

# Knowledge and financial skills as the factors determining the financial exclusion process of rural dwellers in Poland

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**Abstract:** The aim of the article is determining the level of knowledge and financial skills of rural dwellers on an example of one of the European Union member states (Poland), as the factors which play a crucial role in the process of limiting the phenomenon of financial exclusion. The main source of data used for the analysis was the information gathered through the author's own studies conducted on a group of 1000 randomly chosen people. Statistical analysis of the researched material comprised the summary statistical measurements, the non-parametric  $\chi^2$  test and the cluster analysis (*k*-means clustering). As results from the conducted analysis, the inhabitants of rural areas in Poland are characterized by the average level of knowledge and financial skills. The level of financial competences represented by rural dwellers is conditioned both by the economic and non-economic factors. Three groups of citizens were distinguished on the basis of the conducted investigations. The group which requires special educational measures comprises of women, elderly and less educated persons, households with lower incomes, families of annuitants and old-age pensioners, but also persons using financial tools in a lower degree, not using banking services or living in the areas with a worse access to the banking infrastructure.

**Key words:** financial exclusion, financial inclusion, rural household

One of the causes of social exclusion is financial exclusion, which means no access to basic financial services. Financial exclusion most often concerns people with very low incomes, in an unfavourable social situation, uneducated people, old age pensioners/annuitants, people with very low earnings and the unemployed. The problem of financial exclusion is also diversified by the place of residence. A higher level of this phenomenon is observed in rural areas, which is connected with a worse state of banking infrastructure in rural areas and an unequal access to educational institutions, a lower level of the Internet access, but also by the mentality and attitudes of rural communities towards money and financial institutions.

A high level of financially excluded people in a society leads to the worsening of the citizens' life standards due to the deepening social chasms between the poor and rich households. Remedial measures undertaken by the State and financial institutions to help the financial inclusion are a reality in most European Union countries. They focus primarily on the consumer protection in the financial product and services market, statutory regulations of the bank account "for everybody" and developing financial skills of households (Solarz 2011). To be efficacious,

these measures must be properly adjusted to the needs and requirements of the beneficiaries in this area; therefore, it is necessary to identify the factors conditioning the process of financial inclusion.

The article aims to determine the level of knowledge and financial skills of rural area dwellers on an example of one of the European Union countries (Poland) as factors playing a crucial role in the process of limiting the phenomenon of financial exclusion. These issues are particularly important in view of the currently realized priority area of the Strategy "Europe 2020" focusing on the activities supporting social inclusion of the EU citizens (area 3), giving them a chance for a good life and an active participation in social life.

## MATERIAL AND METHODS

The main source of data used for the analysis and inference was the information initially obtained from the authors' own research, the project called "Factors determining the level of rural dwellers' financial knowledge on an example of the Malopolska Region" (research project financed from the outlays on science in Poland in 2009–2011). The technique used was the directed interview using the interview

questionnaire. The investigations were conducted on a group of 1000 randomly selected rural households. The interviews were conducted with the household heads. The household head has been identified as the person responsible for the household budget (Monticone 2009). The main criteria of the population division were: gender, age and education of the respondents, net income *per capita* and the main source of income in the analyzed household.

The statistical analysis comprised:

- structure indicators;
- *non-parametric Chi Square test* ( $\chi^2$ ) allowing for an assessment of the significance of relationship

between variables if at least one of them is non-measurable. All hypotheses were verified on the significance level  $\alpha = 0.05$ .

Formula 1. Value of ( $\chi^2$ )

$$\chi^2 = \sum_{i=1}^r \sum_{j=1}^k \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

$O_{ij}$  = result of measurement in the  $i$ -th line and the  $j$ -th column

$E_{ij}$  = expected value in the  $i$ -th line of the  $j$ -th column

$df$  = degrees of freedom

Table 1. Percentage of society in the selected European Union countries who assessed the access to the basic bank products as difficult in 2010 (%)

Specification	Basic bank account	Consumer loans	Bank card/ payment card	Credit card	Mortgage
EU 27	15	34	18	27	47
BE	13	29	13	29	54
BG	18	48	16	32	48
CZ	8	28	11	17	64
DK	6	28	10	22	43
DE	7	25	8	21	38
EE	5	28	6	23	36
EL	25	51	30	40	54
ES	19	55	28	37	69
FR	20	23	25	26	42
IE	12	31	14	19	38
IT	23	37	24	30	46
CY	26	52	28	36	59
LT	21	45	20	36	56
LV	8	47	7	29	61
LU	9	25	16	25	66
HU	21	48	20	40	63
MT	15	24	14	20	33
NL	3	16	1	11	36
AT	23	41	23	37	48
PL	14	33	16	24	49
PT	26	45	23	42	72
RO	39	53	35	44	58
SI	10	45	15	30	39
SK	13	45	17	27	65
FI	4	14	5	13	19
SE	6	12	5	11	28
UK	7	27	10	20	42

Source: Poverty and Social Exclusion (2010)

- the statistical analysis of collected materials involved cluster analysis using k-means clustering which was used to identify typological groups of citizens concerning their financial skills (Badach and Jaczewska 2005).

### Level of financial exclusion in the European Union countries

The term of financial exclusion has been defined differently. One of the definitions of financial exclusion was given in the report “Financial Services Provision and Prevention of Financial Exclusion” prepared in 2010 on commission from the European Commission. Among others, it stated that: “Financial exclusion refers to a process whereby people encounter difficulties accessing and/or using financial services and products in the mainstream market that are appropriate to their needs and enable them to lead a normal social life in the society in which they belong” (2010). These services may include basic bank accounts, credits or insurance products (Gniewek and Krasnodębski 2004). On the other hand, according to Mitton, financial exclusion is a lack of the possibilities, difficulties or unwillingness to use the formal financial services market (2008).

The report entitled “Poverty and Social Exclusion” published in 2010 revealed that a considerable part of the EU citizens meets with obstacles in using the basic financial services. The data presented in Table 1 suggest that almost 15% of the EU communities have a difficult access to a bank account and 27% to a credit

card. Every third EU citizen has no possibility to take a consumer loan, whereas almost every second is unable to take a mortgage credit. It should be added that there are considerable differences among the EU countries concerning the access to the individual financial services. As results from Table 1, only 3% of the Dutch citizens indicated that they had no possibility to open a bank account, whereas almost 40% of Romanian citizens face the same problem. These disproportions are even greater in case of the bank loan or the mortgage credit availability.

Several indicators are used for measuring financial exclusion. The most often applied one is the so-called degree of use of banking services (persons having bank accounts). The level of the use of banking services in Poland is low in comparison with the other EU states. The coefficient 89% places Poland on 19th position together with the Czech Republic (Figure 1).

The indicator which makes an assessment and comparison of financial exclusion possible is also the number of bank accounts per 1 inhabitant. According to the *Blue Book* statistics in 2009, in Poland the indicator was 0.94 bank accounts per one citizen, whereas the average for the EU countries was 1.26. Poland's position against the background of the other EU countries has been presented in Figure 2.

Financial exclusion may lead to social exclusion; therefore, a reduction of this phenomenon is a priority for many institutions and subjects (an attitude of the European Commission, the OECD). Efficient weapons in combating the problem of financial exclusion are all

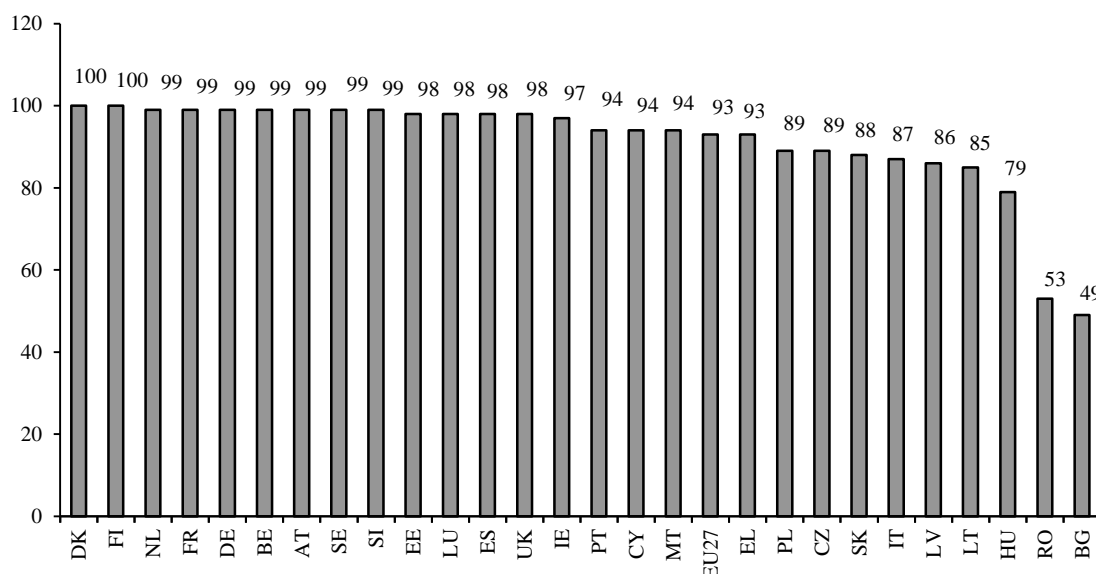


Figure 1. Account access in the EU countries in 2009 (%)

Source: Cross-border sales and the consumer protection (2010)

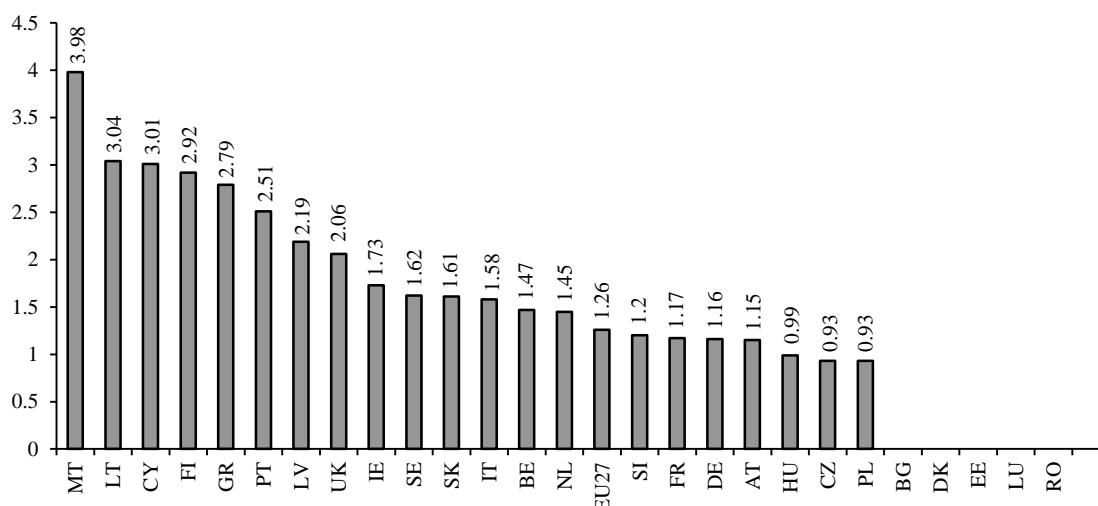


Figure 2. Number of personal accounts *per capita* in the European Union countries in 2009

No data available for BG, DK, EE, LU and RO

Source: <http://sdw.ecb.europa.eu>

measures in the area of financial inclusion. Sinclair et al. (2009) think that the knowledge in the area of finances plays a crucial role in the fight against financial exclusion. Also the definition of financial inclusion suggested by the Financial Services Authority (FSA) emphasizes proper skills and financial knowledge of the citizens as the factors conditioning the full use of financial products (Deirdre 2007). The current recession results in the financial exclusion also in the individual municipalities, leading to the insufficient financing of public services by the municipal self-government and the consequent social exclusion of some groups of people. This is most pronounced in the marginal regions with a strong rural character, which are typically underdeveloped (Tej 2011). A sound knowledge about personal finances enables a rational selection of financial services, suitable for the needs of the individual social groups, a proper assessment of financial risk, a better planning of the future (e.g. the unemployment periods or retirement period), but also reducing of the excessive consumption. On the other hand, in market economy, an adequate information about the potential clients is crucially important for banks and enables them to make proper decisions, including also the marketing ones (Gniewek and Krasnodębski 2000).

Beside individual benefits, a high level of knowledge and financial skills ensures economic benefits (increased stability of financial system, revitalization of cross-border activities concerning financial services, diversification of financial products), as well as social advantages (limiting the problem of financial exclusion).

### Knowledge and financial skills of rural dwellers in Poland

A financial knowledge index (FKI) was developed for the measurement and assessment of financial knowledge of rural dwellers, enabling to evaluate the real financial knowledge. The source of data used for its construction was a test (12 questions) checking the respondents' mastery of the basic terms and financial phenomena. The construction of the index was based on the rules governing the construction of financial knowledge indices acc. to Guiso and Japelli with a correction made by Calgano and Monticione (2011). Correct answers to the questions were summed and then rescaled to the range from 0 to 100. The average value of the financial knowledge index for the given population was 48 points, whereas the maximum was 100 points (all correct answers in the test and only 1 respondent). Most frequently the respondents obtained 69 points (18.5%). In order to be verified using  $\chi^2$  the results were grouped in three intervals: low, medium and high level of financial knowledge. As results from the conducted analysis, almost 42% of respondents revealed a medium level of financial knowledge, every third a high level, whereas a low level of knowledge in the area of personal finances concerned 28% of the investigated population.

The next indicator, the financial skills index (FSI) was constructed on the basis of three domains of financial skills: home budget management, financial planning and diversification of financial risk. Results from individual areas were added up in order to calculate a general indicator. Questions used in each area

were not repeated in other domains, which made the comparison of results between the investigated areas possible. The average number of points obtained for the index was almost 54 points and it was higher than the average value obtained for the financial knowledge index, however, in this case the maximum number of points obtained by the respondents was 88 out of 100 available. In the case of the discussed index, also persons revealing the medium level of financial skills dominated. Over 38% of rural dwellers are citizens revealing the low level of competence in the area of finances. On the other hand, one in twelve respondents was characterized by a high level of the awareness in the area of personal finances.

On the basis of the conducted analysis, it may be stated that the level of knowledge and financial skills were determined by many factors and one of these is gender (Table 2). The researched group was made up from 55% by women and from 45% by men. Results of the statistical analysis suggest that this factor significantly diversifies the level of financial knowledge ( $\chi^2 = 10.4$ ,  $df = 2$ ). Women were characterized by a lower level of knowledge in the field of finance. The average result obtained in the group of female respondents was 46 points, whereas in the group of male respondents 51. Almost  $\frac{1}{4}$  of women revealed a high level of financial knowledge and 49% a medium level. The share of respondents who reached the highest results of the test in the male group was almost  $\frac{1}{3}$ . A similar dependence was observed in the research conducted by the Kronenberg Foundation (Poles' state of art on finances 2009). On the other hand, this factor does not influence the level of financial skills represented by the inhabitants of rural areas ( $\chi^2 = 2.9$ ,  $df = 2$ ). The value of the financial skills index (FSI) was 55 points for women and it was lower for men only by 2 points. While analysing the individual domains of the FSI, it may be seen that women revealed better skills in the area of home budget management, whereas men

were more efficient in planning the future and were better able than women to assess the financial risk.

Another possible determinant of the level of knowledge and financial skills is age. In the tested population, there dominated persons aged 35–54. The least numerous was the group of respondents aged above 65 years (8.9%). Results of the conducted investigations suggest that age significantly affects the level of financial knowledge of rural dwellers ( $\chi^2 = 33.4$ ,  $df = 10$ ). It was observed that the average value of financial knowledge index decreases with the respondents' age (from the level of 51 points obtained by the youngest persons to the level of 42 in the oldest age group). Persons aged 25–34 solved the test with the best results (almost  $\frac{1}{3}$  of the respondents from the discussed group demonstrated a high level of financial knowledge). These were the best educated persons, regularly using financial services and professionally active. It should be also noticed that the youngest respondents were the people who, while still attending a secondary school, were taught the course of entrepreneurship containing modules concerning personal finances, which surely affected a higher level of financial knowledge in this respondent group. Age also determines the level of financial skills ( $\chi^2 = 27.9$ ,  $df = 10$ ). In this case, a tendency opposite to the financial knowledge index was observed. The highest index of financial skills characterized the oldest persons (the mean value of the FSI for this group was 57 points), whereas the lowest index was characteristic for the youngest persons (FSI = 52 points).

An important factor influencing the level of knowledge and financial skills is education (Table 2). The most numerous respondent group in the discussed investigations was composed of people possessing secondary education (48%). Almost  $\frac{1}{4}$  of the surveyed possessed the vocational and every fifth one the higher education. The group of people with the primary education constituted 8% of the respondents. On the basis of the conducted analysis, it was stated that

Table 2. Factors determining the level of financial knowledge and skills (the value of non-parametric test  $\chi^2$ )

Specification	Financial knowledge index	Financial skills index
Gender	$\chi^2 = 10.4$ ; $df = 2$	$\chi^2 = 2.9$ ; $df = 2$
Age	$\chi^2 = 33.4$ ; $df = 10$	$\chi^2 = 27.9$ ; $df = 10$
Education	$\chi^2 = 61.8$ ; $df = 6$	$\chi^2 = 68.8$ ; $df = 6$
Net income per capita	$\chi^2 = 42.4$ ; $df = 10$	$\chi^2 = 123.97$ ; $df = 10$
Main source of income	$\chi^2 = 29.7$ ; $df = 6$	$\chi^2 = 42.6$ ; $df = 6$
Using a basic bank account	$\chi^2 = 25.1$ ; $df = 2$	$\chi^2 = 53.2$ ; $df = 2$
Using e-banking	$\chi^2 = 34.3$ ; $df = 2$	$\chi^2 = 85.7$ ; $df = 2$

Source: own studies

the lower is the level of rural dwellers' education, the lower the values of the financial knowledge index. In the group of persons possessing primary education, the average value of the FKI was 34 points, whereas in case of the best educated persons, the average value of the index measuring the financial knowledge level was 53 points. The group of respondents with the lowest education level had also the biggest share of persons who gave almost no correct answers (12%), whereas among the people with the higher education, the proportion was 3%.

An analogous relationship was observed in case of financial skills ( $\chi^2 = 68.8$ ,  $df = 6$ ). Persons with the best skills are the people with the best education (FSI = 62 points). The average level of skills is characteristic for the persons possessing the vocational and secondary education, while the lowest values of this index were registered for persons with the primary education (49 points).

A crucial factor affecting the level of financial awareness is the amount of income per person in the respondents' households. 6 respondent groups were identified for this feature. Households in which the average income per 1 person in the family ranged from 501 PLN to 1000 PLN were dominating. In households with the lowest income, the average value of both the financial knowledge and the financial skills index were the lowest. In the analyzed group, families with the lowest incomes are at the same time the households of the least educated persons, therefore, the highest number of persons who did not understand the basic financial terms and phenomena were registered in this group. Activities in the field of financial education developed by various subjects and organizations should target particularly the discussed group of households because they are more often threatened with poverty than the other groups. So far the poverty scale in Poland is not high, but the problem concerns particularly rural areas. According to the report Social diagnosis 2011, almost 6.44% of people inhabiting the non-urbanized areas live below the breadline (Czapiński and Panek 2011).

Another determinant of the level of financial knowledge is the main source of income of the surveyed households ( $\chi^2 = 29.7$ ,  $df = 6$ ). As results from the analysis, the highest level of competence in the field of finances characterizes the persons possessing permanent jobs (FKI = 50 points). The respondents living on farm income revealed a medium level of financial knowledge. The lowest level of knowledge about finances was characteristic for the old age pensioners and annuitants (FKI = 39 points). An analogous tendency was observed for the assessment of the respondents' financial skills level ( $\chi^2 = 42.6$ ,

$df = 6$ ). Persons who have permanent or temporary jobs reveal the highest level of financial awareness (FSI = 58 points). Often permanent employment "enforces" the interest in some financial services (e.g. the employers demand that the employees have their personal bank accounts), which also denotes a better knowledge and financial skills of the consumers. Farmers, old age pensioners and annuitants place low in this ranking.

The level of financial knowledge is also markedly influenced by the degree of the financial tools use. Results of many investigations indicate that the persons active in the financial services market reveal a higher level of financial knowledge (Poles' state of art on finances 2009). Also in the case of the discussed population, the lowest level of financial knowledge characterized persons which did not use or only occasionally used financial products (FKI = 43 points). The average value of the financial knowledge index for persons using several financial products was 54 points. The biggest difference was observed in case of the banking services use by the respondents ( $\chi^2 = 25.1$ ,  $df = 2$ ). In the group using banking services, only every third person could not solve the test, whereas in the group "without bank account", it was over 40% of the surveyed population. The level of consumer activity in the financial market (number and kind of services which they are using) also influence of the value of the financial skills index. Persons using a greater number of financial services are characterised by a higher level of financial skills (the use of banking services;  $\chi^2 = 53.2$ ,  $df = 2$ ; using e-banking;  $\chi^2 = 85.7$ ,  $df = 2$ ).

As results from the conducted analysis, only about 30% of respondents feel the need for financial education. The other respondents (almost 40%) consider "their" level of knowledge and financial skills as sufficient or have no opinion on this matter (32%).

The basic source of financial knowledge for rural dwellers was their own experience (21%). Almost 16% of the respondents, particularly young people, indicated school. Over 13% of citizens acquired their knowledge about personal finances in work. Every tenth respondent learned most about finances from their husband/wife, parents or friends. Also the media (television, press and Internet) proved important sources of information (9%). Almost 7% of respondents pointed to a financial adviser. The other surveyed persons were unable to name the source of their actual level of financial knowledge.

On the other hand, the currently preferred sources of knowledge about personal finances<sup>1</sup> comprise: the Internet (over 35%), television programmes (27.4%) and daily newspapers and journals (almost 24%). It was observed that the choice of the Internet as a source

of economic information depends on the age of the surveyed people. Elderly people, also characterized by the so-called digital exclusion, make up a considerable part of group 1 (low level of the financial knowledge index). Books together with the printed information and materials issued by financial institutions proved the least popular source of knowledge.

The respondents feel the necessity for financial education<sup>2</sup> most in the area of saving money and the financial investment methods, which enable the consumer to reach a higher income than from the traditional capital investment (almost 40% of respondents and 55% of persons revealing the highest level of financial knowledge). Every third respondent pointed to the issues connected with the rational planning of the home budget. Almost 30% of people were most willing to extend their knowledge concerning the ways to secure their retirement pensions. Every fourth surveyed person pointed to problems connected with taxes, whereas every fifth to insurance services. Slightly over 16% of respondents were interested to gain an additional knowledge about credit system, whereas every tenth was unable to point out the area of personal finances in which they would like to upgrade their knowledge.

### **Typology of rural dwellers concerning their knowledge and financial skills**

Investigations conducted on a group of rural households made possible the identification of three typological citizen groups in the area of the knowledge and financial skills.

The first type (31%) is persons revealing the highest level of knowledge and financial skills. A vast majority of these are persons using banking services and most frequently, in comparison with the other two groups, using personal accounts for managing personal finances (1/3 of people within the discussed type). Persons who belong to this group are characterized by the highest degree of using various financial services. They use the formal credit market more often than the other groups. In spite of the fact that they are characterized by a high level of financial knowledge, they still express their interest in upgrading the knowledge about personal finances. These are the inhabitants of the areas with a well developed banking structure.

This type of consumers are mainly the persons possessing the secondary or higher education, aged below 44, members of the families of two, four of five persons. This citizen group is made up in equal parts

of men and women, however it should be mentioned that in this case, the proportion of women is the lowest in comparison with the other two groups. These are the households whose main source of income is a permanent job. There were no cases of families who would live on unearned incomes, such as allowances, a financial assistance from others or scholarships. These are the households whose net monthly income per capita in family exceeds PLN 2000.

The second type (32%) is persons characterized by an average knowledge and financial skills. However, 42% of persons from this group do not feel the necessity for further education in the sphere of finances. These people usually use between 4 and 5 banking products. They are persons using banking services, who in comparison with the other two types make use of their current accounts for managing their personal finances (transfers, invoice payments, expenditure control). Every second consumer uses the Internet banking. They are inhabitants of rural areas with a good access to banking infrastructure.

This group comprises the equal number of women and men, citizens aged between 35 and 54 possessing the secondary or higher education. These persons are the members of families composed of two or they are single. The main source of income for the household is a permanent job, whereas an average monthly income per capita in this household ranged from PLN 1000 to 1500.

Next (third) typological group is formed by people characterized by the lowest level of financial knowledge. This group is most threatened with the financial exclusion, because, apart from the low level of financial knowledge, it also reveals a low indicator of using banking services. These are the people who mostly do not use any financial products and citizens inhabiting the areas with a poorly developed banking infrastructure. Moreover, these are the households with the lowest incomes. Their main source of income is the disability allowance, the old age pension, or farm income. These types of consumers are people aged over 55 and mainly women. They possess the secondary vocational or primary education and run one person households. They do not feel the need to upgrade their financial knowledge.

### **CONCLUSION**

A low level of knowledge and competences in the field of personal finances is one of the causes of fi-

<sup>1</sup>Multiple choice,  $N = 301$  (persons who feel the need for financial education), 635 answers.

<sup>2</sup>Multiple choice,  $N = 301$ (persons who feel the need for financial education), 575 answers.

nancial exclusion, which demonstrates itself as a lack of access of certain social groups to financial services in a proper form. The conducted investigations determined the level of knowledge and financial skills of rural dwellers in Poland as a group threatened with financial exclusion on a greater scale. The real level of financial knowledge was measured by the means of the so-called financial knowledge index (FKI). As the results from the conducted analysis, the level of financial knowledge of rural dwellers is on the average level (42% of the surveyed).

Another developed indicator was the financial skills index (FSI). The conducted investigations suggest that rural dwellers, like in the case of financial knowledge, reveal an average level of financial competencies. The comparison of the average value of the financial knowledge indicator with the financial skills index yielded a higher result for the second one. The financial skills index is composed of three domains (management of personal finances, planning and risk assessment). The respondents feel the most confident in the area of risk management.

Three types of citizens, according to the level of their knowledge and financial skills, were identified on the basis of the conducted investigations. The established groups show the differences in the level of knowledge and financial skills of rural dwellers, but also the differences in the financial behaviour of consumers in the market. The group which requires specific education measures are women, the eldest people, worse educated persons, households with lower incomes, families of annuitants and old age pensioners, but also the persons characterized by a lower level of financial tools use, not using banking services, inhabiting areas with a poorer access to the banking infrastructure.

Despite the average level of the citizens' financial knowledge, only every third person was interested in upgrading their knowledge in this field. As the results from the conducted analysis, the respondents felt the greatest need for education about various ways of saving and investing money, the rational management of home budget and planning old age pensions. The greatest interest in supplementing the knowledge in the field of personal finances was perceivable in the youngest respondent group, however, some persons in the other groups also showed the interest in the problems of personal finances, therefore, in compliance with the recommendations of the European Commission, while developing a model of financial education for the citizens, one should remember that the knowledge about personal finances should be available at each stage of the citizen's life and its teaching should start as early as possible.

The planned educational measures should also consider the households' preferences as to the sources of financial knowledge. In the analyzed group, the Internet proved the most efficient channel for conducting educational activities, except for elderly people, who pointed to it most rarely. Some other information carriers (television or press) should be used for this part of population.

The developed indicators may be used for the monitoring and assessment of the level of knowledge and financial skills of various citizen groups. The collected information may be used for developing the efficient training and educational programs, but also for the elaboration of suitable handbooks and didactic materials with reference to the individual citizen typological groups and their state of knowledge in this area.

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