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SOCIO-DEMOGRAPHIC FACTORS AND THE 'UNBANKING' OF POLISH SOCIETY

The aim of the study was to assess the degree of advancement of non-cash trade among Polish residents/consumers and to determine the relationship between socio-demographic factors and Poles' 'unbankedness'. The assessment of the degree of advancement of the society's non-cash turnover was made by means of three levels of 'unbanking' defined by the author of the study. On the basis of the literature review, a research hypothesis was formulated: there is a statistically significant relationship between socio-demographic characteristics and consumers' unbankedness.

The research hypothesis was verified based on the results of our research using a survey questionnaire conducted in October/November 2019 on a sample of 500 adult Poles (18 years and older). The results of the empirical study generally confirmed the statistically significant influence of socio-demographic characteristics on the level of Polish people's unbankedness. Age, education level, net income per capita, and type of work performed 'significantly impact the Polish population's banking level. Variables such as gender and place of residence were found to be statistically insignificant. The study showed that 10% of the surveyed population were unbanked, while as many as 87.20% represented level 3 (full banking). The problem of transactional exclusion affects young people aged 18-24 and older people over 61. The unbanked group consisted mainly of farmers, unskilled workers, the unemployed and pensioners, while level 3 mainly included office workers, white-collar workers and skilled workers. The least exclusion is found in people of working age 25-44. People in this age bracket accounted for more than 40 per cent of the share within level 3. As educational attainment increases, people move to higher and higher levels in terms of 'bankedness'. The research showed that the higher the net income per person, the higher the level of bankedness among Poles. The results of the study complement previous analyses and point to proposed actions for institutions promoting non-cash transactions in Polish society.

Keywords: unbanking, non-cash payments, socio-demographic factors

JEL codes: D10, G11, R20

Introduction

The banking services market is systematically changing, which results from the growing competition in the sector, as well as from changes in the expectations and needs of consumers. The development of the banking sector requires the constant growth of customers, which – in turn – forces an increase in the level of banking in society. The low degree of banking is a severe problem as it means less use of non-cash payment instruments. This problem is important from the economic and social point of view and is increasingly explored by many fields of science, including due to its negative effects from the view of sustainable development. At the same time, many international institutions, such as the European Commission and the European Central Bank (ECB), treat financial inclusion as one of the methods of fighting poverty. The results of the work of the European Commission proved that the phenomenon of financial exclusion contributes to so-called "social exclusion", preventing the affected individuals from functioning normally in society. The negative effect of financial exclusion is also the restriction of the consumer rights of people affected by this problem. A lack of access to typical banking services results in higher

costs and greater risk concerning cash management. In addition, research has shown that financial exclusion has an inhibitory effect on the economic development of the country and the accumulation of human and physical capital¹.

The study aims to assess the degree of advancement of non-cash transactions in Polish society using the banking index, as well as to determine the relationship between socio-demographic factors and the banking economy of Poles. The formulated research hypothesis is there is a statistically significant relationship between socio-demographic characteristics and consumer banking.

The work consists of two main parts. The first part presents a review of the literature on the determinants of social banking, while the second part presents the results of the research: society was divided in terms of banking, and the share of people representing a given level was characterized. A χ^2 test was used to determine the relationship between socio-demographic factors and the banking-up of Poles, and the Cramer V coefficient was used to evaluate the strength of this influence. The work is completed with conclusions that can be drawn based on this study and recommendations.

Assessment of banking in Polish society

The basic measure of banking is the indicator illustrating the percentage of adults using a bank account (narrow approach)². Savings and checking account (ROR), the so-called “personal account” in which you can store savings or make transactions, is the basis for using non-cash payment instruments³. It enables the accumulation of funds and their disposal. Not having a bank account results in lower use of financial instruments such as cards, transfer orders, or direct debits. The activities of banks in the field of maintaining bank accounts are defined in Chapters 3 and 4 of the Banking (Banking)⁴ Act and in Art. 725 of the Civil Code⁵, according to which, by the bank account agreement, the bank undertakes (towards the account holder), for a specified or indefinite period of time, to store their funds and, if the agreement so provides, to conduct cash settlements at their request. A bank account may only be kept by banking institutions (i.e., banks and credit institutions), as well as Spółdzielcze Kasy Oszczędnościowo-Kredytowe – SKOK (Savings and Credit Union).

Although the issue of banking concerns many aspects of the economy, we will not find much research in this field in Polish literature. The most popular and authoritative research related to this subject, entitled Attitudes of Poles towards non-cash transactions, was conducted by D. Maison at the request of the National Bank of Poland in 2009, 2013, and 2016⁶. In the research conducted at that time, six levels (from 0 to 5) were distinguished in the form of a “funnel” indicator. Level 0 meant no cashless turnover, while level 5 corresponded to the highest level of advancement of cashless turnover. Research

¹ T. Beck, A. Demirgüç-Kunt: Access to Finance – An Unfinished Agenda, The World Bank Economic Review, 2008, p. 384.

²In the present case, there was no procedure for dealing with meshes (E. Stola: Ubankowanie społeczeństwa a rozwój sektora bankowego w Polsce, Rozprawy Ubezpieczeniowe. Konsument na rynku usług finansowych, 30, 4/2018, p. 83.

³ Z. Krzyżkiewicz: Operacje bankowe, [in:] W.L. Jaworski, Z. Zawadzka (eds), Bankowość. Podręcznik akademicki, Poltext, Warszawa 2008.

⁴ Ustawa z dn. 29 sierpnia 1997 r. Prawo bankowe, Dz.U. z 1997 r., Nr 140, poz. 939 as amend.

⁵ Ustawa z dnia 23 kwietnia 1964 r. Kodeks cywilny, Dz.U. z 1964 r., Nr 16, poz. 93 as amend.

⁶ D. Maison: Postawy Polaków wobec obrotu bezgotówkowego. Raport z badania 2016 i analiza porównawcza z danymi z 2009 i 2013 roku, Narodowy Bank Polski, Warszawa 2017.

by D. Maison showed that, in 2016, the percentage of people with banking services was 83%. Another important study was developed by T. Koźliński in May 2013, entitled “Payment habits of Poles”⁷. Koźliński distinguished four levels, where level 0 meant no bank account, and level 4 concerned people who had a payment card and made payments six times a month or more often⁸. The survey showed that in 2012, 77% of adult Poles had a bank account. His studies in this area from 2006 and 2012 indicate that between these years, the percentage of people with a personal account increased quite significantly in all population groups due to the place of residence, and the largest increase in the percentage of people having a personal account took place in rural areas. However, in 2012, the percentage of people without a bank account was still the highest in rural areas (28%).

To assess the advancement of non-cash transactions among the inhabitants of Poland, this study divided the sample into categories based on those proposed by the European Commission representing a given level of banking⁹. Three levels of consumer banking were distinguished: unbanked, marginally banked, fully banked, which – apart from having a bank account – also considered the intensity of using payment services. Below, three categories representing a given level of banking (in a broader sense) are characterized, modifying them for the purposes of the author’s research, their meaning:

1. Level 1 – unbanked – these are people who do not have a bank account (i.e., a personal account – as defined by the European Commission);
2. Level 2 – marginally banked – these are people who have a bank account and do not have a payment card (as defined by the European Commission); according to the author’s definition, these are people who, in the survey, indicated that they have a bank account but do not have a payment card, and those who declared that they had a payment card but did not use it. Anderloni and Carluccio define these people as insufficiently banked, where – in their understanding – they are people who have a bank account but do not take advantage of the many opportunities it offers¹⁰;
3. Level 3 – fully banked – people who have access to a wide range of transactional banking, who actively use electronic banking services according to their needs and socio-economic status (as defined by the European Commission); according to the author’s definition, these are people who have a bank account and a payment card, and actively use it.

Banking determinants in the light of literature

NBP research shows that the use of non-cash forms of payment depends on factors such as age, education, household income, place of residence, employment status or type of profession. In addition to domestic studies, other international studies (including Connolly

⁷ T. Koźliński: *Zwyczajne płatnicze Polaków*, Narodowy Bank Polski, Departament Systemu Płatniczego, Warszawa 2013, p. 10.

⁸ *Ibidem*, p. 245.

⁹ *Financial Services Provision and Prevention of Financial Exclusion*, European Commission, p. 15, <https://www.fi-compass.eu/sites/default/files/publications/financial-services-provision-and-prevention-of-financial-exclusion.pdf> (access: 15.04.2020).

¹⁰ L. Anderloni, E.M. Carluccio: *Access to Bank Account and Payment Services*, [in:]: L. Anderloni, M.D. Braga, E. Carluccio (eds.), *New Frontiers in Banking Services. Emerging Needs and Tailored Products for Untapped Markets*, Springer-Verlag, Berlin, Heidelberg 2007.

and Hajjaj¹¹, the European Commission¹², Fondeville et al.¹³) indicate the existence of such dependencies. Conclusions from studies by other authors regarding the impact of socio-demographic features on non-banking are presented in Table 1.

Table 1. Determinants of banking - the most important conclusions from the research

Author	Conclusions from the research
N. Jonker (2007) ¹⁴ ; R.W. Meijer (2001) ¹⁵	<ul style="list-style-type: none"> • young people aged 25-34 more often choose non-cash payment methods • age is a key factor in determining the form of payment • women, more often than men, use non-cash forms of payment because they visit different places, make purchases more often, hence the greater probability that they will encounter a terminal or a customer service point (POS)
J. Stavins (2001) ¹⁶	<ul style="list-style-type: none"> • there is a negative correlation between age and the use of cash to make payments, and a positive correlation between the use of a credit card and age, as well as income and education level
D. Humphrey, M. Kim, B. Vale (2001) ¹⁷ ; E. Klee (2004) ¹⁸ ; H. Allen (2003) ¹⁹	<ul style="list-style-type: none"> • a key factor determining non-cash payments are the costs borne by customers when making payments, the speed of transactions, ease of use, or loyalty programs related to payment instruments
S. Schuh, J. Stavins (2007) ²⁰	<ul style="list-style-type: none"> • cost, convenience, and security are more important factors in choosing a payment method than demographic characteristics and other observable variables
F. Hayashi, E. Klee (2003) ²¹	<ul style="list-style-type: none"> • the choice of a given payment instrument depends on the willingness of consumers to accept modern technologies, as well as the nature of the transaction – the value and frequency of transactions and the physical characteristics of the point of sale of a good or service, • consumers who used computers were more likely to use a debit card or make payments via an electronic account
C. Gan, M. Clemens, V. Limsombunchai, A. Weng (2006) ²²	<ul style="list-style-type: none"> • gender does not have a statistically significant influence on the willingness to use electronic banking

¹¹ C. Connolly, K. Hajjaj: Financial Services and Social Exclusion. Financial Services Consumer Policy Centre, University of New South Wales, Sydney 2001.

¹² Financial Services Provision and Prevention of Financial Exclusion, EC Report VC/2006/0183, European Commission, Brussels 2008.

¹³ N. Fondeville, E. Özdemir, T. Ward: Financial Exclusion in the EU. New Evidence from the EU-SILC Special Module. Research Note 3, European Commission, Brussels 2010.

¹⁴ N. Jonker: Payment instruments as perceived by consumers: results from a household survey, *De Economist*, 155, 3/2007, p. 271-303.

¹⁵ W. Meijer: The Single European Cash Area: Towards a more efficient European cash society, *Journal of Payments Strategy & Systems*, 4, 3/2010, p. 1-9.

¹⁶ J. Stavins: Effect of Consumer Characteristics on the Use of Payment Instruments, *New England Economic Review*, 3/2001, p. 19-31.

¹⁷ D. Humphrey, M. Kim, B. Vale: Realizing the Gains from Electronic Payments: Costs, Pricing and Payment Choice, *Journal of Money, Credit and Banking* 33, 2/3/2001, p. 216-234.

¹⁸ E. Klee: Retail payments 1995-2001: findings from aggregate data and the survey of consumer finances, Board of Governors of the Federal Reserve System, Washington 2004.

¹⁹ A. Allen: Innovations in retail payments: e-payments, *Quarterly Bulletin*, Bank of England 2003, p. 428-438.

²⁰ S. Schuh, J. Stavins: Why Are (Some) Consumers (Finally) Writing Fewer Checks? The Role of Payment Characteristics, Federal Reserve Bank of Boston, Boston 2007, p. 1-37.

²¹ F. Hayashi, E. Klee: Technology Adoption and Consumer Payments: Evidence from Survey Data, *Review of Network Economics*, 2 (2)/2003, p. 175-190.

²² C. Gan, M. Clemens, V. Limsombunchai, A. Weng: A logit analysis of electronic banking in New Zealand, *International Journal of Bank Marketing*, 24 (6)/2006, p. 360-383.

cont. Table 1

D. Saiti, M. Kiselick, S. Josimovski (2015) ²³	<ul style="list-style-type: none"> the use of payment cards, including credit cards, increases with age, the use of online banking services decreases, and satisfaction with electronic payments increases
A. B. Kennickell, M. L. Kwast, 1995 ²⁴	<ul style="list-style-type: none"> a higher level of education and owned financial assets increase the likelihood of electronic payments
R. Borzekowski i E. K. Kiser ²⁵ (1997)	<ul style="list-style-type: none"> women are much more inclined to use a wider range of available electronic payment methods than men
R. Boer ²⁶ (2010)	<ul style="list-style-type: none"> the security and cost of using a given payment instrument are negatively correlated with each other

Source: own study based on literature review.

As shown in Table 1, on the one hand, banking is influenced by socio-demographic factors; on the other, it is influenced by features resulting from the instruments of non-cash transactions such as speed, convenience, security, and related loyalty programs. Moreover, the research results are not conclusive; hence there is a justification to continue research in this area. In addition, it should be emphasized that the analyses so far focused on all respondents participating in the study, not considering the degree of advancement of non-cash transactions. Also, they mainly concerned the scale of use of non-cash payment instruments and the scope of their use depending on the amount and place of payment. This study aims to identify the determinants of the use of non-cash forms of payment depending on the socio-demographic features of the respondents and the features of payment instruments in three groups of respondents, distinguished due to the defined indicator of inclusion of banking.

Research methodology

The foundation for the inference was an empirical study based on the results of a survey conducted at the turn of October and November 2019 on a group of 500 adult Poles (18 years and older). The selection of respondents was random. A random selection of the place of implementation and the quota selection of respondents was used considering the basic demographic variables.

Based on the results of the questionnaire survey, the relationship between the qualitative characteristics will be verified. The first step in measuring the correlation dependence of two qualitative features is to build a contingency table (cross table) containing the counts of implementation of each variant of variables. The χ^2 measure determines the difference between the actual and theoretical counts in individual fields of the table.

²³ D. Saiti, M. Kiselick, S. Josimovski: Level of customer satisfaction from electronic banking services in the Polog region, *Journal of Sustainable Development*, 5 (13)/2015, p. 45-68.

²⁴ A.B. Kennickell, M.L. Kwast: Who uses electronic banking? Results from the 1995 Survey of Consumer Finances, *Proceedings from the Federal Reserve Bank of Chicago's Annual Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago, Chicago 1997, p. 1-48.

²⁵ R. Borzekowski, E.K. Kiser: *The Choice at the Checkout: Quantifying Demand Across Payment Instruments*, Finance and Economics Discussion Series Divisions of Research & Statistics and Monetary Affairs Federal Reserve Board, Washington, DC 2006, p. 1-34.

²⁶ R. Boer, C. Hansen, A. Screpnick: *Online Payments 2010. Increasingly a Global Game*, "Innopay", Amsterdam 2010, p. 99.

$$\chi^2 = \sum_{i=1}^k \sum_{j=1}^l \frac{(n_{ij} - \hat{n}_{ij})^2}{\hat{n}_{ij}}$$

where: n_{ij} – empirical number, \hat{n}_{ij} – theoretical number, k – number of variants of the variable X , l – number of variants of the variable Y .

The values of the χ^2 measure other than 0 indicate the existence of a relationship between the variables. However, it is not possible to state how strong the analyzed relationship is. This measure has no upper range. The χ^2 value depends on the size of the community. Along with the increase in the number of examined units, the measure's value also increases, making it impossible to compare the strength of dependencies occurring in diverse groups. Due to the indicated two drawbacks of the measure, in practice, measures are used that have normalized values in the range of 0.1 and are resistant to changes in the size of the studied population²⁷.

Evaluating the significance of the determined χ^2 statistics is based on the verification of the truth of the hypothesis assuming no relationship between the variables, against the hypothesis of the existence of dependence. The χ^2 test statistic is compared with the critical values read from the χ^2 distribution tables for a given significance level (0.05) and degrees of freedom $df = (k-1)(l-1)$.

Cramer's V-coefficient will be used to evaluate the strength of the relationship between qualitative (non-measurable) features. Cramer's V coefficient is a measure based on the χ^2 statistic. It is standardized in the interval [0.1] and resistant to both the size of the studied sample and the inequality in the number of variants of the studied variables:

$$V = \sqrt{\frac{\chi^2}{(m-1)N}}$$

where: m – number of columns or rows, depending on which value is smaller, N – the size of the studied population.

The coefficient values allow for inference only about the strength of the correlation, but the direction of the relationship cannot be determined on their basis. The statistical significance was assessed based on the empirical significance level generated in the SPSS program. A statistically significant relationship between the variables was evidenced by the values of the empirical significance level lower than 0.05²⁸.

The research results

The selected sample was representative in terms of gender, age, education, place of residence, and income. 51.20% of women and 48.80% of men participated in the study. The respondents aged 45-60 and 61 years and older accounted for 25.20 and 27.40% of the sample, respectively. In the surveyed population, the share of people with secondary education (including post-secondary) was 31.20, and 5% with primary education. Most of the

²⁷ J. Suhecka: *Metody statystyczne. Zarys teorii i zadania*, Wydawnictwo Wydziału Zarządzania Politechniki Częstochowskiej, Częstochowa 2003, p. 60.

²⁸ M. Nawojczyk: *Przewodnik po statystyce dla socjologów*, Wydawnictwo Predictive Solutions, SPSS, Kraków 2010, p. 175.

respondents lived in the country (39.80%). Every third respondent declared that his monthly net income ranged between PLN 1,801-2,500. Extreme amounts of income per person (i.e., PLN 900 or less and over PLN 5,000) were declared by 6.4 and 4.8% of the respondents, respectively. The main source of income in the surveyed group of respondents was white-collar, office, and skilled workers.

First, the degree of banking was assessed among adult Poles (over 18 years of age) in accordance with the selected categories of banking defined in the first part of this study. The figure below shows the share of respondents in each group in terms of banking.

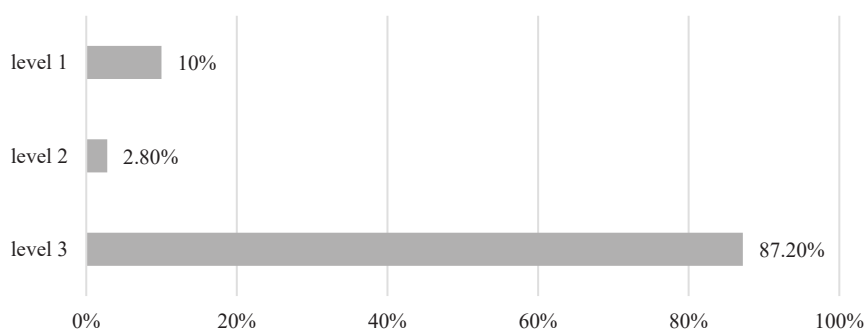


Figure 1. The level of banking in Polish society
Source: own study based on survey results ($N = 500$ people).

As can be seen from the data presented in Figure 1, the share of individual groups representing a given level of banking varies. Level 1 reflects the lowest level of use of non-cash transactions (the so-called “group of unbanked people”), which constituted 10% of the respondents. It was represented by people who did not have a bank account. A bank account is the basis for the use of non-cash payment instruments. Low levels of banking result in lower use of financial services such as cards, transfers, or direct debits. Comparing the results of the research with the results of the National Bank of Poland, it can be concluded that level 1 (in this study) is equivalent to the zero level in the funnel indicator of prof. D. Maison. In 2009, there were 22% of such people, 13% in 2013, and 17% in 2016²⁹. In turn, the research of T. Koźliński shows that 23% of respondents in 2012 did not have a bank account³⁰. It can, therefore, be concluded that the group of unbanked people is systematically decreasing, which should be assessed positively. As the results of the research show, in the group of people representing the zero level, there are mainly respondents aged 61 and more (52% of the group of people without an account). Similar tendencies were observed by T. Koźliński in his research already in 2009³¹. The group of unbanked people included respondents with vocational (42%), secondary (28%) and incomplete primary and primary education (22%), living in villages (50%), with an income between PLN 901 and PLN 1,800 (56%), farmers (20%), and retirees and pensioners (24%). People who did not have a bank account most often indicated that they did not see the need to have one (34.78% of responses from the group of people who declared that

²⁹ D. Maison: Postawy Polaków wobec obrotu bezgotówkowego..., 2017, *op. cit.*, p. 11.

³⁰ T. Koźliński: Zwyczaje płatnicze..., 2013, *op. cit.*, p. 10.

³¹ T. Koźliński: Porównanie wyników badań ubankowienia Polaków przeprowadzonych przez NBP w 2006 i 2009 r., NBP, Warszawa 2009, p. 5.

they did not have an account), and 23.19% of respondents indicated that they do not trust banks. In addition, 14.49% of respondents indicated that someone from their family has an account and can use it, and for 11.59% of respondents from level 1, bank charges are too high. For 88% of respondents in this group, having a bank account is not a way to save money, and 78% believe that bank account holders quickly fall into the debt trap. According to 66% of respondents from this group, theft from bank accounts is commonplace.

In terms of banking, compared to other European Union countries, in 2017, Poland was in 20th position, while in 2011, it was in 26th position (see Table 2).

Table 2. Percentage of bank account holders among persons aged 15 and over in EU countries in 2011, 2014, and 2017

Country	2011	2014	2017
Denmark	99.70	100.00	99.90
Finland	99.70	100.00	99.80
Sweden	99.00	99.70	99.70
the Netherlands	98.70	99.30	99.60
Germany	98.10	98.80	99.10
Luxembourg	94.60	96.20	98.80
Belgium	96.30	98.10	98.60
Austria	97.10	96.70	98.20
Estonia	96.80	97.70	98.00
Slovenia	97.10	97.20	97.50
Malta	95.30	96.30	97.40
United Kingdom	97.20	98.90	96.40
Ireland	93.90	94.70	95.30
France	97.00	96.60	94.00
Spain	93.30	97.60	93.80
Italy	71.00	87.30	93.80
Latvia	71.00	87.30	93.80
Portugal	81.20	87.40	92.30
Cyprus	85.20	90.20	88.70
Poland	70.20	77.90	86.70
Croatia	88.40	86.00	86.10
Greece	77.90	87.50	85.50
Slovakia	79.60	77.20	84.20
Lithuania	73.80	77.90	82.90
The Czech Republic	80.70	82.20	81.00
Hungary	72.70	72.30	74.90
Bulgaria	52.80	63.00	72.20
Romania	44.60	60.80	57.80

Source: own study based on the Report The Little Data Book on 18 Financial Inclusion, Global Index Database, World Bank Group, Washington 2018, <https://openknowledge.worldbank.org/bitstream/handle/10986/29654/LDB-FinInclusion2018.pdf?sequence=1&isAllowed=y> (access: 09.05.2020)

According to the World Bank's report "The Little Data Book on 18 Financial Inclusion"³², the percentage of bank account holders among Poles aged 15 or over increased in 2017 to 86.7%. In this age group, the highest percentage of bank account holders was recorded in Denmark, Finland, and Sweden; the lowest in Romania, Bulgaria, and Hungary. In terms

³² Report The Little Data Book on 18 Financial Inclusion, Global Index Database, World Bank Group, Washington 2018, <https://openknowledge.worldbank.org/bitstream/handle/10986/29654/LDB-FinInclusion2018.pdf?sequence=1&isAllowed=y> (access: 09.05.2020).

of the number of bank accounts in 2018, Poland ranked 9th among 20 European Union countries, with a bank account ratio of 2.0 per capita. It is worth noting that in 2018, the number of bank accounts per capita in Poland was 2.0 and increased the advantage over the average for the European Union and the Eurozone, which this year averages amounted to 1.7 accounts per capita. It is worth noting that the average number of bank accounts per capita in Poland has been constantly growing since 2006, while the trends for the EU averages do not always tend to increase. Compared to 2017, Poland moved up two positions in the ranking, ahead of Austria and Malta (whose data is not available)³³.

The survey showed that in 2019, 90% of adult Poles (i.e., 18 years of age and more) declared having a personal account, of which 72.89% in the group with banking services had one account, and the rest at least two personal accounts. The research allowed establishing that most respondents indicated that the main motive for opening a bank account was the requirement imposed by the employer, school, or university. In second place was a group of people who said they had not thought about what prompted them to open a bank account. 97 responses indicated that the main factor influencing the opening of the bank account was the credit taken. It is worth noting that 41.60% of the respondents claim that they would rather choose to open a bank account, and 26.8% would not hesitate to open an account if receiving a loan would depend on having an account. The remaining positions were taken by receiving the 500+ benefit and the influence of other people. Among other factors, the respondents indicated the requirement to have a bank account in connection with running a business

The group of people in banking was divided into two levels (the second and the third). Level 2 was represented by people with marginal banking facilities – such people were only 2.80% of the sample. The vast majority in this group were respondents who, however, had a payment card but did not use it. Interestingly, if they had a card, it was more often a credit card than a debit card. Unlike a debit card, a credit card also allows for non-cash transactions, although it is not tied to the current account³⁴. Level 2 respondents were not interested in making mobile payments (i.e., using the BLIK application or other mobile payments). The most frequent threat related to non-cash payments was the risk of theft (almost 60% of responses). For this group of respondents, the features of non-cash payments, such as security, convenience (you do not need to have cash with you), and the simplicity of making payments, were more often indicated than the cost resulting from the use of these instruments (e.g., card fee). The highest percentage of Level 2 respondents was in the 45-60 age group (42.90% of Level 2). It is also worth pointing out that 35.70% of this group were people aged 61 and more with basic vocational education (35.70%). As in the case of level 0, a lower interest in banking services among rural residents was also confirmed. Level 2 was represented by as many as 57.10% of the rural population. The distribution of net income per person in the household was in this group of respondents. The respondents in this group are farmers and skilled and unskilled workers. When asked what prompted them to open a bank account, 35.70% of responses indicated that it was a requirement of the employer, school, or university. For the marginally banked, key factors when choosing a personal account were the amount of the account maintenance fee, the amount of the fee for issuing a payment card, as well as access to the bank account via

³³ Porównanie wybranych elementów polskiego systemu płatniczego z systemami innych krajów Unii Europejskiej za 2018 r., NBP, Departament Systemu Płatniczego, Warszawa 2020, p. 8-9.

³⁴ W. Grzegorzcyk: Marketing bankowy, Oficyna Wydawnicza Branta, Bydgoszcz, Łódź 2004, p. 158.

the internet. 42.90% of respondents from level 2 believe that having an account makes it easy to fall into the debt trap.

Level 3 was represented by as much as 87.20% of the studied population. These were people who had at least one personal account and a payment (debit) card who actively used it. In addition, 22% of Level 3 respondents had a credit card and were actively using it. In this group of people, other types of cards – such as virtual or prepaid – were little known. It is worth noting that over 40% of respondents use a payment card to pay for purchases in stores (43.10%), and the same number declares that they withdraw or deposit cash from an ATM/CDM occasionally (i.e., up to twice a month). Shopping in hypermarkets, discount stores (such as Biedronka or Lidl) and chain stores (e.g., Żabka) is more often made without cash (about 60% of indications). In addition, 75.90% of respondents more often pay their bills online, and only less than 13% at the store's cash register. The smallest group representing level 3 in terms of banking services were young people aged 18-24 (9.20%), while the share of respondents in other age categories was similar. Over 31% of respondents from level 3 had secondary education. Interestingly, 37.80% of the respondents from this group were rural residents, which indicates that the place of residence is no longer a significant problem when it comes to the possibility of making non-cash payments. The respondents from the discussed level achieved an average monthly income per person in the range of PLN 1,801-PLN 2,500 (28.90%). The percentage of people with the lowest income from this level was only 5.30%. They were white-collar respondents (28.70%) and skilled workers (26.10%). 70.20% of the respondents from level 3 declared that they did not make payments using a mobile phone, and the rest stated that such payments are made very rarely. Only about 5% of the level uses this type of payment. When it comes to threats/inconveniences related to non-cash payments, the respondents indicated that they were technical problems in first place, and the risk of theft in second place. Contrary to level 2 respondents, the most key features related to non-cash payments were: the number of points accepting payments, the possibility of making payments without leaving home and the possibility of making transactions at any time than other advantages such as convenience, simplicity, and speed.

To verify the hypothesis formulated in the article, a χ^2 test of independence was carried out. The results of the analyses are presented in Table 3.

Table 3. Values of the relationship indicators between the payment inclusion index and selected socio-demographic variables deciding on the choice of non-cash payments (N = 450)

Independent variables	Value of the χ^2 test	Number of degrees of freedom (<i>df</i>)	Value <i>p</i>	Cramer's V coefficient	Rejection of the H ₀ hypothesis in favor of H ₁ (feature dependence)
Sex	1,873	2	0.392	0.065	No
Age	23,902	8	0.002	0.163	Yes
Education	71,818	10	0.000	0.282	Yes
Domicile	7,792	10	0.649	0.093	No
Net income per person in the household	37,324	12	0.000	0.204	Yes
Performed profession	102,019	20	0.000	0.337	Yes

* Bold type indicates independent variables statistically significant for $p < 0.05$

Source: own research using a questionnaire.

Based on the results of the survey, the relationship between the level of banking and age was first verified, where the following hypotheses were formulated for these variables:

H₀: Variable Banking Level and Age are independent;

H₁: Banking level and age variables are not independent;

$p < \alpha$ – H₀ should be rejected in favor of the alternative hypothesis $\alpha = 0.05$ (i.e., there is a relationship between the variables);

$p \geq \alpha$ – there are no grounds for rejecting H₀ (i.e., there is no relationship between the variables).

The value of the χ^2 test's statistic for the pair of variables and the level of banking and age was 23.902 ($df = 8$), and the determined p-value for it was 0.00. This means that there is a relationship between the studied variables at the significance level of $\alpha = 0.05$. The strength of this relationship is weak, as evidenced by the value of the Cramer V-coefficient = 0.163. This variable has been highlighted by, among others, N. Jonker³⁵. A significant relationship was also found between:

- the level of banking and education ($\chi^2 = 71.818$, $df = 10$, V-Cramer = 0.282);
- level of banking and income ($\chi^2 = 37.324$, $df = 12$, V-Cramer = 0.204);
- the level of banking and the occupation performed ($\chi^2 = 102.019$, $df = 20$, Cramer's V = 0.337).

The obtained research results indicate a lack of a statistical relationship between the level of banking and gender, as well as the level of banking and the place of residence. These results are in line with, among others, the findings of N. Jonker³⁶, E.S. Mot, J.S. Cramer, and E.M. Gulik³⁷, which confirm the lack of impact of the gender of payment instrument users on bankization.

The value of the V-Cramer coefficients based on the χ^2 test allows measuring the strength of the relationship between the examined features³⁸. It turns out that the strongest relationship was found between the level of banking and the type of occupation/occupation. The strong influence of this variable has also been noted by S. Schuh, J. Stavins³⁹; F. Hayashi, and E. Klee⁴⁰. Therefore, it can be concluded that the hypothesis posed in the following study has been positively verified: there is a statistically significant relationship between socio-demographic characteristics and consumer banking.

It should be stressed that external factors such as the current inflation crisis, the uncertainty of the war in Ukraine and the impact of shocks such as the COVID-19 pandemic are also impacting the unbanked population. The pandemic caused changes in consumer payment behavior, causing panic, fear and even loathing of the use of cash⁴¹. Studies by the central banks of Sweden and the Netherlands show that the pandemic increased the use of cashless payment methods, especially in the age groups that had previously been the most conservative⁴². At the start of the pandemic, there was a marked decline in cash

³⁵ N. Jonker: Payment instruments as perceived by consumers: results from a household..., 2007, *op. cit.*, p. 271-303.

³⁶ *Ibidem*.

³⁷ E.S. Mot, J.S. Cramer, van der E.M. Gulik: De keuze van een betaalmiddel, SEO rapport nr 228, Stichting voor Economisch Onderzoek der Universiteit van Amsterdam, Amsterdam 1989, p. 99.

³⁸ M. Łapczyński: Analiza porównawcza tabeli kontyngencji i metody CHAID, Zeszyty Naukowe, Akademii Ekonomicznej w Krakowie, 659/2005, p. 151.

³⁹ S. Schuh, J. Stavins: Why are (some)..., 2007, *op. cit.*, p. 5.

⁴⁰ F. Hayashi, E. Klee: Technology adoption..., 2003, *op. cit.*, p. 175-190.

⁴¹ C. Galoni, G.S. Carpenter, H. Rao: Disgusted and afraid: Consumer choices under the threat of contagious disease, *Journal of Consumer Research*, 3, 47/2020, p. 373-392.

⁴² Payments in Sweden 2020, Sveriges Riksbank, 2020, <https://www.riksbank.se/en-gb/payments--cash/payments-in-sweden/payments-in-sweden-2020/1.-the-payment-market-is-being-digitalised/>, (access: 10.12.2021); Contactless payments gaining further ground during the COVID-19 crisis, DNB (De Nederlandsche Bank),

use among those aged 12-34 and 65 and over. An international UN study⁴³ and research conducted in Poland⁴⁴ shows that during the pandemic, consumers were significantly more likely to make large online purchases than at physical retail outlets, accompanied by an increase in the average transaction amount. The substitution of trade in physical retail outlets (PHUs) by online trade during the pandemic was also recognized by D. Bounie, Y. Camara, and J.W. Galbraith⁴⁵.

The change in payment trends is also reported in the Bank for International Settlements (BIS) annual economic report of June 2020. The report indicates that the COVID-19 pandemic has had a major impact on retail payments – in particular, the increase in contactless payments and e-commerce, and the decrease in cross-border transactions and migrants' remittances due to their vulnerability in the face of job loss and uncertainty⁴⁶. The Bank for International Settlements (BIS) report of August 2020 is also noteworthy⁴⁷. According to the BIS, 2020 was a landmark year for the implementation of central bank digital currencies (CBDCs).

Conclusions

The study showed that socio-demographic factors significantly differentiate the level of use of banking services in Poland. Age, level of education, net income per person, and type of work have a significant impact on the banking of the Polish society. Variables such as gender and place of residence turned out to be statistically insignificant. Women and men use non-cash payments to a similar extent; hence gender turned out to be a less significant factor when it comes to financial behavior. The place of residence seems to be less important when it comes to banking, as the difference in the percentage of residents of rural areas (37.80%) and large cities (over 101,000 inhabitants) (28.70%) was moderate. A particularly interesting relationship occurs between the level of banking and the age of the respondents. The problem of transactional exclusion concerns mainly the elderly over 61 (52%). The smallest exclusion occurs in people of working age 25-44. People from this age group accounted for over 40% of the share in level 3. With the increase in the level of education, people are shifted to higher and higher levels in terms of banking. For example, the percentage of people with primary and incomplete primary education at level 1 was around 22%, while only 2% with higher education. People with higher education matched mainly level 3 in terms of banking (23.90%). The higher the net income per person, the higher the level of banking among Poles. People with low income (i.e., in the range of PLN 901-PLN 1800) constituted as much as 56% of the respondents of work performed. The group of unbanked groups included mainly farmers (20%), unskilled workers (10%),

DNBulletin, 2020, <https://www.dnb.nl/en/news/news-and-archive/dnbulletin-2020/dnb389694.jsp> (access: 10.12.2021).

⁴³ COVID-19 Has Changed Online Shopping Forever, Survey Shows, UNCTAD, 2020, <https://unctad.org/press-material/covid-19-has-changed-online-shopping-forever-survey-shows> (access: 26.02.2021).

⁴⁴ R. Kotkowski (red.), M. Dulnicz, K. Maciejewski: Zwyczaje płatnicze w Polsce w 2020 r. Podstawowe wyniki badania, NBP, Warszawa 2021, p. 24.

⁴⁵ D. Bounie, Y. Camara, J.W. Galbraith: Consumers' mobility, expenditure and online-offline substitution response to COVID-19: evidence from French transaction Data, CIRANO Working Papers, 2020, p. 2020S-2028S.

⁴⁶ Annual Economic Report, Bank for International Settlements (BIS), 2020, p. 76, <https://www.bis.org/publ/arpdf/ar2020e.pdf> (access: 26.06.2022).

⁴⁷ R. Auer, G. Cornelli, J. Frost: Rise of the central bank digital currencies: drivers, approaches and technologies, BIS Working Papers, 880/2020, p. 1-42.

the unemployed (14%), and retirees and pensioners (24%), while under level 3, mainly clerical and white-collar workers (28.70%) and skilled workers (26.10%).

Since 10% of the surveyed population are unbanked (level 1) people with low incomes and simultaneously declare that the prices of banking services (fees for transfers, for a card) are important to them, banks should come up with attractive prices for them by offering more flexible banking products (e.g., prepaid cards tailored to the needs of consumers, which would contribute to benefits for both parties and to the development of cashless transactions).

It is also worth paying attention to the fact that a crucial factor determining the use of non-cash payments is the level of financial knowledge. 20% of the respondents from level 1 indicated in third place that the main unworthiness related to non-cash forms of payment is the lack of sufficient knowledge about them. Hence, a group of these people should be included in all initiatives and educational activities promoting non-cash transactions. In addition, the educational campaign would convince unbanked people who currently do not see the need for a personal account or have too low an income.

Given the development of the Polish payment system, uncertainty and fear related to the war in Ukraine, and high inflation, it is advisable to continue research in monitoring the dynamics and directions of changes in consumer behavior. Such research may prove to be a valuable source of information for institutions supporting the development of cashless transactions in Poland.

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Czynniki społeczno-demograficzne a ubankowienie społeczeństwa polskiego

Streszczenie

Celem opracowania była ocena stopnia zaawansowania obrotu bezgotówkowego wśród mieszkańców Polski – konsumentów oraz określenie związku między czynnikami społeczno-demograficznymi a ubankowaniem Polaków. Oceny stopnia zaawansowania obrotu bezgotówkowego społeczeństwa dokonano za pomocą zdefiniowanych przez autorkę opracowania trzech poziomów ubankowania. Na podstawie przeglądu literatury sformułowano hipotezę badawczą: istnieje statystycznie istotny związek pomiędzy cechami społeczno-demograficznymi a ubankowaniem konsumentów.

Hipotezę badawczą zweryfikowano na podstawie wyników własnych badań z wykorzystaniem kwestionariusza ankiety przeprowadzonych na przełomie października i listopada 2019 roku na próbie 500 dorosłych Polaków (18 lat i więcej). Wyniki badania empirycznego generalnie potwierdziły statystycznie istotny wpływ cech społeczno-demograficznych na poziom ubankowania Polaków. Istotny wpływ na ubankowanie społeczeństwa polskiego mają wiek, poziom wykształcenia, dochód netto w przeliczeniu na jedną osobę w gospodarstwie domowym, rodzaj wykonywanej pracy. Nieistotne statystycznie okazały się zmienne takie jak płeć i miejsce zamieszkania. Badania wykazały, że 10% badanej populacji stanowiły osoby nieubankowane, a aż 87,20% reprezentowało poziom 3 (pełne ubankowanie).

Problem wykluczenia transakcyjnego dotyczy osób młodych w wieku 18-24 lata oraz osób starszych w wieku powyżej 61 lat. W grupie nieubankowanych znaleźli się przede wszystkim rolnicy, robotnicy niewykwalifikowani, bezrobotni oraz emeryci i renciści, a w ramach poziomu 3 – głównie pracownicy biurowi, umysłowi oraz robotnicy wykwalifikowani. Najmniejsze wykluczenie występuje u osób w wieku produkcyjnym 25-44 lata. Osoby z tego przedziału wiekowego stanowiły ponad 40% udziału w ramach poziomu 3. Wraz ze wzrostem poziomu wykształcenia następuje przesunięcie osób do coraz wyższych poziomów pod względem ubankowania. Badania wykazały, że im wyższy dochód netto w przeliczeniu na jedną osobę, tym wyższy poziom ubankowania wśród Polaków. Wyniki przeprowadzonych badań stanowią uzupełnienie dotychczasowych analiz oraz wskazują propozycje działań dla instytucji promujących obrót bezgotówkowy wśród społeczeństwa polskiego.

Słowa kluczowe: ubankowanie, płatności bezgotówkowe, czynniki społeczno-demograficzne

Kody JEL: D10, G11, R20

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