

The Opinion of Young Polish Consumers on the Innovative Payment Methods – Results of the Research

Krzysztof Adam FIRLEJ * and Martyna DYKA

Cracow University of Economics, Cracow, Poland; kfirlej@uek.krakow.pl; martyna.dyka22@gmail.com

* Correspondence: kfirlej@uek.krakow.pl

Abstract: In the world that is undergoing a constant changing process, it is inevitable that the market of payment instruments would remain the same. Young Polish consumers are those who are addressed the most when new payment methods are being introduced. That is why the objective of this work was to examine their attitude towards innovative payment methods. The research was done through a human research survey, where each respondent was given a questionnaire with single and multiple-choice questions. The aim was to determine the main factors that would influence their choice regarding the payment method. It was found that it is conditioned by the place of residence and education level. Furthermore, it was shown that, regarding gender, men know more about innovative payment methods than women and are more likely to use them actively. Apart from that, it was concluded that the main three factors when choosing the most preferred way of payment are convenience, time and ease of use. Moreover, the research showed that cost is not a driving force when that decision is being made.

Keywords: innovative payment methods; cashless payment instruments; attitude towards payments

JEL Classification: E4; O3; D71

1. Introduction

The 21st century is probably one of the most dynamically developing era in terms of technological advancements. This phenomenon can be seen especially on the mobile phones market. The newest smartphone with its new features will no longer catch anyone's attention in five years. Because of these rapid changes the way people think is being adjusted to the new reality. It is since information is easily attainable and spread very quickly. People are not used to wait anymore; they require the fulfillment of their needs ad hoc. Even the most basic daily activities are done accompanied by advanced technological appliances. The interest in using the newest possible technologies can be explicitly seen among young Polish consumers, and this also applies when they choose the payment method. In order to fulfill these new needs, various ways of payment are being created. One of the greatest inventions of the past ten years are mobile payments which can be done through a portable electronic device using mobile wallets or payment applications.

A lot of research in the scope of innovative payment methods can be found in the literature review. One of the researchers, M. Sołtysiak, examined the necessity of having new and innovative developments in the fields of payment and banking (Sołtysiak 2015). His aim was also to extract the essential factors that contribute to the decision-making process when the payment method is being chosen. The results of the findings lead to a conclusion that young Polish consumers are eager to have a bank account and would choose payment methods that are convenient and easy to use. An interesting study was also done by M. Kapler who analyzed buyer decision process among Polish consumers. In her work she was concentrated on finding the reasons for choosing a given payment method. As noted by Kapler (2014), the most important factors when deciding on the payment instrument were cost, speed of the transaction, ease of use and loyalty programs offered. Another finding of this research was that people are prone to choosing cash instead of cashless methods of payment. The reason for this is that consumers have certain payment habits and that not all POS in Poland offer the possibility of using cashless instruments. M. Grzywińska-Rapca and M. Grzybowska-

Brzezińska also examined the factors influencing the choice of the method of payment. The results showed the contrast between the majority of the society and young Polish consumers. The former was less willing to use cheap bank accounts, instant money transfers and managing their finances without leaving home. On the other hand, young Polish consumers are eagerly using cashless payment methods (Grzywińska-Rapca and Grzybowska-Brzezińska 2015).

The main aim of the work is to determine the attitude of the young Polish consumers towards the innovative payment methods. The hypothesis is that the main factors determining the decision when young Polish consumers choose one of the innovative payment methods are time, convenience and ease of use. In order to prove the hypothesis and accomplish the aim of the work, a survey was conducted.

2. The Characteristic of Innovative Payment Methods in Poland

In recent years methods of payment in Poland were being constantly developed. Except for the emergence of newer payment cards, such as proximity cards, other cashless ways of paying appeared on the market. The ones that gained the biggest popularity are Blik, PeoPay, Apple Pay and Google Pay.

Blik is a method based on generating single-use six-digit codes that are given through the bank application. The code lasts for two minutes during which it has to be given to the shop assistant or typed on the screen of the computer in the shop. Blik can be used at the stationary POS, on the Internet, but also this method enables a consumer to withdraw cash, make a transfer and issue a check. It is an easy way of payment when P2P (“person to person”) transactions are being paid because it is not necessary to use the bank account number in order for the money to reach its destination. The only thing that needs to be done is typing somebody’s telephone number and the Blik code.

Google Pay and Apple Pay are the methods that are based on HCE and NFC technologies. NFC (Near Field Communication) enables an exchange of radio waves in the distance of 20 cm. It merges contactless and mobile payments together. It means that a mobile phone equipped with NFC technology can be a substitute for the basic proximity card. All that needs to be done is moving the mobile closer to the payment terminal, and if the amount of money is greater than 50 zł, additional PIN authorization is required. A necessary condition for NFC to function properly is having a virtual paying card provided by the bank, which is embedded into a SIM card. Later on, HCE (Host Card Emulation) appeared on the market. It uses NFC technology and a data cloud instead of the SIM card. A lot of mobile applications were created in order to allow customers to use HCE. The most popular one on the international market are Google Pay and Apple Pay. They can also be used in Poland, even though one of the Polish banks created one of such financial instruments on its own, and it is called PeoPay.

Table 1. shows the popularity of the innovative payment’s methods in Poland. The unit used to display the quantity of paying cards and HCE/NFC technologies is the quantity of cards issued; when it comes to Blik and PeoPay it was the number of users. In all of the cases the upward trend can be seen. Because of the lack of data concerning the number of Polish clients for each Apple Pay and Google Pay, the table summarizes all the cards issued that use NFC and HCE technology.

Table 1. The Characteristic of Innovative Payment Methods.

Innovative payment method	Quantity		
	2015	2016	2017
Paying card	35,209,043	36,874,489	39,095,880
Blik	1,400,000	3,100,000	6,100,000
PeoPay	509,200	672,300	938,200
HCE, NFC Technologies (Google Pay, Apple Pay)	-	233,372	857,810

3. Methodology

The survey's aim was to provide data about the main factors determining the decision when young Polish consumers choose one of the innovative payment methods. It was conducted with one of the most popular diagnostic methods – diagnostic poll method. It took a form of a human research survey and normally its aim is to show the attitude of a given group of people towards a certain problem.

In order to convey the human research survey a questionnaire consisting of 19 closed questions was made. They included both single and multiple-choice questions. The survey was supposed to be conveyed among young Polish consumers aged between 18 and 25, on different levels of education, living in distinct places in Poland. Such representative group is characterized by the ability of quick adaptation to changes, the urge to look for novelties and the willingness to rely on inventions that save time and effort. The aim of the survey was to identify paying preferences of the young Polish consumers. The hypothesis stated in the work was that the main factors determining the decision when young Polish consumers choose one of the innovative payment methods are time, convenience and ease of use.

In order to determine the significance of the differences in the distribution of two nominal variables, Chi- squared test of independence was done.

The formula used in the test is as follows:

$$\chi^2 = \sum_{i=1}^n \frac{(O_i - E_i)^2}{E_i} \quad (1)$$

Where:

χ^2 – Chi-Square test of independence

O_i – Observed value of two nominal variables

E_i – Expected value of two nominal variables

The formula used to count the expected value of two nominal variables:

$$E_i = \frac{(\text{sum of the } k_{th} \text{ row})(\text{sum of the } i_{th} \text{ column})}{(\text{total number})} \quad (2)$$

The test served to examine the correlation between sociodemographic data and the answers to the questions in the questionnaire. Only statistically significant correlations were included in the work.

In order to determine the correlation between the variables, Spearman's rank correlation coefficient was used. The values of the coefficient vary between +1 (strong positive correlation; along with the increase of the first variable the other also increases) and -1 (strong negative correlation; along with the increase of the first variable the other also decreases). When the coefficient equals to 0 then there is no correlation between the variables.

The statistical significance of all tests indicated is judged at the $p = 0.05$ significance level. Analyses were done using SPSS Statistics.

4. Results

4.1. Sociodemographic analysis

The questionnaire was filled in by 514 respondents. Majority of them were women (79.8%), whereas men constituted for 20.2% of the group. Most of the respondents were at the secondary education level (54.1%) or had a bachelor's or engineer's degree (41.2%). Some people were at the basic education level (1.4%), vocational education level (0.4%) or had a master's degree (2.9%). Nearly half of the representative group lived in cities with more than 200,000 inhabitants (49.6%); a lot of respondents lived in the country (23.0%); the rest of the group occupied cities with less than 20,000 inhabitants (6.0%), between 20,000 and 100,000 inhabitants (13.6%), and between 100,000 and 200,000 inhabitants (7.8%). The majority of the group was still at school or university, whereas 48.1% studied

and did not work, 43.8% studied and worked, 7.2% solely worked and 1.0% of the representative group was unemployed.

4.2. Innovative Payment Methods in Poland

Vast majority of the respondents preferred paying by card (83.7%) and only 16.3% of the group would choose cash.

Table 2. Paying preferences among the representative group based on their place of residence.

		Place of residence			
		Country and cities (less than 20k inhabitants)	Cities (less than 200k inhabitants)	Cities (more than 200k inhabitants)	
Preferred payment method	Cash	Number of people	36	19	29
		% of people	24.2%	17.3%	11.4%
	Paying card	Number of people	113	91	226
		% of people	75.8%	82.7%	88.6%
Chi-squared test of independence		$\chi^2 = 11.34; p = 0.003$			

Paying by card was most often preferred by citizens of large (89%) and medium (83%) cities, whereas inhabitants of the country and small cities (76%) less often chose paying cards. The differences are statistically significant ($p = 0.003$) (Tab. 2).

The most important factors influencing the choice of the payment method were convenience (86%), ease of use (74%) and time (61%). Less significant factors were custom (29%), safety (18%) and cost (4%) (Fig. 1).

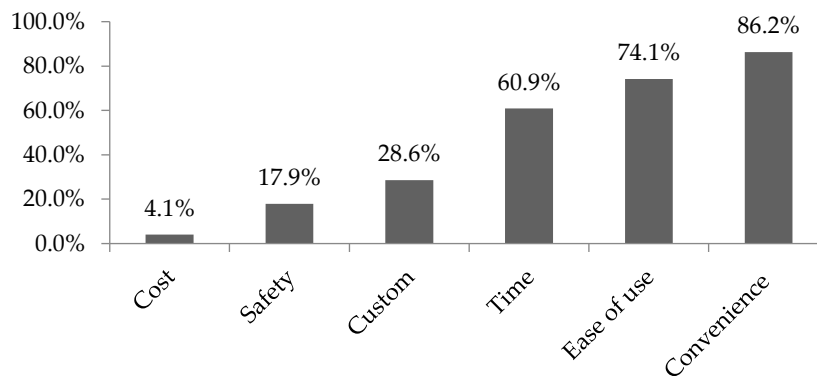


Figure 1. Factors determining the choice of a given payment method (multiple choice question).

The best-known cashless payment methods were paying card (99%), Blik (88%), NFC and HCE technologies (63%), Google Pay (49%) and Apple Pay (43%). Less popular was PeoPay (20%). Only 0.2% of the respondents knew none of the above.

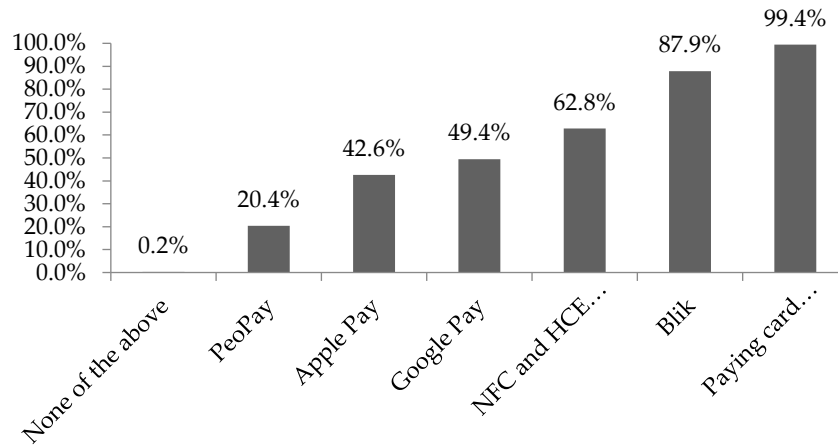


Figure 2. Payment methods known among the respondents (multiple choice question).

Table 3. Known payment methods based on gender.

			Gender	
			Female	Male
Known payment method	Paying card	Number of people	407	104
		% of people	99.3%	100.0%
	NFC and HCE technologies	Number of people	240	83
		% of people	58.5%	79.8%
	Blik	Number of people	363	89
		% of people	88.5%	85.6%
	Apple Pay	Number of people	160	59
		% of people	39.0%	56.7%
	PeoPay	Number of people	76	29
		% of people	18.5%	27.9%
	Google Pay	Number of people	186	68
		% of people	45.4%	65.4%
	None of the above	Number of people	1	0
		% of people	0.2%	0.0%
Chi-squared test of independence			$\chi^2 = 46.17; p < 0.001$	

Both women and men were similar in their knowledge about paying cards and Blik. But it was men who more often knew such cashless payment methods as NFC and HCE technologies, Apple Pay, Google Pay and PeoPay. Chi-squared test of independence shows that given differences are statistically significant ($p < 0.001$) (Tab. 3).

The representative group most often used such methods of payment as paying card (96%) and cash (92%). Less respondents chose Blik (46%), NFC and HCE technologies (26%). Even less often Apple Pay (13%), Google Pay (8%) and PeoPay (8%) were used (Fig. 3).

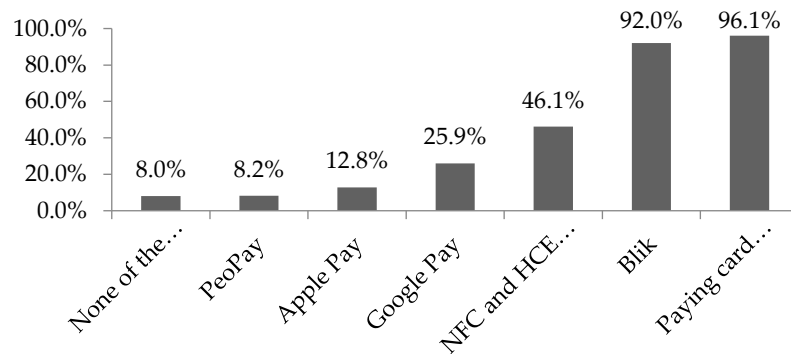


Figure 3. Used payment methods among the respondents (multiple choice question).

Table 4. Used payment methods based on gender.

			Gender		
			Female	Male	
Used payment method	Cash	Number of people	382	91	
		% of people	93.2%	87.5%	
	Paying card	Number of people	393	101	
		% of people	95.9%	97.1%	
	NFC and HCE technologies	Number of people	96	37	
		% of people	23.4%	35.6%	
	Blik	Number of people	189	48	
		% of people	46.1%	46.2%	
	Apple Pay	Number of people	51	15	
		% of people	12.4%	14.4%	
	PeoPay	Number of people	36	5	
		% of people	8.8%	4.8%	
	Google Pay	Number of people	25	17	
		% of people	6.1%	16.3%	
	None of the above	Number of people	0	0	
		% of people	0.0%	0.0%	
	Chi-squared test of independence			$\chi^2 = 24.07; p = 0.001$	

Women used cash, paying card, Blik and Apple Pay as often as men. Men chose NFC and HCE technologies and Google Pay more often than women. On the other hand, women used PeoPay more than men. Chi-squared test of independence shows that given differences are statistically significant ($p = 0.001$) (Tab. 4).

More than a half of the respondents used cashless payment methods every day (63%). Other people in the representative group used them 2-3 times a week (25%), once a week (7%), once a month (2%) or less often than a month (1%). Only 2% of the respondents did not use cashless methods of payment at all (Fig. 4).

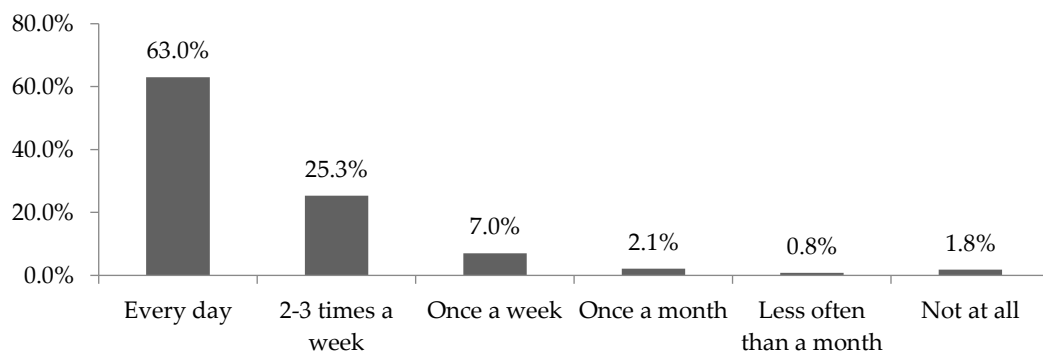


Figure 4. Frequency of use of cashless payment methods.

Table 5. Values of Spearman's rank correlation coefficient. The relationship between the place of residence and the frequency of use of cashless payment methods.

	Frequency of use of cashless payment methods	
Place of residence	Spearman's rank correlation coefficient	-0.21
	Significance (both-sided)	<0.001

The analysis of the correlation using Spearman's rank correlation coefficient shows statistically significant relationship between the place of residence and the frequency of use of cashless payment methods. The respondents living in large cities more often used cashless payment methods than citizens of smaller cities ($p < 0.001$) (Tab. 5).

Goods that were most likely purchased with cash were: dinner at a restaurant (44%) and vending machine snacks (33%). Less often cash was used to buy a car and electronic equipment (19%), and rent (17%). Seldom people paid with cash for groceries (17%), clothes (13%), cigarettes and alcohol (11%), jewellery (7%), petrol (7%), and cosmetics and perfume (6%) (Fig. 5).

Goods that were most likely purchased with paying card were: groceries (66%), and clothes (45%). Less often paying card was used to pay the rent (31%), dinner at a restaurant (29%), vending machine snacks (25%), petrol (25%), cosmetics and perfume (21%), or car and electronic equipment (17%). Seldom people paid with paying card for jewellery (8%), or cigarettes and alcohol (8%) (Fig. 6).

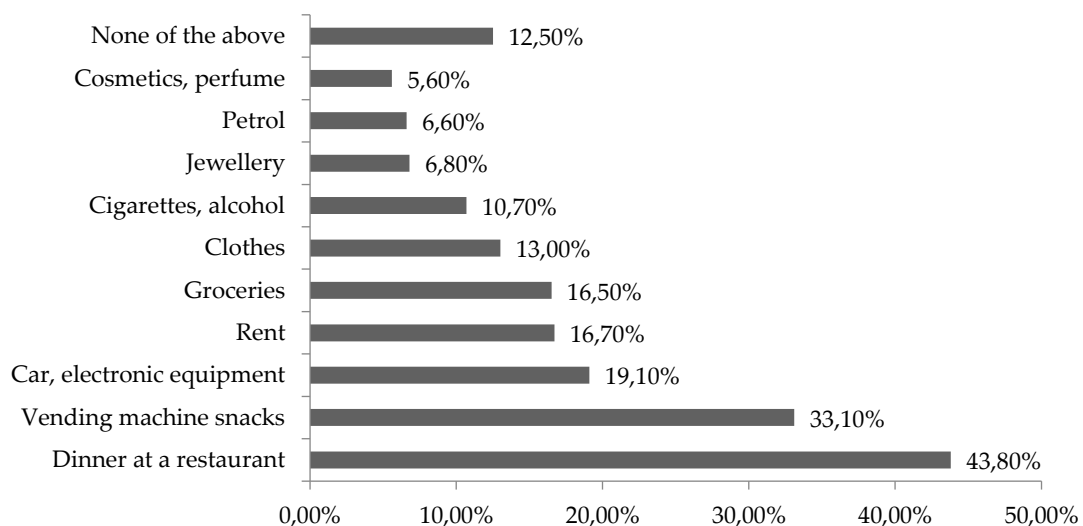


Figure 5. Goods most likely paid with cash (multiple choice question).

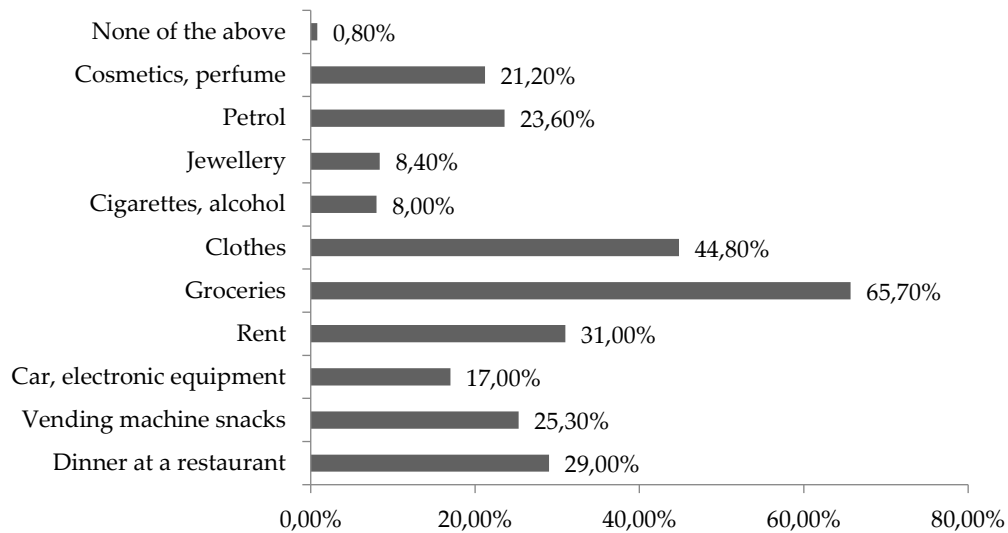


Figure 6. Goods most likely paid with paying card (multiple choice question).

Almost everyone in the representative group agrees that growing popularity of the Internet influences the frequency of use of cashless payment methods (97%) (Fig. 7).

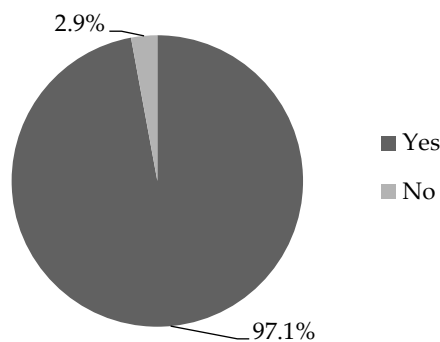


Figure 7. Is the growing popularity of the Internet influence the frequency of use of cashless payment methods?

The majority of the representative group (57%) claimed that cash and paying card were indifferent to each other in terms of their cost. 31% of the respondents reckoned that paying card was more expensive than cash, while 12% had the opposite opinion (Fig. 8).

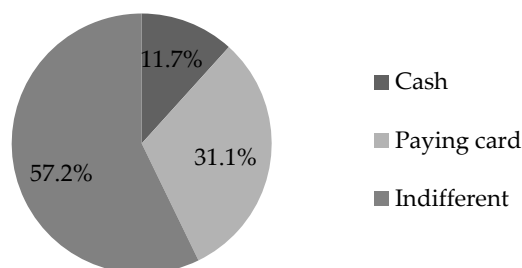


Figure 8. The most expensive payment methods.

Table 6. The most expensive payment methods based on gender.

			Gender	
			Female	Male
The most expensive payment methods	Cash	Number of people	41	19
		% of people	10.0%	18.3%
	Paying card	Number of people	127	33
		% of people	31.0%	31.7%
	Indifferent	Number of people	242	52
		% of people	59.0%	50.0%
Chi-squared test of independence			$\chi^2 = 6.06; p < 0.048$	

Men more often than women claimed that cash was more expensive. More women thought that cash and paying card were indifferent to each other. The differences between genders are statistically significant ($p = 0.004$) (Tab. 6).

Table 7. The most expensive payment methods based on place of residence.

			Place of residence		
			Country and cities (less than 20k inhabitants)	Cities (less than 200k inhabitants)	Cities (more than 200k inhabitants)
The most expensive payment methods	Cash	Number of people	14	15	31
		% of people	9.4%	13.6%	12.2%
	Paying card	Number of people	62	29	69
		% of people	41.6%	26.4%	27.1%
	Indifferent	Number of people	73	66	155
		% of people	49.0%	60.0%	60.8%
Chi-squared test of independence			$\chi^2 = 10.97; p < 0.027$		

The citizens of medium and large cities more often claimed that these two payment methods were indifferent to each other, whereas people living in the country and in small cities thought that paying card was more expensive (42%). The differences between the groups are statistically significant ($p = 0.027$) (Tab. 7.)

The majority of the respondents had only one paying card (69%), while 21% of the representative group had two paying cards or more (8%) (Fig. 9).

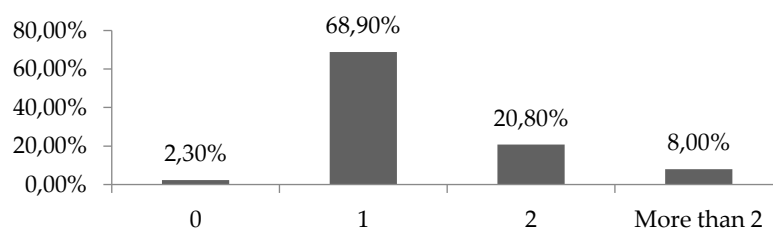


Figure 9. The number of paying cards in possession.

Table 8. The number of paying cards in possession based on the education level and place of residence.

		The number of paying cards in possession
Education level	Spearman's rank correlation coefficient	0.16
	Significance (both-sided)	<0.001
	Spearman's rank correlation coefficient	0.15
Place of residence	Significance (both-sided)	0.001

The analysis of the correlation using Spearman's rank correlation coefficient shows statistically significant relationship between the education level ($p < 0.001$), place of residence ($p = 0.001$) and the number of paying cards in possession. The respondents with higher education level, living in large cities were more likely to have a few paying cards (Tab. 8).

The most preferred type of paying card was the proximity card (65%). Only 8% would rather choose the traditional card, and 25% of the representative group were indifferent to two options.

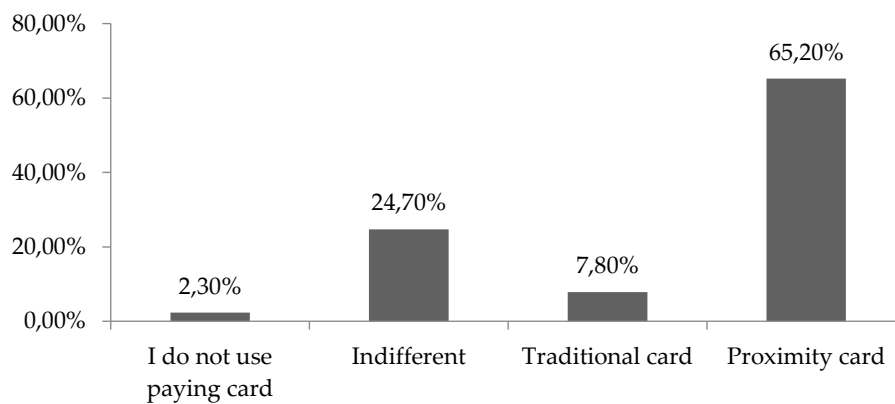


Figure 10. Preferred paying card.

5. Discussion

According to the findings of the survey young Polish consumers know a lot about innovative payment methods and prefer them over cash. M. Grzywińska-Rapca and M. Grzybowska-Brzezińska came to the same conclusion. Moreover, the survey showed that there is statistically significant relationship between place of residence, education level and the payment method that would be chosen. The reason for that may be that in larger cities more shops offer the possibility of cashless payments. Apart from that, more educated people are usually more eager to expand their knowledge in various fields. Thus, they would be more likely to look for newer and more innovative methods of payment. It is similar in the case of the number of possessed paying cards (Fig. 9). More educated people living in larger cities would have more paying cards. This is another proof that the level of education and place of residence have an influence on the choice of the payment method. Furthermore, the survey indicates that men know more methods of payment and use them more actively than women. It can be because men are usually more interested in technological novelties than women. It needs to be highlighted that in some cases even though people knew some payment method, they did not necessarily use it. A good example is Blik because 87.9% of the representative group knew this payment method and only 46.1% used it actively.

When purchasing a certain basket of goods, i.e. dinner at a restaurant, groceries, clothes, petrol, cosmetics and perfume, the respondents had preferences towards either cash or cashless payments (Fig. 5 and 6). When they were paying for the rest of the goods stated in the research, the respondents were indifferent to which payment method they would choose. The reason for that might be that people usually share a bill at the restaurant, and cash is an easier way of splitting the amount of money that has to be paid. Thus, the conclusion can be drawn that convenience is an important factor when choosing the payment method. On the other hand, the respondents were more likely to pay with

paying card for groceries, clothes, petrol, cosmetics and perfume. All of these goods are products used on a daily basis, so it is probable that people buy them when they are in a rush, just after they leave school or work. They would like to save as much time as possible and paying card seems to be the most suitable way of paying to fulfill that need. As seen in Fig. 9, proximity cards are the most preferred ones. It is obviously a quicker way of purchasing because there is no need for counting money and waiting for a change. Hence, it is possible to draw a conclusion that time is another significant factor when the payment method is being chosen. As opposed to that finding, M. Kapler claims in her work that the society perceives cashless payment methods more time consuming. Nevertheless, her conclusion also supports the idea that time is a significant factor in deciding upon the method of payment.

Cost is not a factor that would influence the choice of the payment method among young Polish consumers (Fig. 8). However, it has to be pointed out that the inhabitants of the country and smaller cities perceived paying card to be more expensive. That finding supports the conclusion that place of residence may influence the choice of payment method. Moreover, one could state that cost would be a significant factor when the inhabitant of the country or a small city chooses the method of payment.

6. Conclusion

All in all, above findings confirm the hypothesis of the work that the main factors determining the decision when young Polish consumers choose one of the innovative payment methods are time, convenience and ease of use (Fig. 1). To the same conclusion came M. Sołtysiak in his work, when he stated that convenience is important for young Polish consumers. The only limitation to the research was lack of data about the use of certain payment methods in Poland (Apple Pay and Google Pay). Nevertheless, in the days to come it is possible that more information would be gathered, and other researchers would be able to examine this topic even more deeply.

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