychological and personal features are significant (financial competences, willingness to introduce changes, openness to relations with the institutions from business environment, pro-developmental attitudes), as well as experience in the relations with banks and confidence in them.

From the point of view of banks, it is necessary to adjust to the needs of farmers and small entrepreneurs, improving the functions of “information and consulting”, as well as emphasis on creating long-term relations with clients, based on mutual confidence. Public authorities will shape such regulatory frames and supervision which would encourage banks for greater social responsibility and stronger engagement in the financial service of people and economic entities in rural areas. It is desired to support the differentiated structure of the financial system in rural areas which, apart from banks, may create micro financial institutions, credit unions and other entities from the sphere of financial and insurance agency. The key role in this system will be played by local banks.

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WYKLUCZENIE FINANSOWE ROLNIKÓW I PRZEDSIĘBIORCÓW WIEJSKICH

Streszczenie. Wykluczenie finansowe jest obecne na wsi na większą skalę niż na obszarze miast. W opracowaniu wykazano, że problem ten dotyka nie tylko ludność o niskich dochodach, ale także osoby fizyczne prowadzące działalność gospodarczą, tj. rolników i drobnych przedsiębiorców. Określono skalę oraz przyczyny wykluczenia finansowego tego typu jednostek, przy czym w analizie skupiono się na usługach bankowych, do których dostęp jest warunkiem efektywnego gospodarowania. Źródłem danych empirycznych były badania ankietowe rolników oraz drobnych przedsiębiorców na wsi, prowadzone w Polsce południowo-wschodniej. Wykazano, że w przypadku osób prowadzących działalność gospodarczą wykluczenie finansowe najczęściej przybiera formę ograniczonego dostępu do kredytów bankowych. Przyczyny tego problemu są zróżnicowane. Obok uwarunkowań wewnętrznych dla przedsiębiorców i rolników (niskie i niestabilne dochody, awersja do ryzyka itp.) istotne są czynniki po stronie banków i systemu finansowego panującego na wsi.

Słowa kluczowe: wykluczenie finansowe, usługi bankowe, rolnicy, przedsiębiorcy wiejscy

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