TRENDS IN THE USE OF CYCLICAL PAYMENT CHANNELS BY POLISH HOUSEHOLDS: IMPLICATIONS FOR E-BANKING

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Biographical information

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Abstract. Information and communication technologies are currently the most important factor in the development of civilization, and increasing numbers of businesses and households use the Internet for their economic activity. The Internet has been particularly widely adopted by banks, which use it not only to communicate with customers but also for its efficiency and ease and economy of use. Although electronic banking is developing broadly overall, we are interested in the development of cyclical bill payments via the Internet. The purpose of this paper is to test the usage frequency online cyclical payment compared to other payment channels. We analyzed data gathered in Poland from a representative sample of 12,386 households and found that Polish households utilize the services of non-banking institutions most frequently when they make payments connected to household maintenance. This inclination was particularly marked among residents of small towns, retirees, pensioners and farmers. There is also evidence of a race in Poland to establish standards for mobile payments.

Key words: e-banking, payment channels, Polish households.
JEL classification: G210, I310.

1. Introduction

Information and communication technologies are currently the most important factor in socio-economic development and, more broadly, in the development of civilization. Changes in information and communication technologies affect contemporary economies and societies, thereby causing transformation in almost all areas of life. The development of new technologies is gradually transforming the way businesses are run, thus influencing business relationships with suppliers, customers, production processes, cooperation with other companies and financing methods (Castells, 2003, p.77).

The virtualization of consumption is becoming an increasingly important new trend (Mazurek-Łopacińska, 2005, pp.11-21); electronic media, for example, is beginning to overshadow print media in meeting people's intellectual, emotional and spiritual needs in different areas of consumption. Another interesting trend is the blurring of the lines between the personal and the work-related (Mazurek-Łopacińska, 2005, pp.11-21). Stimulated by the Internet, new professional specializations such as bank advisers, analysts are developing, playing a leading role in information and communication technologies and bringing broad possibilities for information management. The Internet is an efficient tool in the development and functioning of modern economies. On the Internet, there is no distance, no borders, and no socio-economic and cultural distinctions. Both personal and technical interactions are possible, with technical interactions becoming increasingly frequent.

In addition to opportunities, however, the Internet also brings threats. New types of risks are appearing that require new skills and abilities to be managed successfully. This risk depends on the degree and type of involvement in network activities. On the one hand, the Internet brings low costs and ease of access, but on the other hand, the Internet brings the decreased ability to control the environment due to its complexity and decentralized nature (Szpringer, 2003, p.185).

The scope of possible uses of the Internet is also subject to continuous development. One sector that has undergone tremendous transformation under the influence of new technologies is the financial sector, whose services are based on information management rather than production of material goods. This is particularly evident in banking that develop a new form of activity: so called "e-banking" (electronic banking).

One form of electronic banking used on a daily basis is household cyclical bill payments. The purpose of this study is to test the frequency and the socio-demographic determinants of the use of Internet bill payments compared to other payment channels. Three main research questions were asked:

1. What is the frequency of the use of different cyclical payment channels in Polish households?
2. Is the frequency of use of different payment channels associated with socio-professional status?
3. Is the frequency of use of different payment channels associated with place of residence?

2. Literature review

2.1. The essence of e-banking

The literature contains many definitions of electronic banking (e-banking). Some authors define e-banking as enabling customers to communicate with banks through electronic communication channels and distribution, such as mobile phones, the Internet, telephone helplines through television links and ATMs (Adamczyk, et al., 2004, p.175). Others perceive e-banking as a form of banking activity, a customer contact platform with a bank that allows the remote execution of banking services through distribution channels that use information technologies that do not require personal contact and enable efficient financial management (Świecka, 2007, p.34). While there is no clear definition of e-banking, there are two distinct areas: internal and external. The internal area is a widely understood electronic-information technology platform that integrates the bank and its internal functions with the entities that make up the financial system or are closely associated with it. The external area comprises electronic distribution channels for banking products and services. This approach emphasizes the customer benefits that result from the application of modern technologies (Świecka, 2007, pp.33-34).

The factor differentiating the forms of electronic banking is the type of distribution channel through which services are provided, not the type of services or their availability. There are several forms of e-banking, listed as follows (Gospodarowicz, 2005, p.28):

1. Self-Banking, the oldest form of electronic banking. In this case, banking services are performed using bank self-service points such as ATMs, which can be accessed through bank cards or access cards that enable order authorization.

2. EFTPOS systems (Electronic Funds Transfer at Point of Sale), which enable credit card payments in retail outlets or online. This is achieved through the integration of commercial cash register systems with banking IT systems.
3. Telephone banking, which is the ability to use banking services over landline or mobile phones. This type of banking utilizes the basic functions of the telephone, i.e., voice communication and/or using the dial pad to enter a sequence of digits. On the bank side, telephone banking is carried out using call centers equipped with IVR (Interactive Voice Response), which provides the automatic conversion of the text or numbers that result from ongoing operations into a voice that interacts with the customer.
4. M-banking (Mobile Banking), in which the customer accesses banking services via mobile devices such as mobile phones or palm pilots.
5. PC-banking, defined as information technology solutions that can be used to access financial services using personal computers and the network connecting them. The first solution in the PC banking group was Home Banking for individual customers and Corporate or Office Banking for companies. In both cases, access to banking services was possible through a personal computer and software provided by the bank.
6. I-banking (Internet Banking), which provides access to banking services via the Internet. Internet banking is part of e-banking and does not exist independently. The specificity of Internet technology allows for greater flexibility, interactivity and functionality than in other forms of e-banking. Internet banking is a manifestation of both product and process innovation (DeYoung et al., 2007).

2.2. Determinants in the development of e-banking

Despite the growth of global interest in e-banking, many bank customers do not use it due to the high degree of uncertainty in virtual space. Studies have shown that a number of factors limit the development of e-banking across the globe. One of the most important long-term barriers limiting consumers in the use of new forms of commerce and banking is trust (Al-Somali et al., 2009; Guerro et al., 2007; Shafei, Mirani, 2011; Suh, Han, 2002) and safety (Angelakopoulos, Mihiotis, 2011; Gikandi, Bloor, 2010), which, paradoxically, is indicated by Europeans as one of the most important advantages of online banking (Czuba, 2007) (other advantages such as low cost and the ability to ask questions and receive quick replies via bank websites were also cited). Other determinants limiting the development of Internet banking are: the customer's age, difficulty in using the Internet, fear of change related to technological development and lack of information about the products and services provided to customers via electronic channels (Mavri, Ioannou, 2006, pp.552-560). Table 2.2.1. presents a summary of research on factors that determine the use of e-banking among consumers from different countries.

Table 2.2.1. Factors determining the adoption of e-banking among customers from selected countries

Country	Author	Type of determinants
Saudi Arabia	Al-Somali, 2009	Quality of Internet connection; knowledge of online banking and its benefits; social influence and access to a computer; education; trust and ability to change.
Australia	Sathye, 1999	Security; lack of awareness; and understanding the principles of e-banking.
Finland	Karjaluoto, 2002	Previous experience with technology and computers; demographic factors.
Greece	Angelakopoulo, Mihiotis, 2011	Low percentage of Internet users; unfamiliarity with technologically advanced equipment; problems with security and privacy.
Korea	Suh, Han, 2002	Trust; usefulness and ease of use.
Kuwait	Aladwani, 2001	Safety; customer confidence; speed of services; privacy of customer information; clients' skills.
Poland	Czuba, 2007; Staniewski, Szopiński, 2012	Training/education.
Singapore	Gerrard, Cunningham, 2003	Access to the Internet; concerns about the confidentiality of the operations.

It seems that today, financial institutions are bound to develop multiple customer contact channels simultaneously; we must also add mobile banking to the traditional e-banking network because many client

activities are being transferred to remote channels. As studies of Italian and American banks show, however, a single service channel is insufficient for both banks and clients (Bonaccorsi di Patti et al., 2004; Ciciretti, Hasan, & Zazzara, 2009; Delgado et al., 2007; DeYoung, 2005; Hernando, Nieto, 2005). The complicated structure of many financial products requires a meeting with a bank employee to clarify and explain any doubts on the part of the customer. At the same time, a relatively large number of online banking customers want to be able to receive support from traditional consultants in bank branches before they use e-banking. This finding implies that e-banking is not a substitute for direct contact with a bank consultant but that it is instead a complementary function (Czuba, 2007, pp.42-44). In addition, competitive pressure leads banks to invest in all possible communication channels, a consequence of diverse and growing customer requirements, the need to keep up with industry leaders and the desire to increase market share.

2.3. Trends in the development of e-banking

Banks will find significant work in coordinating their electronic and traditional banking channels due to the pace of change in technology and the inability to predict success. Additionally, in many banks, the different channels of customer contact exist separately without any synergy among them (Sadkowski, 2012).

In Poland, only about 3.5% of all bank customers (approximately 850,000 people) use mobile banking, 100% of whom are also users of electronic banking (Gazeta Prawna, 2012). The low number of mobile banking customers is the result of the relatively low market penetration of smartphones and applications that support mobile banking functionality. Mobile banking is unimportant for older people, who generally do not use smartphones. For young people, who are well versed in the use of modern technologies, as well as wealthy individuals, mobile banking services are not a significant added value over the value they are offered by plain online banking (Deloitte, 2012). In this area, mimicking standard solutions appears to be insufficient: significant improvements in the range of services and how they are provided is essential.

In 2011, 73% of households in the EU had Internet access; in Poland, the percentage of households with Internet access was 67%. The highest percentage of households with Internet access was found in countries such as Iceland, Norway, Sweden, and Luxembourg, where figures exceeded 90% (Eurostat, 2011). The growing importance of the Internet in Polish Internet users' economic activity is noticeable. According to a report from The Boston Consulting Group (The Boston Consulting Group, 2011), 78% of Internet users use the network to acquire information about products, 63% state that they do their shopping via the Internet, 47% pay bills via the Internet, and 20% regularly use online banking and manage their own finances, using 7.4 million online bank accounts for this purpose. According to Deloitte's estimates (based on UKE, PTC, GUS), the total number of Internet users in Poland will reach almost 28 million in 2020 (Deloitte, 2012a). According to GUS statistics, most Polish companies have access to the Internet (in 2010, 1.6 million small- and medium-sized businesses used online banking, with one million users daily) (BCG, 2011). Even so, the Internet is used only minimally and has yet to achieve its potential economic impact.

According to data from a report by the European Commission, the inhabitants of Scandinavia use online banking most frequently. In Poland, 27% of the population used Internet banking in 2011. Between 2006 and 2011, the percentage of Internet banking users in Poland tripled. In EU countries, the figure is almost 40% of the population (Eurostat, 2011).

According to the Online Banking and Research Report (2010), Poland is the leader in the Central and Eastern Europe in terms of online banking use. The adoption percentage of online banking is 21% in Poland, 18% in the Czech Republic and 16% in Hungary (BCG, 2011).

It is worth noting that Polish banks were able to create a safe online transaction system in a relatively short time, which built consumer confidence not only in online banking but also in the entire online economy. Perhaps partly because of this increased confidence, Internet participation in the Polish economy in 2010 amounted to 68 billion PLN, which is 4.8% of the GDP (including the contribution of financial and insurance sector at 0.7%) (Deloitte, 2012a).

2.4. Channels of cyclical payments

Twenty years ago, the payment of invoices was possible only by using cash, and such payments were operated exclusively by the Polish Post Office and a chain of PKO BP bank agencies. In theory, paying bills was also possible in commercial bank branches. In practice, however, these institutions established very high commissions for any cash payments in their offices, which resulted in those services becoming unprofitable for customers (Urząd Ochrony Konkurencji i Konsumentów, 2010). Today in Poland, there are several types of

entities providing support for cyclical payments for mass customers, including the Polish Post Office, banks supporting cash payments in branches and via electronic channels (e-banking), and payment transfer companies that transfer customers' cash to creditors' accounts (e.g., energy providers, cable TV providers, phone providers, and housing associations and property managers). Table 2.4.1. shows the various types of entities supporting mass payments by retail customers in Poland.

Table 2.4.1. Entities supporting mass payments by retail customers in Poland

Entity offering the support of payments from households	The cost of transferring money to a bank account	Advantages	Disadvantages
Polish Post Office	2.5 PLN for any amount greater than 1000 PLN + fee of 0.5% of the total amount	Large number of branches	High unit cost of making the transfer
Physical bank branch	From 0 to a few zlotys for a transfer to another bank. When offering free accounts, banks usually demand higher fees for individual operations performed in the bank office.	Large number of branches	High unit cost of making the transfer
Electronic banking offered by a bank with physical branches	Free transfers made by the account holder via electronic channels offered by the bank	A large number of branches	Using the electronic channel is typically associated with the monthly cost of maintaining the account because the Internet channel is offered as an addition to the bank account opened in a physical branch
Virtual banks that do not have physical branches	Free transfers made by the account holder via electronic channels offered by the bank	No account fees	Cannot pay a bill in the bank office
Cash transfer offices	0.99-1.99 PLN, depending on the agreement with particular media and telecommunication service providers	The cost of making a single payment is usually lower than in the Polish Post Office or a bank branch	No supervision by the Financial Supervision Authority. Chains have been running for a relatively short period and are thus not as developed as the branches of banks and the Polish Post Office (some of them operate only in a few provinces)

When comparing the characteristics of the various entities that support payment transfer services, it is clear that each entity has a market advantage in different field. Virtual banks that do not have their own physical branches, such as mBank or Inteligo, offer free transfers and accounts that carry no monthly account fees. Free transfers are predicated on users making those transfers themselves through electronic channels such as the Internet, rather than with a help of consultant. Unfortunately, many people, especially the less educated, do not benefit from the opportunities offered by electronic banking. Conversely, the Polish Post Office has an advantage in terms of the number of branches that are located in both urban and rural areas. In addition, the Polish Post Office is a stable institution that has been operating in Poland for decades. The disadvantage of the transfer service offered by the Polish Post, however, is its high cost. Assuming that each household has to make several monthly payments for electricity, gas, telephone, and rent, the cost of making payments at the post office is associated with fees of at least 10 PLN per month. Lower fees are usually charged in money transfer offices located in places with many potential customers, e.g., grocery stores; however, chains such as these do not have as many offices as the Polish Post Office. In the early 2000s, money transfer companies specializing in supporting payments for household

bills were developing quickly, supported by the lack of specific regulations surrounding such services; these entities were permitted to run their business solely on the basis of the Act on Freedom of Business Activity. However, there were several cases in which companies went bankrupt, leaving customers to address the consequences, such as the non-transfer of payments to various service providers (UOKiK, 2010).

3. Methodology

The empirical data used in this study was taken from the research project called "The Social Diagnosis," undertaken in 2011 by the Social Monitoring Council, which operates at the University of Finance and Management in Warsaw. The researchers gathered panel data using two questionnaires (Panek et al., 2011). The first questionnaire gathered data on household composition and conditions and was completed by an interviewer during a survey with the representative of the household best informed about the household situation and its members. The questionnaire provided data on individual households' structure and living conditions and on the socioeconomic characteristics of its individual members. The second questionnaire was filled out individually by all available members of the tested household over the age of 16 and was used to obtain information about individuals' quality of life. For the purpose of the analysis presented in this article, only the answers to selected survey questions were used. The studies were conducted in March and April by professional interviewers from the Central Statistical Office (GUS). The Office of Research and Statistical Analysis of the Polish Statistical Association supervised the study from the organizational side.

The study examined 12,386 households (with 36,753 members); 26,453 members of these households were aged 16 and over. Households were selected for testing using two-stage stratified sampling. Households were first classified according to province, and then by place of residence within the province, making a distinction among large cities (over 100,000. inhabitants), towns (less than 100,000 inhabitants) and villages. The first stage sampling units in the urban layers in particular provinces were statistical regions (covering at least 250 homes) and statistical districts in the rural layers. At the second stage, two apartments were selected systematically from a randomly ordered list of apartments, independently within each of the layers formed in the first stage.

Socio-demographic determinants are understood here in terms of the social and professional status of the respondents, defined using the following categories: salaried employees, farmers, self-employed, pensioners and those living on unearned sources. Of the 36,753 members of the surveyed households in the weighted sample, women accounted for 51.9%. The share of children and young people under the age of 24 did not exceed 30% across the entire sample. In terms of household sources of income, the dominant type was employed earners, with retiree household the next most common group. These two groups together constituted 78.5% of the sample households. Two-thirds of households lived in towns, and approximately 25% of the households were in cities with more than 200,000 inhabitants. The share of households located in small towns and villages, i.e., with a population of 20,000-100,000 and less than 20,000 inhabitants was 20.7 and 13.3%, respectively. The essential difference between the village and the town concerns multi-family households, which are disproportionately common in the countryside, and single non-family households, whose numbers are disproportionately low in rural areas (Social Diagnosis, 2011).

In the statistical analysis, we used the nonparametric test of independence - chi-square to compare the categorical data, and the contingency coefficient Cramer's V was used to measure the strength of the relationship between the variables.

4. Results

4.1. The frequency of the use of different payment channels in the entire sample

The data show that the most common way for households to make cyclical payments is paying the fees to do so at the post office. The second most frequently reported method is using an online bank account, followed by using a money transfer retail point (e.g., in the grocery store). Table 4.1.1. shows the distribution of answers concerning how households make cyclical payments.

Table 4.1.1. The distribution of households' cyclical payments methods*

Payment method	Number of people	Share of selected responses (in %) 12,386 people = 100% *
At the post office	6,387	51.6
From an online bank account	2,902	23.4

At a retail point	2,789	22.5
From a bank account at the bank	2,198	17.7
From a bank account by payment order	1,711	13.8
Directly at the supplier's	1,244	10.0
Other method	302	2.4
No payments made	44	0.4

* Total responses do not stand at 100% because respondents could choose multiple answers or no answers

4.2. Payment channels and socio-professional status

There was a statistically significant correlation between the different categories of respondents' social and professional status and their tendency to make cyclical payments via the Internet (χ^2 = 1,456.552, df = 5, p < 0.001). The intensity of the relationship between the two features is Contingency Coefficient Cramer's V = φ = 0.350. Payments via the Internet were made most frequently by self-employed people, while retirees and pensioners used the Internet for this purpose least frequently. Table 4.2.1. shows the distribution of households making cyclical payments over the Internet broken down by social and professional group.

Table 4.2.1. Distribution of households making cyclical payments over the Internet by social and professional group (in %)

Social and professional groups	Distribution across social and professional groups (%)
Salaried employees	37.3
Farmers	10.0
Self-employed workers	52.6
Retirees	9.7
Pensioners	5.9
Living on unearned sources	14.0

There was a statistically significant correlation between the respondents' social and professional status and their tendency to make cyclical payments at the bank (χ^2= 183.15; df=5; p<0.001); the intensity of the relationship between the two features is thus: Contingency Coefficient Cramer's V = φ= 0.124. Payments at bank branches were made most frequently by farmers. Table 4.2.2. shows the distribution of households making cyclical payments at bank branches broken down by social and professional group.

Table 4.2.2. Distribution of households making cyclical payments at bank branches by social and professional group (in %)

Social and professional groups	Distribution across social and professional groups (%)
Salaried employees	18.9
Farmers	36.5
Self-employed workers	17.2
Retirees	16.7
Pensioners	14.0
Living on unearned sources	11.2

There was a statistically significant correlation between respondents' social and professional status and their tendency to make cyclical payments at the post office (χ^2= 400.504; df=5; p<0.001); the intensity of the relationship between the two features is: Contingency Coefficient Cramer's V = φ= 0.183. Pensioners, farmers and retirees made the most frequent use of the post office for cyclical payments, whereas salaried employees used the post office least frequently. Table 4.2.3. shows the distribution of households making cyclical payments at the post office broken down by social and professional group.

Table 4.2.3. Distribution of households making cyclical payments at the post office by social and professional group (in %)

Social and professional groups	Distribution across social and professional groups (%)
Salaried employees	8.9
Farmers	63.7
Self-employed workers	37.3
Retirees	61.8
Pensioners	66.7
Living on unearned sources	56.6

There was a statistically significant correlation between the respondents' social and professional status and their tendency to make cyclical payments at a retail point (χ^2= 60.557; df=5; p<0.001). The intensity of the relationship between the two features is thus: Contingency Coefficient Cramer's V = φ= 0.071. Pensioners and retirees used retail points most frequently, while the self-employed used retail points least frequently. Table 4.2.4. shows the distribution of households making cyclical payments at retail points broken down by social and professional group.

Table 4.2.4. Distribution of households making cyclical payments at retail points by social and professional group (in %)

Social and professional groups	Distribution across social and professional groups (%)
Salaried employees	21.4
Farmers	20.8
Self-employed workers	17.0
Retirees	26.8
Pensioners	27.2
Living on unearned sources	23.0

4.3. Payment channels and population

There was a statistically significant correlation between the respondents' place of residence and their tendency to make cyclical payments at a post office (χ^2= 362.517; df=5; p<0.001); the intensity of the relationship between the two features is thus: Contingency Coefficient Cramer's V = φ= 0.174. Payments were made at the post office most frequently in rural areas and small towns with fewer than 20,000 inhabitants. Table 4.3.1. shows the distribution of households making cyclical payments at the post office broken down by population.

Table 4.3.1. Distribution of households making cyclical payments at the post office by population (in %)

Population	Distribution of payments by population (%)
Cities with a population of ≤ 500 thousand	42.0
Cities with a population of <200-500,000	45.0
Towns with a population of <100-200,000	43.6
Towns with a population of <20-100,000	46.7
Towns with a population of < 20,000	52.1
Village	63.5

There was a statistically significant correlation between the respondents' place of residence and their tendency to make cyclical payments at retail points (χ^2= 93.327; df=5; p<0.001). The intensity of the relationship between the two features is thus: Contingency Coefficient Cramer's V = φ= 0.088. Payments were made at cash points most frequently in small towns with 20,000-100,000 inhabitants. Table 4.3.2. shows the distribution of households making cyclical payments at retail points by population.

Table 4.3.2. Distribution of households making cyclical payments at retail points by population (in %)

Population	Distribution of payments by population (%)
Cities with a population of ≤ 500,000	17.0
Cities with a population of <200,000-500,000	18.4
Towns with a population of <100,000-200,000	19.4
Towns with a population of <20,000-100,000	28.1
Towns with a population of <20,000	27.4
Villages	23.1

There was a statistically significant correlation between the respondents' place of residence and their tendency to make cyclical payments at bank branches (χ^2= 156.461; df=5; p<0.001). The intensity of the relationship between the two features is thus: Contingency Coefficient V-Cramer `s V = φ= 0.115. There is an inverse relationship between population and the tendency to make cyclical payments at bank branches: as population decreases, the percentage of respondents who make payments directly at bank branches increases. Table 4.3.3. shows the distribution of households making cyclical payments at bank branches by population.

Table 4.3.3. Distribution of households making cyclical payments at bank branches by population (in %).

Population	Distribution of payments by population (%)
Cities with a population of ≤ 500,000	9.4
Cities with a population of <200,000-500,000	12.9
Towns with a population of <100,000- 200,000	14.8
Towns with a population of <20,000-100,000	17.3
Towns with a population of < 20,000	18.7
Villages	23.0

There was a statistically significant correlation between respondents' place of residence and their tendency to make cyclical payments via the Internet (χ^2= 634.473; df=5; p<0.001). The intensity of the relationship between

the two features is: Contingency Coefficient Cramer's V = φ= 0.231. There is a unidirectional relationship between population and the tendency to use the Internet to make cyclical payments, with the most frequent use of the Internet occurring in cities with a population over 500,000; similarly, as population decreases, so does the percentage of respondents who make payments via the Internet. Table 4.3.4. shows the distribution of households making cyclical payments via the Internet by population.

Table 4.3.4. Distribution of households making cyclical payments via the Internet by population (in %).

Population	**Distribution of payments by population (%)**
Population of ≤ 500,000	43.1
Population of <200-500,000	37.9
Population of <100-200,000	35.0
Population of <20-100,000	26.1
Population of < 20,000	22.9
Villages	14.4

5. Discussion

The data show that the most common method used by households to make cyclical payments is paying the fees at the post office. This payment channel is used most frequently by pensioners, farmers and retirees living in villages and small towns with a population of no more than 20,000. Salaried employees use this method least frequently.

It can be assumed that competition in services that accept payments from retail customers will increase. With the loss of the Polish Post Office's monopoly on new services, new postal operators have appeared, and it can be assumed that they will seek to increase their clientele among people without bank accounts by offering payment transfer and receiving services for retail customers. One example is the rapidly growing company InPost, which is now Poland's largest postal operator.

The second most frequently reported method for making cyclical payments is through online bank accounts. This method is most popular among the self-employed and least popular among retirees and pensioners. There is a unidirectional relationship between population size and the use of the Internet to make cyclical payments: the Internet was used most frequently in cities with over 500,000 inhabitants and was used increasingly less as the population decreased.

The next most popular payment channel indicated by the respondents was the retail point (e.g., in the grocery store), which is most popular with pensioners and retirees living in small towns with a population of 20,000-100,000. The self-employed use this channel least frequently.

Payments made at bank branches are the last payment channel worth mentioning, which was used most often by farmers. There is an inverse relationship between population and making cyclical payments at bank branches: as the population decreased, the percentage of respondents who made payments directly from the bank branch grew.

Studies have shown that people belonging to groups characterized by low income face high unit costs when making cyclical payments; in turn, people with higher income enjoy the benefits of electronic banking. This allows them to face lower costs for the cyclical payments connected to running a household. There is still a lack of services dedicated to pensioners and retirees, however, and banks are not seeking out customers in this demographic. There is a need for banks to create offers tailored for customers such as retirees, pensioners and people from small towns. Furthermore, there are no simple, cheap solutions to facilitate cyclical payments, which also could break the barrier for people without bank accounts and make their use of e-banking possible, although there are efforts underway from both banking and non-banking institutions to establishing payment standards for mobile phones.

The growing demand for Internet services may create a gap between expectations and the reality of Internet use. The growth of modern telecommunications networks is too slow in Poland. Consequently, there is a concern that a number of Poles will be unable to obtain better quality access, or even to obtain Internet access at all (Dec, 2012), which could be a barrier for the development of e-banking.

Research on the perception of electronic banking channels in India shows that respondents perceive a gap between the introduced technology and the need for contact between a bank employee and the customer. This is challenging for banks. The technology itself cannot provide a sustainable competitive advantage for banks. When all banks introduce similar technological solutions, any particular bank loses its position as a differentiator. Modern technology with "personal contact" will be necessary for banks if they want to retain existing customers and attract new ones (Kamakodi, Khan, 2008, 50-70).

Banks compete by introducing new services regularly, a condition that is necessary but not sufficient for their successful operation in the market. In the era of e-services, each bank outpaces its competitors in offering the latest solutions in the field of electronic banking, and more of them. Conversely, the Postal Bank and other traditional services moved in exactly the opposite direction, i.e., towards offline services, such as the Nestor Account aimed at pensioners and retirees. This account offers a free account and free deposits and withdrawals at Polish Post Office branches. The bank also offers a free service called the payment order, which allows bank customers to indicate the withdrawal amount and destination; the payment order is then delivered through the regular mail. The bank has harnessed its particular strength, namely, the large number of consumers using the services of the Polish Post, and has thus prepared a special offer for a group that has long been underestimated by marketers.

6. Conclusions and recommendations

Competitive pressure and bank customers' varied preferences enforce the need to develop and coordinate the various communication channels such as direct contact, telephone services, the Internet and mobile channels. Some customers may be willing to incur higher costs for traditional banking to use direct banking services provided by a consultant, while others prefer self-service accounts operated remotely in exchange for the reduction in operating costs or better interest rates for their deposits.

Thus, it seems that banks should consciously develop all channels of customer service. Revolutionary changes need to be made in their offers, which will allow banks to compete and use modern information and communication technologies as a way to differentiate themselves. Due to virtuality, anonymity and the time-space separation, mobile transactions are associated with considerable uncertainty and risk. Thus, mobile service providers need to build trust to mitigate perceived risk and facilitate the user's completion of a transaction.

Currently, the most rapid developments in modern financial services are being made in the countries known as "emerging markets." This situation is favored by factors such as poor transport infrastructure and lack of excessive government regulation, which together, often encourage experimentation with innovative solutions. The main objective of politicians at the national level should be the development of strategies that promote new information and communication technologies, thereby increasing the social and economic benefits for the country and the region. Developing markets have the ability to leapfrog; i.e., they can quickly adapt to the new generation of wireless technologies such as Wi-Fi and WiMAX (Worldwide Interoperability for Microwave Access) and can thus gain an advantage over other markets that use the traditional wired infrastructure.

In Poland, a large segment of the population still lacks bank accounts, and it is therefore impossible for them to regulate their non-cash obligations. The way to solve this problem could be simple P2P mobile payment services that enable money transfers between any two user without the need for a bank account. A mobile phone user could buy a coupon that enables him or her to top up an account on the same basis as they currently pay for pre-paid phones. That money could then be used for commission-free payments in shops or on bank accounts that belong, for example, to their media suppliers. The client could transfer his or her money to any user, thus topping up that user's mobile phone card, or have his or her own card topped up by another user.

Presently, there is an ongoing race to establish standards for mobile payments, and there are several solutions trying to gain critical mass. The following questions arise:

- Will the banks that began to cooperate in developing a common mobile standard harm the position of telecommunications operators and payment card providers?
- In what way will the behavior of mobile phone operators affect the market for mobile payments?
- Will mobile payments replace plastic currency?

- Will new players who have the ability to harm banks' positions in the scope of mass payment services emerge (for example: retail chains having masses of customers without bank accounts)?
- How can banks compete to gain customers who do not have bank accounts?

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Ciklinio mokėjimo kanalų naudojimo Lenkijos namų ūkiuose kryptys: reikšmė e-bankininkystei

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SANTRAUKA

Informacinės ir komunikacinės technologijos šiuo metu yra svarbiausias civilizacijos vystymosi veiksnys. Vis daugiau verslų ir namų ūkių naudoja internetą savo ūkinėje veikloje. Internetas ypač plačiai pritaikytas bankuose, kurie jį naudoja ne tik bendraujant su klientais, bet ir dėl to, kad tai efektyvu, paprasta ir ekonomiška. Nors apskritai elektroninė bankininkystė vystosi plačiai, mus domina sąskaitų ciklinio mokėjimo internetu plėtra. Šio straipsnio tikslas – nustatyti ciklinio mokėjimo *on-line* būdu dažnumą palyginus su dažnumu mokant kitais būdais (kanalais). Išanalizavome duomenis, surinktus iš reprezentatyviosios imties, kurią sudaro 12.386 namų ūkiai, ir nustatėme, kad namų ūkiai Lenkijoje dažniausiai naudojasi nebankinių institucijų paslaugomis, kai jie atlieka mokėjimus, susijusius su namų ūkio priežiūra. Ši tendencija (polinkis) labai pastebimas mažų

miestų gyventojų, senatvės pensininkų ir ūkininkų tarpe. Taip pat Lenkijoje yra lenktyniavimo įrodymų, steigiant mobiliųjų mokėjimų standartus.

Raktažodžiai: e-bankininkystė, mokėjimo būdai (kanalai), Lenkijos namų ūkiai.
JEL classification: G210, I310.