Generational differences in payment habits and solutions in the digital space

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Abstract: With the rise of digitalisation, payment habits and solutions have undergone a significant transformation, which is also driven by generational differences. Our study aims to explore how the payment preferences and habits of each generation differ in the digital space. Older generations tend to prefer more conservative payment methods, such as credit cards or cash, while younger generations are more open to modern, innovative solutions such as mobile payments and cryptocurrencies. Our paper highlights the extent to which technological developments and digital literacy are influencing the payment habits of different generations, and how the role of security and convenience is shaping the payment choices of different age groups. The study focuses on the financial literacy of each generation, including how to navigate 21st century finance. It is no exaggeration to say that not everyone has the same knowledge or understanding of modern finance. However, effective financial decision-making requires not only an understanding of traditional finance, but also the ability to keep abreast of the financial changes of the modern age. This study will hopefully shed light on the importance of the subject and the importance of developing financial literacy. We can strongly assume that financial literacy can be characterised at very different levels when looking at different generations, so it seems worthwhile to look more closely at the level of financial literacy among different generations. However, the present study focuses on financial habits and solutions.

Keywords: Digitalisation, Financial habits, Financial literacy, Generations.

1. Introduction

Different generations have grown up in different economic, social and technological contexts, which has a significant impact on their attitudes towards different payment methods. Not only their payment habits but also their shopping habits, for example, may differ greatly, but at the same time their financial habits may not be very similar. Understanding these differences is key for financial service providers and for companies and businesses interested in innovation, as it allows them to better adapt to the changing needs and expectations of customers [1]. Understanding the acceptance and use of different payment methods can help financial institutions and businesses to provide more targeted and efficient services [2]. Studying payment habits also provides an opportunity to identify barriers that hinder the uptake of different payment solutions. For example, older generations may often be distrustful of new technologies, which can slow down the adoption of innovative solutions. Identifying and addressing these barriers is key to market development. More generally, some generations may see technological change as an innate ability, while for earlier generations, education and adaptation are necessary to make new technology usable. The same can be said of finance, where new financial innovations or payment habits are less widespread than traditional solutions. We can also assume that previous generations are not less familiar with modern finance or new technologies because they are not able to apply or master them. With the right knowledge transfer and training, earlier generations could be

enabled to become more comfortable with these technologies themselves, but this would require time, will and a certain amount of willingness to improve on the part of all [3].

2. Literature Review

First of all, we need to understand what is meant by the term 'payment behaviour'. Generational differences have been studied from quite a number of angles, for example, it is very fashionable to analyse and compare their consumption habits. At the same time, consumption implies the movement of money, so individuals of different generations have to make financial decisions from time to time and are themselves regularly involved in payment activities [4]. Payment habits are a set of activities and preferences that determine how and in what way individuals and organisations conduct their financial transactions. These habits depend on a number of factors, including technological developments, the economic environment, cultural background and individual preferences [5][6][7][8]. In particular, digitalisation has brought significant changes, transforming and changing the characteristics of our everyday payments as a whole new trend [9]. Understanding payment habits is key for financial service providers and businesses, as it allows them to better serve their customers and adapt to changing market needs [10]. In order to understand the generational differences in payment habits, it is first important to clarify how different generations relate to technological innovations and financial transactions [11][12][13]. It is clear and has been demonstrated in several publications or research studies that the attitudes of the different generations differ considerably. The generations have grown up in different social, economic and technological environments, which significantly influence their payment habits [14]. The Baby Boomer generation, born between 1946 and 1964, grew up in an era when technological progress was relatively slow [15]. This generation is used to traditional payment methods such as cash and cheques. For them, carrying out financial transactions in a physically tangible form was the norm. Members of the older generation are often more conservative when it comes to introducing new technologies. They may be wary of electronic payment solutions, unsure of their security and reliability [16][17]. For them, cash payments are the familiar and secure way of making financial transactions and they often refrain from online purchases or make minimal use of internet banking [18]. Generation X members, born between 1965 and 1980, grew up in a period of technological transition. They have witnessed the spread of computers and the internet, which has had a significant impact on their payment habits [19]. Generation X members are frequent users of debit cards and online banking, but still have reservations about the latest digital payment solutions. This generation appreciates the convenience and benefits of technology, but at the same time pays great attention to security. Online bank transfers and credit cards have become an everyday part of their financial lives, but they still need physical proof of their transactions, for example in the form of receipts or bank statements. Millennials, born between 1981 and 1996, are already born into the digital age [20][21][22]. For them, technology is an everyday and indispensable part of their lives. This generation is closely associated with digital technologies and innovative payment solutions. Mobile payments, online shopping and contactless payments come naturally to them and are an integral part of their daily lives. Convenience and speed are of paramount importance to the millennial generation. They are keen to use mobile apps such as Apple Pay, Google Wallet and other similar services that allow them to pay quickly and easily without having to carry cash or a debit card. They are also open to new technologies and innovations, such as cryptocurrencies, although their use is not yet widespread among this age group [16]. Generation Z, born after 1997, are the true natives of the digital age [20] For them, digital technology and the internet are not just tools, but an essential part of their daily lives. This generation does not know life without the internet and mobile phones and, accordingly, digital payment solutions are completely natural for them. Generation Z members are open to the latest and most innovative payment solutions, including mobile payments, cryptocurrencies and new emerging technologies such as blockchain-based transactions. For them, speed, convenience and security are paramount. Contactless payments, biometric identification and the use of smart devices are

commonplace and natural for them [16]. Generational differences in this respect are striking and this study aims to demonstrate that such differences are indeed observed in payment habits, for example.

3. Material and Method

A questionnaire survey was conducted and distributed on different platforms, through which it reached all generations interested in finance. The questionnaire contained closed questions, i.e. there was no possibility to provide individual answers. We wanted to know what they think about different payment habits and solutions, which payment methods they prefer and how aware they are about them. We also looked at how the proportion of responses was distributed between the different generations, which gave us more precise conclusions. A total of 571 responses were received, more than half of which were from Generation X, the remainder from Generation Z and Y. The results of the survey were evaluated using SPSS software. We mainly used basic statistical methods, but also performed analysis of variance and cross tabulation analysis. Analysis of variance (or ANOVA) is a statistical method often used to analyse relationships between different groups. Basically, it is used to determine whether the average differences between groups are really significant or whether they are simply the result of chance. This is indicated by the significance value, which is interesting when it is below 5%. Cross-tabulation analysis is also a statistical method used to examine the relationship between two or more variables, particularly categorical variables. We have examined row and column percentages and the relevant results are incorporated in the paper. The sample composition is shown in the figure below:
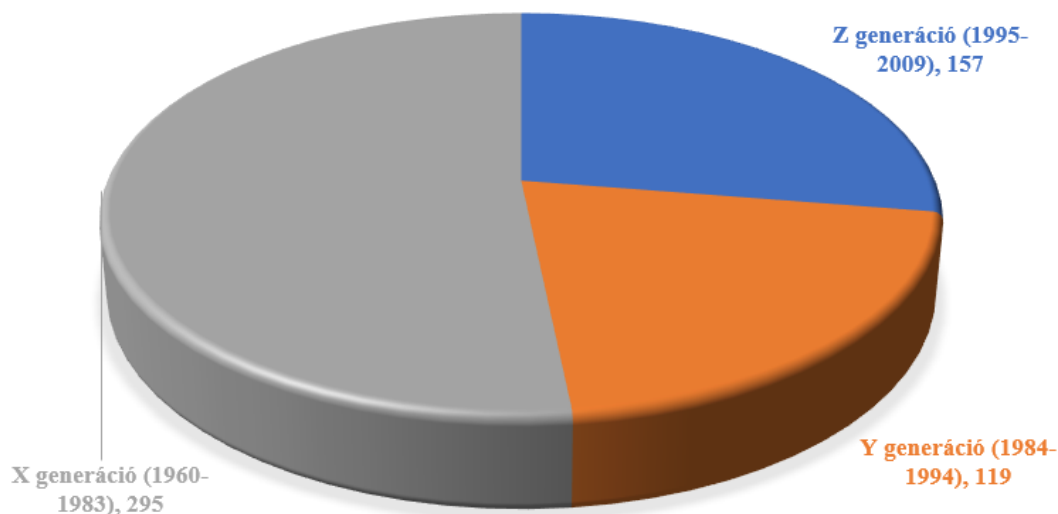

Figure 1.
Sample composition by age of respondents.
Note: N = 571.

4. Results

For the statements below, a Likert scale of 1 to 4 was used to measure respondents' agreement with the statements made. The lowest value on the scale was total disagreement, the highest value was total agreement, and means and standard deviations were calculated. The mean (or median) is the sum of the data divided by the number of data. It usually gives the representative value of the data, i.e. what the data are 'on average'. The standard deviation is a statistical indicator of how much the data deviate from the mean. The larger the standard deviation, the greater the dispersion of the data from the mean, and conversely, the smaller the standard deviation, the closer the data are to the mean.

The average response to the statement "I pay cash out of habit" is 1.637. This means that the

majority of respondents disagree, although some agree. It is possible that some people use cash out of habit, although the majority do not. The average response to the statement "Cash is better because it is tangible, I can see how much money I have" is 1.996. This result means that more people pay with cash because of its physical presence than out of habit. The average response to the statement "I use cash because I am afraid of being ripped off and other problems" is 1.511. The response rate reflects that the vast majority of people disagree with this statement, although there are some who do. The average response to the statement "I pay with cash because I don't have a bank card" is 1.124. This suggests that the majority of people have and use a bank card. This result also reflects the growing popularity of digitalisation in public life. The average response to the statement "I prefer to pay with cash because I don't trust modern electronic systems" is 1.478. This suggests that the majority of people trust digital payment systems, although there are some who prefer older methods. The average of these responses leads to the conclusion that the majority of people are used to the benefits of the digital space and are therefore confident in using electronic payment solutions. There are some who prefer to use cash, but also because of its physical presence and tangibility.

Table 1.
Perception of statements about cash payments.

	Mean	Standard deviation
I pay cash out of habit.	1.637	1.014
Cash is better because it is tangible, I can see how much money I have.	1.996	1.196
I use cash because I am afraid of being ripped off and other problems.	1.511	0.926
I use cash because I don't have a credit card.	1.124	0.596
If I pay cash, I think more carefully about my purchases.	2.109	1.257
I like paying cash because I don't trust the modern electronic system.	1.478	0.941

Note: N = 571.

We also examined perceptions of the statements based on the responses of each generation. We conclude that cash payments are more a characteristic of Generation Z. We also found that cash payments are not so popular, as indicated by the low mean scores on the four-point scale. What is noteworthy is that financial awareness is more pronounced among the older generation, who are the ones who are more likely to consider their purchases and less likely to trust electronic solutions.

Table 2.
Perceptions of statements about cash payments by generation.

	Z generation		Y generation		X generation	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
I pay cash out of habit.	1.771	1.031	1.471	0.872	1.634	1.051
Cash is better because it is tangible. I can see how much money I have.	2.127	1.270	1.933	1.039	1.953	1.214
I use cash because I am afraid of being ripped off and other problems.	1.631	1.015	1.345	0.657	1.515	0.961
I use cash because I don't	1.197	0.738	1.067	0.338	1.108	0.591

	Z generation		Y generation		X generation	
	Mean	**Standard deviation**	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**
have a credit card.						
If I pay cash. I think more carefully about my purchases.	1.987	1.281	2.361	1.095	2.071	1.296
I like paying cash because I don't trust the modern electronic system.	1.439	0.929	1.471	0.790	1.502	1.003

Note: N = 571.

Next, we looked at statements related to credit card payments. The average response to the statement "My debit card is linked to my phone so I can keep it with me at all times" is 2.243. Respondents like this option because it can offer a convenient way to make payments, so the debit card is always at hand when one has their phone with them. The average response to the statement "Credit card takes up less space than cash" was 2.694. This leads us to conclude that this can be an important aspect of everyday life, especially in situations where storage space is limited or where space saving is important, for example in a small bag or pocket. The average score for the statement "I prefer using a debit card because I can only pay by card in many places" is 2.303. Although the average score is lower than in the previous case, this means that for many people using a debit card may be attractive because in many places I can only pay by card. This statement may be particularly valid in places where electronic payment methods are more common or preferred than cash payments. The average rating for "I prefer to pay by bank card because I get my paycheck, my pocket money, in my bank account" is 2.520. Many people may prefer to use a bank card because they receive their paycheck directly into their bank account and can easily and conveniently use it for various payment transactions. The average rating for "Payment by credit card is easy" was 2.841. This statement received the highest average score so far. The people in the sample appreciate the fast and efficient payment processes offered by a debit card and the fact that they do not have to carry cash with them, making it an attractive option. The average response to the statement "Credit card payments are fast" is 2.876. Credit card payments allow them to make payments quickly and efficiently without having to wait for change or count returned denominations. The average response to the statement "Credit card payments are convenient" is 2.814. The high average score also indicates that people value the convenience and practicality of using a credit card for payment transactions. The average response may suggest that people prefer credit card payments over other payment methods as it allows them to manage their finances easily and conveniently without having to handle physical cash or denominations. The average response to the statement "Payment by credit card is hygienic" is 2.902. This very high score indicates that the hygienic nature of payment by credit card may be attractive to many people. People appreciate the possibility of using a bank card, which allows them to make payment transactions without physical contact with money or a POS terminal. This advantage is even more appreciated in times of COVID-19 or other infectious diseases, the importance of hygiene during payment processes is vital for many people.

The total number of "I can't see how much I spend when I pay by card" was 1,828. For the vast majority of respondents, not being able to see immediately how much they are spending with their debit card when paying by credit card could be a problem, although there are a number of solutions to this. The average score for the statement "I am afraid that someone will take money from my debit card" is 1.856. We can see that many people are concerned about the security of the money on their debit card

and fear that unauthorised persons or organisations could access their debit card and take money from it. Unfortunately, this is a real fear and many people have experienced the consequences of having their card details stolen. The mean value for the statement "I can track the value of my purchases if I pay by card" is 2.788. This value is somewhat contradictory to the question asked earlier, as it shows that credit card payments allow them to easily and efficiently track the value of their purchases. The statement is likely to suggest that people value the financial transparency and control that a debit card provides, which can help them to better control their spending and manage their money. "I don't like my debit card because I'm afraid that if I leave it I'll be charged more" was scored at 1,599. This statement is related to the previous question where a similarly low value was obtained. However, it is interesting to note that the fear that unauthorised persons or organisations might withdraw a larger amount from a bank card if it is lost or abandoned is not a significant fear for respondents.

From the response rates, we conclude that people largely prefer to use a debit card for convenience and for the traceability that banks' mobile apps provide. Also, because there is no physical contact, so it is more hygienic than using cash. The average response to this statement is 2.902 on a scale of 4, meaning that the majority of respondents agree. The means and variances presented above are shown in the table below.

Table 3.
Perceptions of statements about credit card payments.

	Mean	Standard deviation
My credit card is linked to my phone, so I can keep it with me at all times.	2.243	1.536
The credit card takes up less space than cash.	2.694	1.491
The bank card is better because in many places I can only pay by card.	2.303	1.254
I prefer to pay with a debit card because I get paid into my bank account, my pocket money.	2.520	1,480
Paying by credit card is easy.	2.841	1.584
Paying by credit card is fast.	2.876	1.575
Paying by credit card is convenient.	2.814	1.606
Credit card payments are hygienic.	2.902	1.487
I can't see how much I spend when I pay by card.	1.828	1.115
I am afraid that someone will take money from my credit card.	1.856	1.012
If I pay by card I can keep track of the value of my purchases.	2.788	1.416
I manage my money better when I pay by card.	2.110	1.251
I don't like using a credit card because I'm afraid that if I leave it, they will take more value from it.	1.599	0.987

Note: N = 571.

We also looked in more detail at generational views. In the case of credit card payments, it was found that there was no clear picture at all in terms of generations. Generation Z is more inclined towards more modern technologies, attaching importance to their simplicity, speed, convenience and hygiene, as the average scores show. Generation Y and Generation X tend to approach the issue from the work side and the awareness side. The most aware, according to the results obtained, is the oldest generation, Generation X.

Table 4.
Perceptions of statements about credit card payments by generation.

	Z generation		Y generation		X generation	
	Mean	St. dev.	Mean	St. dev.	Mean	St. dev.
My credit card is linked to my phone. so I can keep it with me at all times.	2.688	1.523	2.294	1.559	1.986	1.482
The credit card takes up less space than cash.	2.994	1.333	2.765	1.511	2.505	1.538
The bank card is better because in many places I can only pay by card.	2.350	1.109	2.361	1.267	2.254	1.322
I prefer to pay with a debit card because I get paid into my bank account. my pocket money.	2.490	1.509	2.529	1.572	2.532	1.430
Paying by credit card is easy.	3.159	1.435	2.765	1.656	2.702	1.612
Paying by credit card is fast.	3.236	1.378	2.782	1.683	2.722	1.603
Paying by credit card is convenient.	3.178	1.434	2.714	1.698	2.661	1.629
Credit card payments are hygienic.	3.274	1.124	2.782	1.637	2.753	1.562
I can't see how much I spend when I pay by card.	1.790	1.086	2.076	1.129	1.749	1.115
I am afraid that someone will take money from my credit card.	1.790	0.961	1.807	0.886	1.912	1.084
If I pay by card I can keep track of the value of my purchases.	3.064	1.279	2.681	1.478	2.685	1.445
I manage my money better when I pay by card.	2.038	1.270	2.109	1.213	2.149	1.258
I don't like using a credit card because I'm afraid that if I leave it. they will take more value from it.	1.586	0.948	1.445	0.721	1.668	1.090

Note: N = 571.

Based on analysis of variance, we were also interested in the extent to which the respondent's generational affiliation influences the perception of payments. For statements rating cash salary, we found a correlation in only two cases based on significance values, as shown in the table below. Cash use is important to them because they fear being ripped off or defrauded, and in the case of cash purchases, better traceability was where we found a correlation based on the analysis of variance results.

Table 5.
Perceptions of cash pay statements and the effect of generational affiliation (Variance analysis).

		Sum of squares	df	Mean square	F	Sig.
I pay cash out of habit. Cash is better because it is tangible. I can see how much money I have. I use cash because I am afraid of being ripped off and other problems.	Between groups	6.105	2	3.052		
	Within groups	579.853	568	1.021	2.990	0.051
	Total	585.958	570			
I use cash because I don't have a credit card. If I pay cash. I think more carefully about my	Between groups	3.743	2	1.871		
	Within groups	812.250	568	1.430	1.309	0.271
	Total	815.993	570			

		Sum of squares	df	Mean square	F	Sig.
purchases.						
I pay cash out of habit. Cash is better because it is tangible. I can see how much money I have. I use cash because I am afraid of being ripped off and other problems.	Between groups	5.547	2	2.774	3.261	0.039
	Within groups	483.129	568	0.851		
	Total	488.676	570			
I use cash because I don't have a credit card. If I pay cash. I think more carefully about my purchases.	Between groups	1.302	2	0.651	1.840	0.160
	Within groups	200.870	568	0.354		
	Total	202.172	570			
I pay cash out of habit. Cash is better because it is tangible. I can see how much money I have. I use cash because I am afraid of being ripped off and other problems.	Between groups	10.326	2	5.163	3.292	0.038
	Within groups	890.942	568	1.569		
	Total	901.268	570			
I use cash because I don't have a credit card.	Between groups	0.405	2	0.202	0.228	0.796
	Within groups	504.071	568	0.887		
	Total	504.476	570			

Note: N = 571.

The same analysis was conducted for credit card payments. Credit card payments are now more dependent on generational affiliation, which we also tested using analysis of variance. Here, the vast majority of statements are clearly influenced by generation, as shown in the table below.

Table 6.
Perceptions of bank card payment statements and effect of generational affiliation (Variance analysis).

		Sum of squares	df	Mean square	F	Sig.
My credit card is linked to my phone. so I can keep it with me at all times. The credit card takes up less space than cash. The bank card is better because in many places I can only pay by card.	Between groups	50.804	2	25.402	11.147	0.000
	Within groups	1294.359	568	2.279		
	Total	1345.163	570			
I prefer to pay with a debit card because I get paid into my bank account. my pocket money. Paying by credit card is easy. Paying by credit card is	Between groups	25.218	2	12.609	5.766	0.003
	Within groups	1242.148	568	2.187		
	Total	1267.366	570			

fast.						
Paying by credit card is convenient.	Between groups	1.458	2	0.729		
	Within groups	895.127	568	1.576		
Credit card payments are hygienic. I can't see how much I spend when I pay by card.	Total	896.585	570		0.463	0.630
I am afraid that someone will take money from my credit card.	Between groups	0.192	2	0.096		
	Within groups	1248.327	568	2.198		
If I pay by card I can keep track of the value of my purchases. I manage my money better when I pay by card.	Total	1248.518	570		0.044	0.957
I don't like using a credit card because I'm afraid that if I leave it. they will take more value from it.	Between groups	22.317	2	11.159		
	Within groups	1408.180	568	2.479		
My credit card is linked to my phone. so I can keep it with me at all times. The credit card takes up less space than cash.	Total	1430.497	570		4.501	0.011
The bank card is better because in many places I can only pay by card.	Between groups	28.365	2	14.183		
	Within groups	1385.806	568	2.440		
I prefer to pay with a debit card because I get paid into my bank account. my pocket money. Paying by credit card is easy.	Total	1414.172	570		5.813	0.003
Paying by credit card is fast.	Between groups	28.928	2	14.464		
	Within groups	1441.394	568	2.538		
Paying by credit card is convenient. Credit card payments are hygienic.	Total	1470.322	570		5.700	0.004
I can't see how much I spend when I pay by card.	Between groups	30.030	2	15.015		
	Within groups	1230.478	568	2.166		
I am afraid that someone will take money from my credit card. If I pay by card I can keep track of the value of my purchases.	Total	1260.508	570		6.931	0.001
I manage my money better when I pay by card.	Between groups	9.360	2	4.680		
	Within groups	699.820	568	1.232	3.798	0.023

My credit card is linked to my phone. so I can keep it with me at all times.	Total	709.180	570			
The credit card takes up less space than cash.	Between groups	1.897	2	0.949		
	Within groups	582.327	568	1.025		
The bank card is better because in many places I can only pay by card. I prefer to pay with a debit card because I get paid into my bank account. my pocket money.	Total	584.224	570		0.925	0.397
Paying by credit card is easy.	Between groups	16.449	2	8.225		
	Within groups	1126.910	568	1.984		
Paying by credit card is fast. Paying by credit card is convenient.	Total	1143.359	570		4.145	0.016
Credit card payments are hygienic.	Between groups	1.261	2	0.631		
	Within groups	890.788	568	1.568		
I can't see how much I spend when I pay by card. I am afraid that someone will take money from my credit card.	Total	892.049	570		0.402	0.669
If I pay by card I can keep track of the value of my purchases.	Between groups	4.231	2	2.116	2.181	0.114
	Within groups	550.928	568	0.970		
	Total	555.159	570			

Note: N = 571.

5. Conclusions

For Baby Boomers and Generation X, demand for traditional banking services is higher, which sustains the demand for physical bank branches and ATMs. However, for millennials and Generation Z, the demand for digital banking services continues to grow, encouraging financial institutions to develop innovative digital solutions. The older generations' distrust of electronic and digital payment solutions is prompting financial service providers to place increased emphasis on security and reliability. At the same time, the demand of younger generations for fast, convenient and innovative payment solutions is driving the continuous development of new technologies and services. In the future, the focus is expected to shift even more towards digital and innovative payment solutions. Older generations will gradually adapt to new technologies, while younger generations will remain at the forefront of innovation. Technologies such as artificial intelligence, blockchain and biometric identification will play an increasingly important role in payment systems. AI-based solutions will enable personalised financial advice and rapid fraud detection, while blockchain technology will enable safer and more transparent transactions. Biometric identification will increase the security and convenience of payment systems, especially for mobile payments and online purchases. The different needs and preferences of each generation will continue to shape the financial market and determine future trends and developments. It is crucial for financial institutions to understand these differences and be able to adapt to changing needs in order to remain competitive in the rapidly evolving digital age. Digitalisation will not become less present or less important in our lives. It will continue to shape and change our daily lives. The era of digital or innovative finance has begun in recent years, opening a new chapter in human history and

in payment habits.

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