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2021

**BUDAPEST BUSINESS SCHOOL FACULTY OF INTERNATIONAL
MANAGEMENT AND BUSINESS INTERNATIONAL BUSINESS ECONOMICS
TRAINING PROGRAMME MODE OF STUDY: FULL TIME INTERNATIONAL
BUSINESS DEVELOPMENT SPECIALIZATION**

Altered payment methods and behaviour due to COVID-19

Supervisor: Katalin Mérió

By: Gergő László
Csák

Table of Contents

- Table of Contents..... 5
- List of figures 6
- 1. Introduction..... 7
- 2. Cash or card? Attitude towards cash and other alternatives before the pandemic..... 10
 - 2.1 The essence of cash 10
 - 2.2 What do we use cash for? 10
 - 2.3 Most well-known alternative methods of payment today 12
- 3. The first wave of the pandemic..... 14
 - 3.1 Changing demand for cash 14
 - 3.2 The pandemic’s effect on payment behaviour..... 16
 - 3.3 Alterations concerning card payments. 17
 - 3.4 Aggregate changes in the ratio of method of payments 18
- 4.0 Effect of demographics on payment behaviour..... 20
 - 4.1 Questionnaire..... 20
 - 4.2 Demographic results 20
 - 4.3 Demographic correlations..... 21
- 5.0 Knowledge, attitude, and behaviour concerning cash and alternative methods of payment. 29
 - 5.1 Further influencers..... 29
 - 5.2 Attitudes and behaviour towards cash and AMOP..... 30
 - 5.3 Assumptions about payment methods 31
- 6.0 International overview..... 34
- 7.0 On the way to becoming a cashless society. 36
- Conclusion..... 40
- Appendices 48

List of figures

Figure 1: How do you pay for your regular shopping?	11
Figure 2: Changes in the amount of bank notes in circulation compared to March 9, 2020.	15
Figure 3: Amount of cash in circulation according to bank notes between 2006 and 2018	16
Figure 4: Changes in the number of transactions conducted by credit and debit card between 2019 Q1 and and 2020 Q2	18
Figure 5: Proportion of methods of payment in the first half of 2019 and 2020	19
Figure 6: Most preferred method of payment based on age groups regarding people's most frequently used method of payment before the appearance of the virus.	22
Figure 7: Most preferred method of payment based on age groups regarding people's most frequently used method of payment after the appearance of the virus.	23
Figure 8: Most used method of payment based on level of education regarding most frequently used payment method at regular shopping.	24
Figure 9: Most frequently used method of payment regarding the amount of salary received monthly.	26
Figure 10: Form of income regarding the most frequently used method of payment during a regular shopping	28
Figure 11: How much certain factors influence someone's choice of payment method.	30
Figure 12: Examination of attitudes concerning cash and card	31
Figure 13: People's assumption of payment methods	33

1. Introduction

The highly contagious coronavirus disease, commonly known as COVID-19 was declared a pandemic on March 11, 2020. After one year, up until 25 March 2021 there have been 124,215,843 confirmed COVID-19 cases, including 2,734,374 deaths. (World Health Organization, 2021).

Governments all around the globe, to limit the spread of the virus, introduced serious safety measures that most of the people have never had to experience before. Suddenly, crowded streets became empty, shopping centres closed all their doors, self-isolation and social distancing came to be the new trends, handwashing become more important than ever before, face masks turned out to be a regular part of our clothing and leaving the house was not everybody's privilege anymore due to government-imposed lockdowns.

As our manners of physical shopping had been strictly limited, people did not have an option, but to find other alternatives to fulfil their needs. Consequently, as in-store shopping was not possible in many cases, online shopping gained ground and has become more popular than ever before.

During the first wave of coronavirus, unproven speculations started spreading about a possible connection between handling physical cash and the growing number of COVID-19 infections. Therefore, a fraction of people, made the conscious decision of reducing their cash transactions and switched to cash-free alternatives (Raphael Auer, 2020).

In July 2020, the European Central Bank conducted a survey among euro-area countries to examine the influence of the presence of the virus on payment behaviour due to the risk of being contaminated resulting from using cash. The study shows that around 40% of those being asked reduced their usage of physical money. Moreover, 38% of them confirmed that the main stimulus for their altered payment instrument is the possibility of getting the disease via handling bank notes (European Central Bank, 2020).

During the pandemic, I also raised myself the question: "Is it safer for me to use cash-free alternatives instead of physical money?"

As I was searching for information on the topic, I came to the realisation that the reason why using other payment alternatives but cash in Hungary is not as wide-spread as our in Western neighbours is more complicated, then I first assumed.

With that being said, I had to realise that paying with a certain payment instrument is very dependent on certain variables such as education, form of income, needed infrastructure, income, profession etc.

Regarding my thesis I would like to examine how these variables influence people's behaviour and approaches when it comes to payment. I aim to present data about what makes people question their traditional instruments of payment, what factors influence somebody to use one specific type of payment method, also how willing people are to welcome new payment alternatives.

Therefore, in the first half of my thesis I would like to present pre-pandemic data about how Hungarians dealt with their finances before coronavirus, primarily focusing on their method of payment and behaviour towards cash and other alternatives of payment. Having them presented, I would like to move on and compare these with statistics from the time when the first wave of the virus reached Hungary. In this section my purpose is to either prove or contradict my first hypothesis, which is the following:

H1: The ratio of cash and electronic payments deteriorated towards the electronic alternatives in Hungary. Using innovative payment methods became the new norm.

In the second half of my thesis, I would like to deal with what makes somebody pay with a specific alternative of payment. Furthermore, I aim to find the factors that may stimulate people to change their traditional instrument of payment during the pandemic. I would like to see whether there is a mutual preference among certain groups of people that makes them choose a specific alternative over the other ones, as well.

Thus, my second hypothesis states:

H2: Different groups of people have various preferences regarding payment. Demographic factors influence payment method and behaviour.

Regarding both sections, due to the lack of sources, as of COVID-19 is an on-going issue, conducting a primary research was necessary. In order to find accurate information, I conducted both qualitative and quantitative research combined into the same questionnaire. My qualitative analysis, consist of 19 questions focusing on people's payment methods and demographic data. 121 people answers, which provided enough information to testify my hypotheses.

For the quantitative research I created a questionnaire as well, which concentrates mainly on how coronavirus influenced one's attitude towards their finances, also in what way the presence of the disease made people rethink their payment alternatives.

In the end, I would like to summarise my finding, and would like to emphasis the usage of alternative payment methods, as well as how changes in behaviour due to the pandemic impacted people's attitude in the long run.

2. Cash or card? Attitude towards cash and other alternatives before the pandemic

2.1 The essence of cash

Since Hungarians, unlike citizens of certain euro-area countries, still rely on cash as their main instrument of payment, thus adopting electronic payment systems is not simple even though in 2015 80,1% of all Hungarian households owned at least 1 bank card (Ilyés & Varga, 2016). Furthermore, in 2016, according to the data provided by online cash-registers connected to Nemzeti Adó- és Vámhivatal, out of all transactions the value of cash was 71,2%, while the number of cash transactions were responsible for 87,7% of all of transactions (Végső, Belházy, & Bódi-Schubert, 2018).

On that note, we can agree, that in Hungary cash as a medium of exchange is still essential. However, despite the rising popularity of cashless options, the amount of cash being in circulation also has been increasing by 14% annually on average since 2012 indeed (Magyar Nemzeti Bank, 2019). Furthermore, according to data provided by Magyar Nemzeti Bank, in 2019 its value exceeded 6,500 billion HUF. Although, this number strongly contradicts the assumption that electronic payment methods are taking over the rule of cash (Végső, 2020).

One might be thinking how it is possible that both the ratio of cash and card usage are increasing at the same time. The reason behind the growing proportion of circulating cash will be discussed later in Chapter 3.

2.2 What do we use cash for?

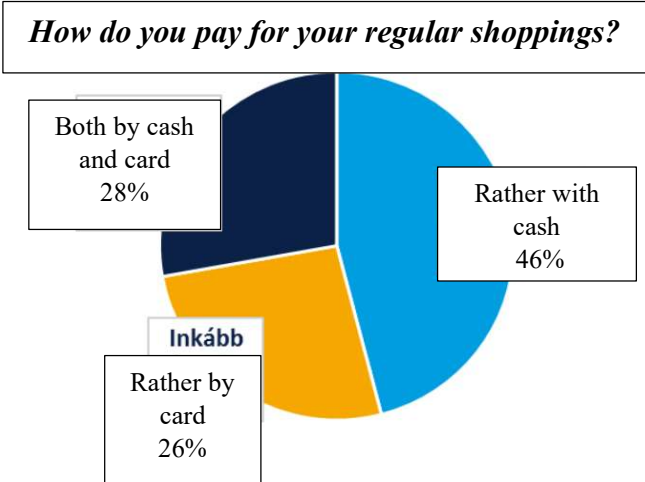
As our nation's economy is growing and evolving, so does the amount of cash flow. However, a significant fracture of transactions are conducted via cash-free alternatives, thus the real amount of cash is very dependent on cashless transactions, the needed infrastructure for these type of transactions, and also what kind of attitude the citizens have towards cash-based and non-cash-based transactions.

In order to see how we handle our finances, I am going to examine three index number, transfers, ratio of using electronic alternatives at regular shopping and also paying bills in an electronic way. To get the most exact information I am going to be using results from a survey of 1500 respondents conducted by Magyar Nemzeti Bank in 2017, which was about

people’s attitude towards cash. Firstly, I would like to begin with the first index number, which is transfers. In this case I am going to concentrate on in what form citizens get their salary. Based on the results, 74% of those being asked responded, that they get their full salary in form of transfers compared to the EU average, which is 84%. At 5% stands the ratio of those who get their salary as a mixture of cash and transfer, and an outstanding 21% of the respondents get their salary in form of cash. At this point it is important to highlight, that based on this 21%, we can conclude, that at least 1/5 of those being asked pays for their daily groceries and utilities in form of cash as they do not have any income via transfers (Belházyiné, Bódi-Schubert, & Végső, 2018). Based on this information, it is clear, that Hungary is not far behind the EU average, we, as a nation, are showing an increasing tendency.

Let us move on to the next index number, which is related to the daily purchases. The pie chart depicted below, represents data about what payment method those answered use daily. As we can see only 26% of 1500 respondents said, that they used card when it comes to their daily transactions (Belházyiné, Bódi-Schubert, & Végső, 2018). However, the European Central Bank conducted a study in 2020, and it shows that 73% of adult consumers from the euro area used cash for their point-of-sale transactions, leaving only 27% for all other electronic transactions (European Central Bank, 2020). On such information, we can presume, that Hungary shows quite the same tendency in case of handling cash at person-to-person retail transactions than those euro area countries represented in the study.

Figure 1: How do you pay for your regular shopping?



Source: MNB

Lastly, I would like to deal with people's attitude towards paying their bills. According to the study of Magyar Nemzeti Bank, 67% of the respondents declared that they still used cash when it comes to utility bills, and only 29% of them conducts it via cash-less options (Belházyiné, Bódi-Schubert, & Végső, 2018). Despite of showing a similar tendency in case of transfers, unfortunately, based on a study with 41,155 respondents in 2019 by European Central Bank shows, that within the euro area only 11% of all bill payments happened via using cash, which is equivalent to a 56% difference (European Central Bank, 2020). As a conclusion, I can state that regarding transfers and regular shopping, Hungary is maintaining an average euro area tendency, but in case of utilities, we are far behind. However, someone's behaviour towards payment is very dependent on plenty of demographic factors, especially in case of utility bills, which will be discussed in the following chapter of my thesis.

2.3 Most well-known alternative methods of payment today

As we have seen in the last chapter, Hungary is still very dependent on cash. However, we have also seen, that besides cash there were several payment methods that are used on a daily basis. In this section, I would like to present the most used and well-known alternative payment methods.

First of all, I would like to start with debit cards. A debit card is a type of card that is specialized for payment purposes. Basically, it deducts money directly from the customer's bank account. As it is connected to the bank account, it allows people to buy goods and services, but also can be used for withdrawing cash from ATM machines. What differentiates it the most from a credit card is, that in case of a debit card, only that amount can be spent, which is equal to the size of the bank account. These kinds of cards are usually issued by the major card-payment processors, Visa and Mastercard. When it comes to either purchasing goods and services, or withdrawing money, debit cards work in the same way. It draws the funds immediately from the affiliated bank account; therefore, overspending is not possible. These cards also tend to have a preset daily limit, which cannot be exceeded within a 24-hour timeframe. Fortunately, in case of debit cards, there are no annual membership fees. However, if we would like to withdraw cash more than two times a month, we sure will get charged with ATM fees (Fontinelle, 2021).

Secondly, I would like to move on to credit cards. A credit cards, just like debit card, is a thin rectangular plastic or metal card, that makes the cardholder able to borrow funds with which the cardholder will be able to pay for the required goods and services, as well as withdraw

cash. However, credit cards come with pre-imposed conditions, meaning that the cardholder is obliged to pay back the borrowed money, plus the applicable interest, as well as additional agreed-upon charges. Mostly credit cards charge a higher interest rate, than other forms of loans. Usually, interest charges are imposed one month after purchase, unless the previous unpaid balances had been carried forward from previous months. However, according to the law, the issuer of the credit card must provide a grace period, consisting of minimum 21 days before imposing any interest (Bloomenthal, 2021).

Next, I would like to present the idea behind prepaid cards. It can be best defined as a standard credit card, that works like a debit card. Before using it, the cardholder must frontload them in order to be able to pay with it. Fortunately, accountholders do not have to worry about exceeding their limit, as only that amount can be spent, that had been frontloaded before. Since, in case of prepaid cards, we are not borrowing money, there are no hidden fees, or interest rates (Bankrate, 2021).

As my fourth bullet point, I will be moving on to wire transfers. Wire transfer is basically transferring funds through a network that is administered and checked by hundreds of banks and transfer agencies, in an electronic way. It allows individuals, or entities to transfer funds to others, while maintaining secure movement of money. By using this method of payment people in different geographical positions can transfer funds to others anytime they will. However, this method is mostly used among banks. Unfortunately, wire transfer cost money, regardless of whether it is domestic or international. The price can vary, from \$25 to \$35 per transaction in case of domestic transfers, while international transactions can reach the price of \$45 (Kagan, 2021).

Moving on, I am going to discuss E-wallets. This kind of payment method is essentially a type of electronic card, that can be used for purchasing online with the help of a computer or smartphone. In order to make it work, it needs to be connected to the persons bank account. This method of payment also can be categorized as a prepaid account, where someone can store money for future transactions. It consists of two components, a software as well as information. The software component stores the personal data, also provides security as well as encryption of data, while the information component is provided by the holder of the card including their name, shipping address, payment method also the amount to be paid (The Economic Times, 2020).

Near Field Communication, better known as NFC, is a specification for communication between devices, that are able to maintain contactless connection. It is, however limited to a

certain distance of maximum 10 centimeters between the two devices. The main idea behind it is, to make transactions more convenient, to be able to exchange digital information, as well as connect devices with a touch. NFC has the ability to read and write devices, so it is believed, that in the future it will have a much wider range of options to be used for, than nowadays. Essentially, it involves an initiator and a target. The initiator initiates and actively generates a signal and controls the exchange of data. Furthermore, we can only finish our transaction, if we pass the biometric identification along with the two-factor authentication (Curran, 2012).

Last, but not least, I would like to close this chapter with quick response payment (QR payment). Despite of not being that popular in Europe, this kind of method of payment is very widespread among Asian countries, especially in China. It can be conducted in two separate ways. One way is, when the customer must scan a QR code provided by the merchant, and the other way is vice versa, when the merchant scans the QR code, which is provided by the merchant. When the merchant scans the code of the customer, after the verification process, the pre-agreed amount will be deducted. The other method will be discussed later on, in the seventh chapter (Alipay, 2020).

3. The first wave of the pandemic

In Hungary, the first person to be registered as infected by the virus happened on 4 March 2020. As a response, on 11 March, the government declared national emergency, and introduced “exceptional rule of law”. Thus, as the rest of the countries all around the world, Hungary closed its doors as well, triggering enormous alterations in the country's economy. In this section I am going detail the changes that took place due to the pandemic.

3.1 Changing demand for cash

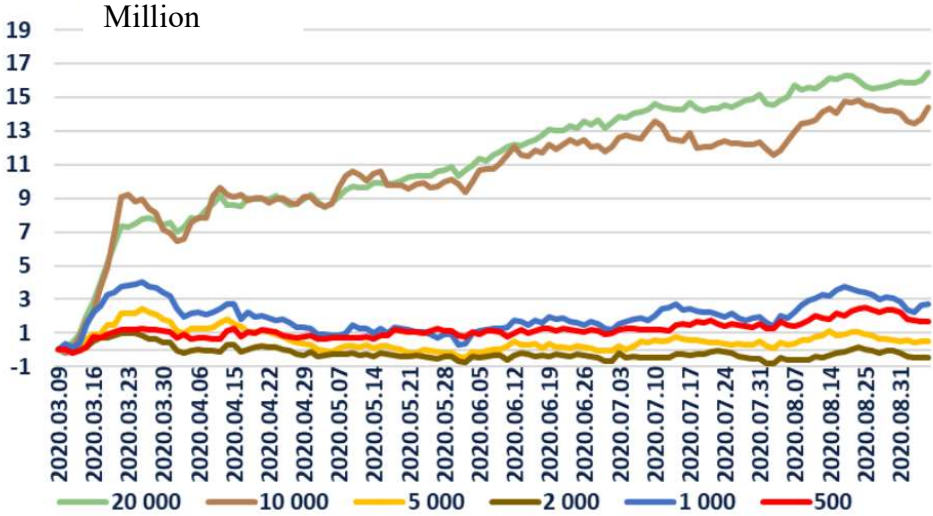
As I have already mentioned in the previous chapter, the amount of cash being in circulation is on the rise. In February 2020, this amount used to be 6,400 billion Hungarian Forints, and was showing a smaller, but still increasing growth tendency of 8,9%. However, due to the government-imposed restrictions, people’s need of cash accelerated tremendously. As a result, between 12 March and 25 March the amount of cash flowing out of Magyar Nemzeti Bank

was more, than 30,000,000,000 HUF daily on average, making it into 6,700 billion (Végső & Bódi-Schubert, 2020).

At this point it might be controversial, knowing the fact, that physical money can be contaminated with the virus. In order to understand this phenomenon, let us look at the need for individual bank notes.

According to the line chart depicted below, we certainly can see, that the sudden need for cash affected each of the bank notes. However, we must note, that the need for bigger notes, especially for the two biggest ones, the 10,000 HUF and the 20,000 HUF bill, is outstanding. What we can also see is the fact, that after the lockdowns, the demand for smaller notes shrunk. The reason for this is that after closing all the stores and service-providers that do not sell essentials, the number of transactions drop back significantly. However, as we are seeing, the growth rate of both 20,000 HUF and 10,000 HUF bills kept on increasing. Consequently, we can assume that these bills might not only serve transactional purposes.

Figure 2: Changes in the amount of bank notes in circulation compared to March 9, 2020.



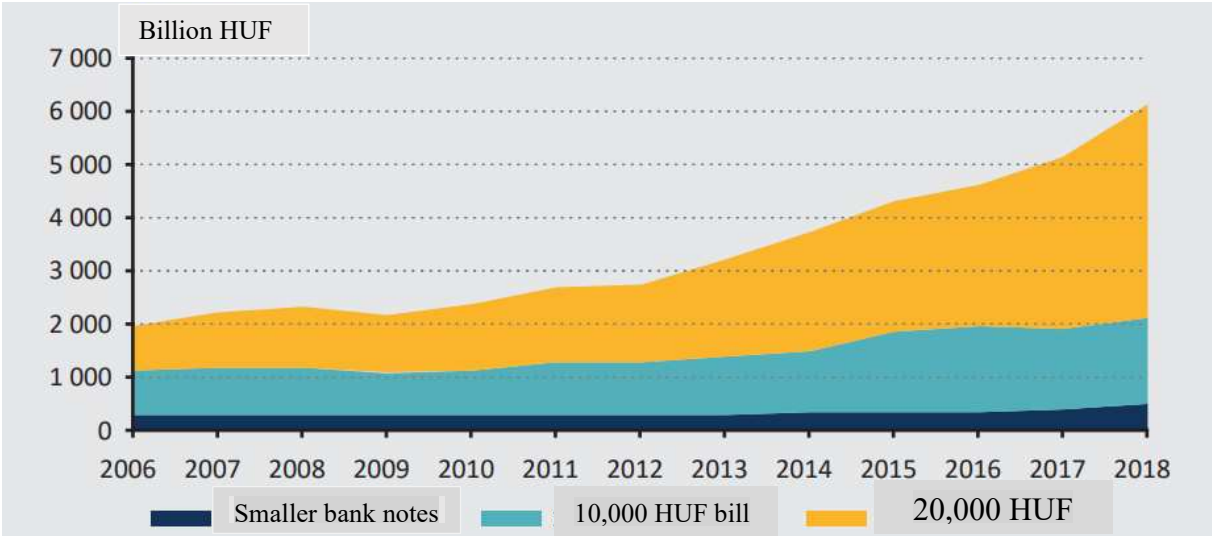
Source: MNB

To be more comprehensible, let us look at the growth ratio of bank notes on Figure 3, between 2012 and 2019. Clearly the 20,000 HUF bill was the most sought-after bill of all. Within the stated time interval, the amount of 20,000 HUF bank notes in circulation tripled, while the 10,000 HUF bill also increased by 70%. Regarding the rest of the bank notes, only a 25-40% increase can be seen. Based on the remarkable growth rate of the two biggest bank notes, we

can assume, that the reason for this is not the transactional point of view, it is all about savings in form of high value bank notes (Végső, 2020).

All in all, we can assume, that the demand for cash did not diminish, moreover it is growing faster, than ever before. However, we have to note, that it is not simply because of the growing number of transactions, but quite the opposite. It is the particular reason for the circumstance of having savings in form of high value bills.

Figure 3: Amount of cash in circulation according to bank notes between 2006 and 2018



Source: MNB

3.2 The pandemic’s effect on payment behaviour

In this section I am going to present how people’s attitude changed towards their finances. First of all, I would like to deal with physical currency. In the previous section we examined, that how cash savings impacted the volume of HUF in circulation, but at this point let us see transactional usage. The amount of cash sent from small retailers to cash processing entities serves as an accurate indicator. From March 2020 to April 2020 the amount of cash sent back for processing fall by 30%. Not surprisingly, this can be explained by the fact that during this time, a significant fracture of goods and services became unattainable because of the economy’s limitation. However, we also have to take into consideration, that people might have changed their primary instrument of payment to certain cash-free alternatives, thus avoiding contamination (Végső & Bódi-Schubert, 2020).

Based on the information, provided by the online cash registers connected to NAV, in April the number of transactions in retail reached only 59% of those registered in the previous year. Cash-based transactions were affected the most heavily, 46% less were conducted in April,

then a year before (Végső & Bódi-Schubert, 2020).

As the number of transactions declined, simultaneously the value of them increased. From January to June, the average value of cash transactions increased from 2385 HUF to 2762 HUF, while in case of cards it went from 5585 HUF to 6354 HUF, respectively (Végső & Bódi-Schubert, 2020).

Even though, cash-based transactions were most severely impacted, In Hungary cash is still the most well-known and broadly used alternative of payment. Nothing proves it better, than even during the lockdown in April 76,3% of transactions were conducted via cash, while value-wise it reached 59,2%. (Végső & Bódi-Schubert, 2020).

3.3 Alterations concerning card payments.

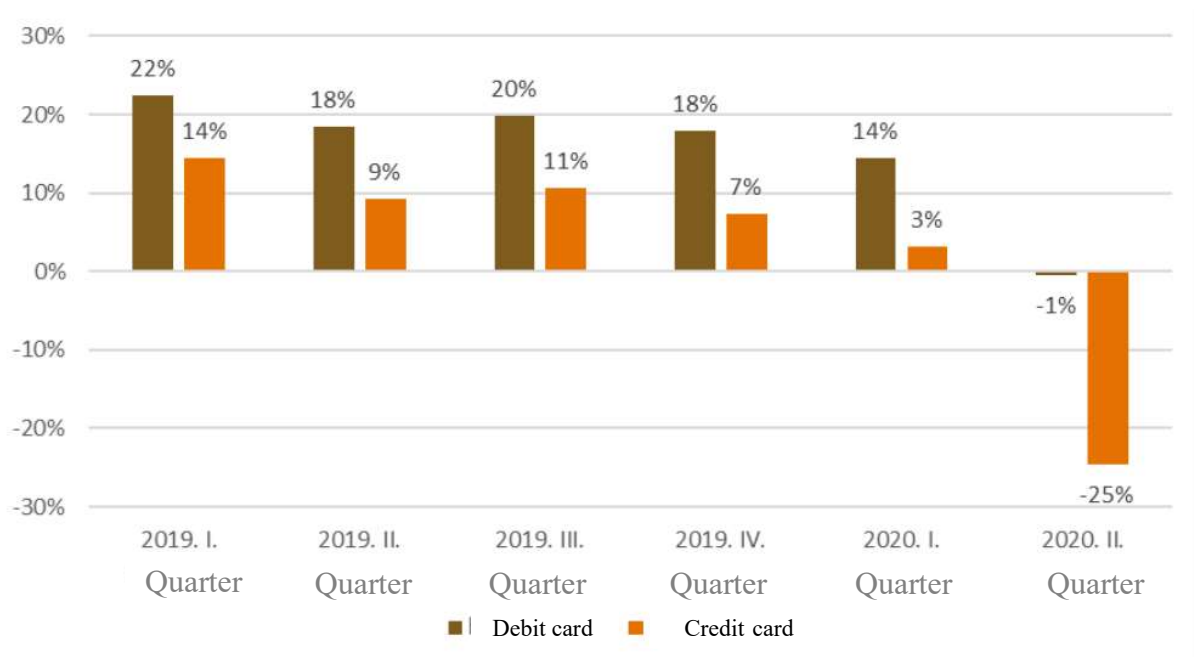
As we could see from the preceding chapters, due to the outbreak of the virus, our economy slowed down, which affected not only the usage of cash but cash-free alternatives as well. In the past years, the value of payments conducted via debit cards increased by 23% annually on average. However, due to the fact of the presence of the disease, this rising tendency dropped back to a 9% growth rate by the second quarter of 2020. Regarding the number of transactions, the annual 20% growth dropped back to 13% (Deák, Takács, & Varga, 2020). In spite of the overall decline in the economy, and the limitations of “offline shopping”, the online version of acquiring goods and services reached new heights. Compared to the second quarter of 2019, the number of domestic online transactions increased by 43%, while its value showed an astonishing 50% rate of growth. In case of foreign retailers, the results show a 18% and a 12% growth, respectively (Deák, Takács, & Varga, 2020).

In case of physical retailers, where the average growth rate of both value and number of transactions regarding card payment increased by 20% annually, they showed an 8% fall back concerning the number of the transactions. However, in value they experienced a 5% growth, by which, the average value of a purchase by a single card increased to 7669 HUF (Deák, Takács, & Varga, 2020). This might be the result of people not attending this kind of places that frequently because of safety reasons, meaning that the average value of the consumer basket increased, or also can be explained by government incentives, such as the 15,000 HUF pin-code threshold.

When it comes to the question of “what type of card do people use”, let the following bar chart depicted below give an explanation. Based on this, we can assume that the usage of credit card shrunk by 25% by the second quarter of 2020, which might be the result of people’s financial instability due to virus. However, the ratio of debit card usage fell back by

only 1%, proving that the most probable reason why people disowned their credit card was financial instability caused by COVID-19 (Deák, Takács, & Varga, 2020).

Figure 4: Changes in the number of transactions conducted by credit and debit card between 2019 Q1 and 2020 Q2



Source: MNB

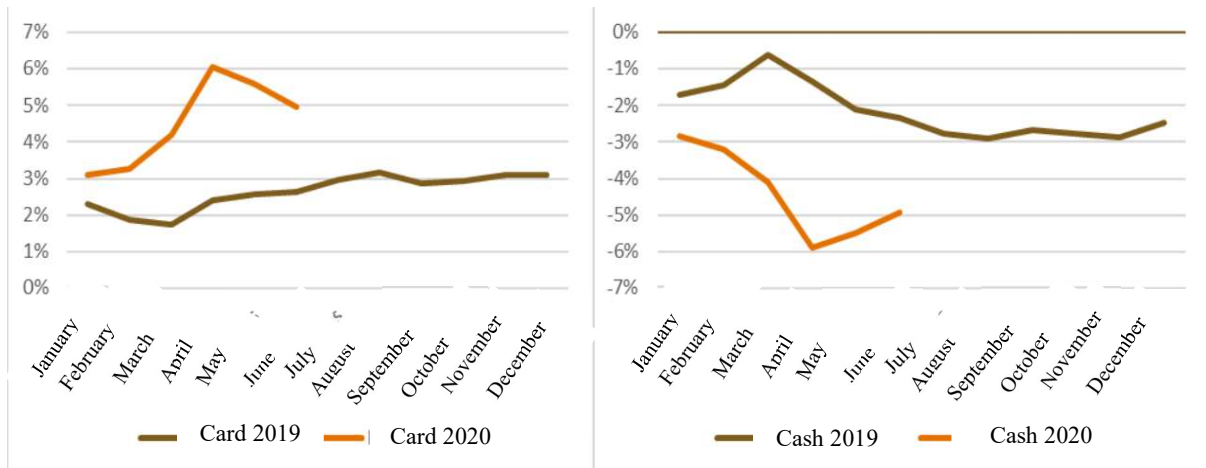
3.4 Aggregate changes in the ratio of method of payments

In recent times, during the pandemic, the development of present and new cash-free alternatives reached new heights. Every financial institution tried their best, in order to make banking from home easier, better, and attainable for the rest of the people. Thus, compared to previous years data, in 2020 the proportion of payment by card rose steeply. According to Magyar Nemzeti Bank, in the second quarter of 2020 the ratio of payment conducted via card was 23% compared to last year's 17%. Respectively, the ratio of using cash fell back to 77% from the very high 82% (Végső & Bódi-Schubert, 2020).

If we look at the monthly changes regarding the proportions of cash and card depicted below, we can assume, that there was a continuous growth until April, where it reached its peak. Though, during May and June, the sharp growth rate of card payments consolidated, but it still reached 5% compared to last years' 2-3% on average (Végső & Bódi-Schubert, 2020). However, it is important to keep in mind, that despite the growing tendency of card usage, cash remains people's favourite choice. Unfortunately, as of not having enough data yet, but

this growing tendency might stay after the end of the pandemic, deteriorating the ratio of cash and card payments completely.

Figure 5: Proportion of methods of payment in the first half of 2019 and 2020



Source: MNB

All things considered, we can presume, that in most cases, payment methods, especially cash, suffered a sharp fall back as a result of the slowed-down economy. However, if we look at the proportion of payment methods, the usage of cards showed an exceptional growth. Despite the slow-down in May and June, it still managed to keep up a 5% growth rate, making card payments responsible for 23% of all transactions. Considering its value, prior to the virus it was standing at 34%, but then increased to 40% (Végső & Bódi-Schubert, 2020).

Upon these information we can conclude, that there is a growing demand for new alternatives of payment, but yet it is too soon to conclude, that card is going to defeat cash and become the main instrument of payment in the near future. However, further growth can be expected as from 1 January 2021, in case of the having an online cash-registers, providing opportunity for card payment is a must, giving even more place for cash-free alternatives. On the other hand, as we have already experienced, the banking sector has gone through plenty of technological improvements since the breakout of the virus, meaning that 2021 might be full of surprises, when it comes new alternatives of cashless solutions.

4.0 Effect of demographics on payment behaviour

As I was looking for information about how demographic factors affect someone's payment behaviour, I had to realise, that because of the lack of reliable sources, I would have to make my own questionnaire, in order to find accurate data to testify my second hypothesis. In this section my aim is to prove, with the help of my findings, that there is a connection between one's payment behaviour and certain demographic factors.

4.1 Questionnaire

The questionnaire I created was published only in Hungarian, as I was wanted to concentrate on Hungary's situation. I tried to reach a wide range of people from the age of 16 up until the age of 60, to get even more diverse answers representing a lot of age groups. The aim of the questionnaire was to be able to draw a conclusion that demographic factors have an influence on people's payment behaviour, and I wanted to see, if COVID-19 changed the way people handle their finances regarding their payment method.

At the beginning I asked 5 demographic questions, then I asked 6 questions regarding people's most-used instrument of payment, how well they know alternative payment methods, also how COVID-19 affected their traditions of handling money. Furthermore, I tried to use mainly closed-end questions, to get a more accurate result at the end. However, I asked 2 open-ended questions which was inevitable to find out more about people's knowledge about AMOP, also whether they started using a different method of payment due to the disease. On the occasion of closing my questionnaire, I received 121 answers. The starting date of the questionnaire was 12 April, and I closed it on 1 May, as I had not been getting more fill-ins. Then I analysed the answers with the help of Microsoft Excel. With the help of the received data, I am going to be able to draw conclusions, that will help me either support or reject my hypothesis.

4.2 Demographic results

Among those 121 people, who carried out the survey, the ratio of men as well as women was 25,6% and 74,4%, respectively. According to their age, the majority, 72 people was between the age of 16 and 29, making up 59.5%. The second most-represented group was those between 40 and 49, with 22 respondents (18,2%). 11 people stated that they were over 60 years of age (9,1%), while those between 30 as well as 39 and 50 and 59 made up 7,4% (9 people) and 5,8% (7 people) of the respondents, respectively.

When it comes to the place of living, 42 people marked that they lived in a county capital, while 35 people lived in the capital, followed by those living in smaller cities with 29 people and last but not least 15 people admitted living in the countryside.

Regarding the next question, which is about the highest educational level, more than half, 52,1% (63 people) said that they own a high school degree, while another 53 people (43,8%) stated that they graduated from a university of some kind. Those taking part in post-graduate courses stands at 2,5% (3 people), while those having finished only elementary school consist of 2 people (1,7%).

Regarding my last demographic question, I asked a question concerning how many people live in the same household. Most of the respondents, 52 people (43%) stated, that they live in a household of 2 people. 25 people (20,7%) admitted that they live in a household of 4 people. 14,9% (18 people) lead their household alone, while 16 people (13,2%) live with 2 other people besides themselves. The remaining 8,3% (10 people) stated that they live in a household of five people.

4.3 Demographic correlations

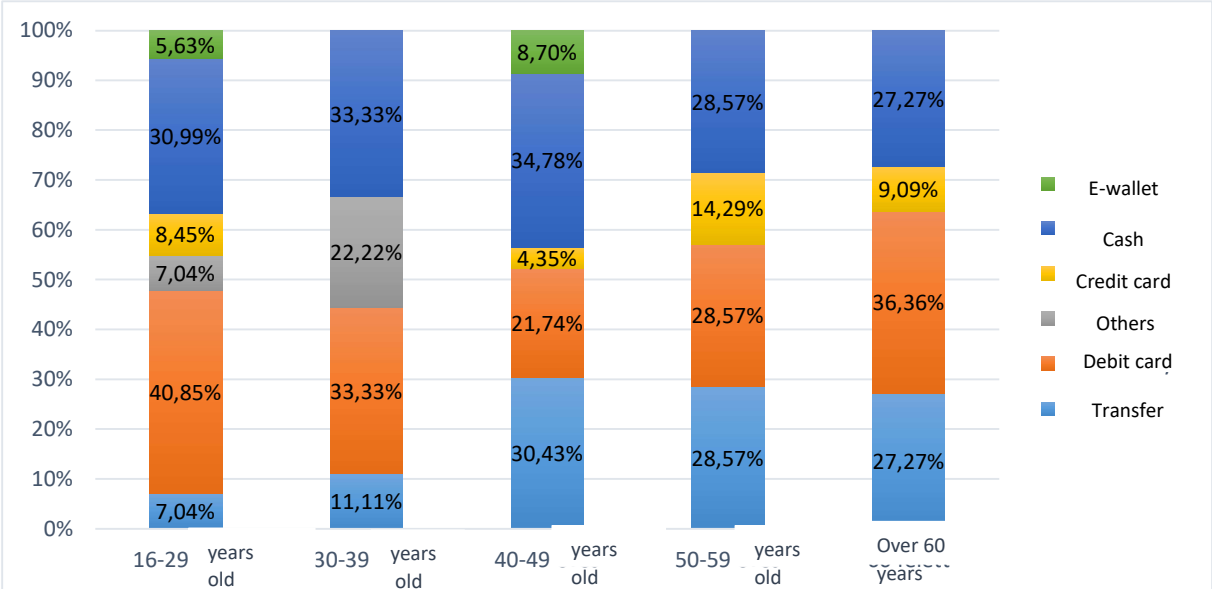
Before moving on to my next questions, I would like to dive into details of the answers for the demographic questions in order to see, whether there is any correlation between someone's payment behaviour as well as their surrounding demographic factors.

First of all, I am going to be examining the connection between age and the most preferred method of payment before the appearance of COVID-19. After having them examined, I am going to compare the data with those after the appearance of the virus.

As we can see on the stacked column chart depicted below, more than 40% of those between 16 and 29 used debit cards as their primary payment method, which makes this group the one with the highest card-using rate. Furthermore, 5,63 % of them stated, that they use an E-wallet as their main payment instrument, which is also the second highest result out of all age groups. On the basis of these pieces of information, I can conclude, that those between 16 and 29 show more willingness to get to know other alternatives of payment, then any other group studied. However, as we can see, the presence of cash is remarkable as well, standing at 30,99%. This might be explained by the fact, that in most cases, children tend to get their pocket money in form of cash, which might increase the usage of physical money among youngsters (Belházné, Bódi-Schubert, & Végső, 2018).

Those between 30 and 39 use cash and debit card equally. In their case, the presence of cash might come from the fact, that some of them may have developed a habit of using cash primarily, and they do not intend to change it, but as it appears, an equal fracture of respondents from this group switched to debit card. In case of the 40 to 49 group the same phenomenon can be observed, as 34,78% of this group uses cash as their main payment instrument, making it the most used method of payment. Regarding the last two groups, they show a very similar tendency. Surprisingly, we can see that in case of these two groups the usage of card is more widespread than in case of the previous group. This trend might be explained by, that people of these age groups may already receive pension, which is transferred to their bank accounts in most of the cases, stimulating the usage of card, as only 2 withdrawals are free of charges per month. In addition, none of the groups prefer using credit cards, its ratio did not exceed 15% regarding any of the groups. This may happen, due to the fact that people do not want to fall into any financial instability, they try not to overspend themselves.

Figure 6: Most preferred method of payment based on age groups regarding people's most frequently used method of payment before the appearance of the virus.

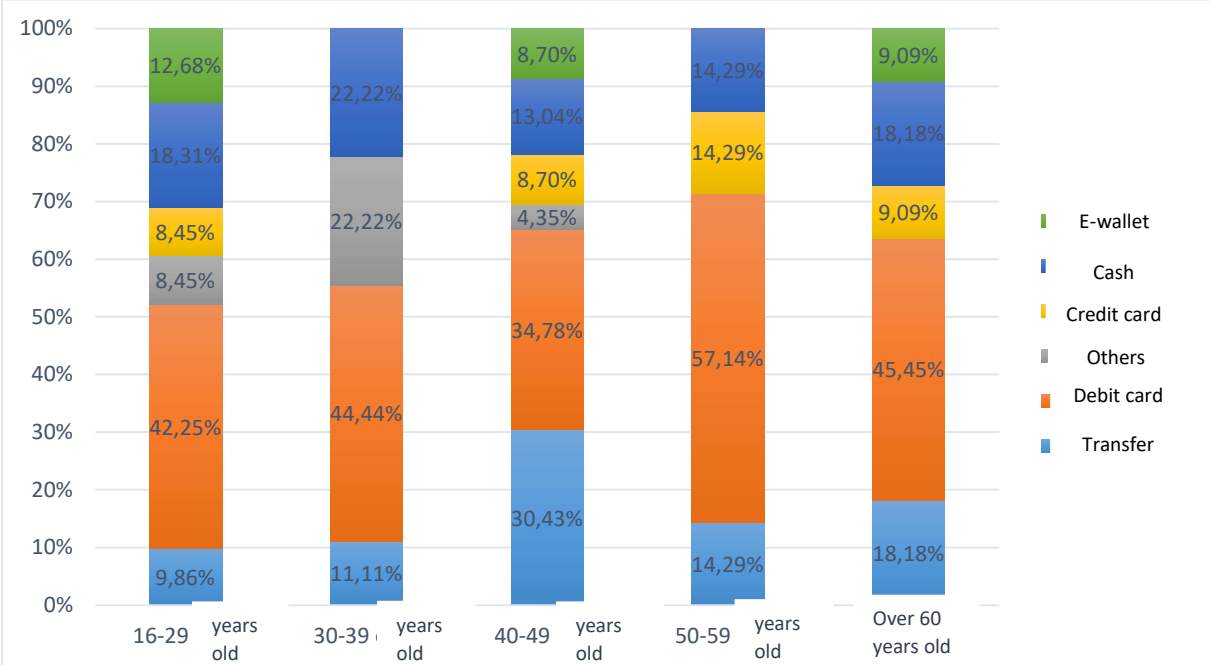


Source: Self-edited

However, at this point it is inevitable to emphasize, that COVID-19 had a huge impact on people's payment behaviour. In order to represent this impact, I would like to present a similar table, containing information about people's age as well as their most preferred

payment method after Covid appeared.

Figure 7: Most preferred method of payment based on age groups regarding people's most frequently used method of payment after the appearance of the virus.



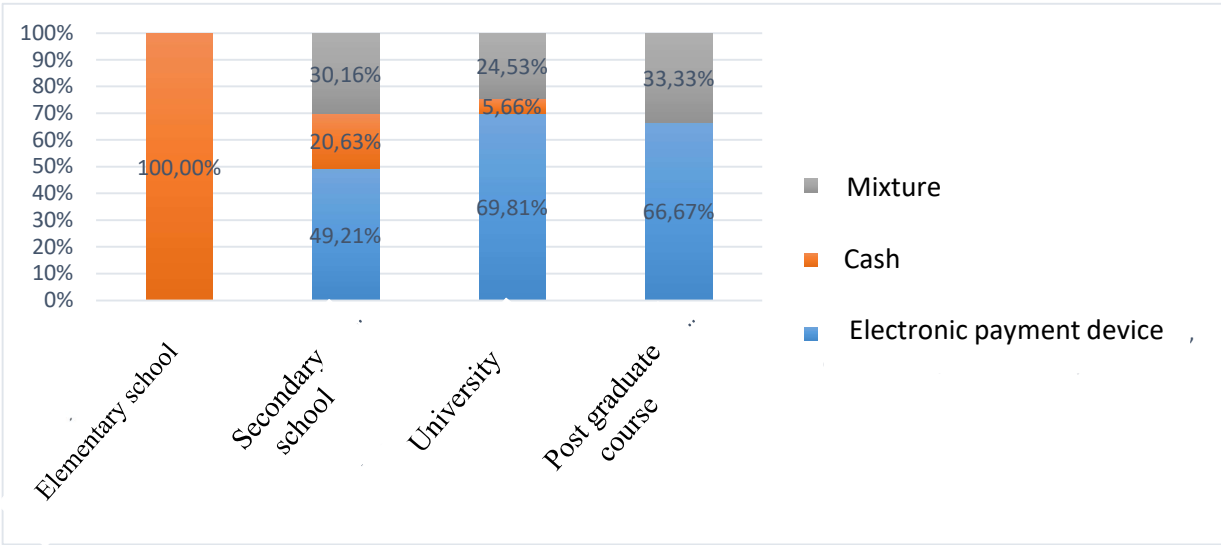
Source: Self-edited

The two most important changes, that we can see are, while in case of all the age groups, the ratio of debit card usage soared, and became the most frequently used medium, the usage of cash fall back sharply as a response of the increased debit card usage. The reason for this might be, that people started using cash-free options, in order not to catch the disease due to the fact of handling cash. The biggest improvement concerning debit card usage was recorded in the 50-59 age group. The explanation might be the fact, that coronavirus is more contagious over a certain age, this way people of the referred age groups are more willing to change in order to be safe, as they showed a 28,57% growth. On the other hand, we can note, that the usage of cash shows almost the same tendency in case of all the age groups. Upon these data, we might assume, that this incident occurred due to the fact that people reconsidered their primary payment instrument and chose a cashless alternative.

Next, I would like to talk about the connection between someone's level of education as well as their most frequently used method of payment. As we can see on Figure 8, 100% of those only finishing elementary school get their wage in form of cash. This might mean, that those, who did not continue their education, took jobs that might be paid daily in cash, such as construction workers, or there is also a possibility that they are engaged in a sort of activity,

that does not make the economy whiter. However, in order not to be misleading, I have to put out, that there are people involved in this group, who attend grammar school at the moment, therefore for them pocket money in form of cash is the only choice, when it comes to shopping. The next group I would like to observe is those who finished grammar school. Regarding this group, it is visible that they use a more diverse scale of payment instruments, but electronic payment devices are the most frequently used ones with 49,21%. 17,46% of them still supports cash-based transactions, while 33,33% of them uses both cash and card equally. Based on the data provided, we can say, that probably because of their higher educational level, people from this group are more aware of the risks of handling physical money, or they might just get their salary in an electronic way, thus avoiding physical money. Last, but not least I would like to talk about university graduates and those taking part in post-graduate courses. The reason why I combine them is that they show very similar tendencies. As we can presume, both of the groups use some kind of electronic payment method as their primary medium of exchange, standing at 69,81% and 66,67%, respectively. In addition, cash as a main instrument of payment is responsible for 5,66% of the transactions. In spite of cash not being the most popular method of payment in these groups, there might be some goods and services, which cannot be paid for via card, this way not leaving any other opportunity, but cash.

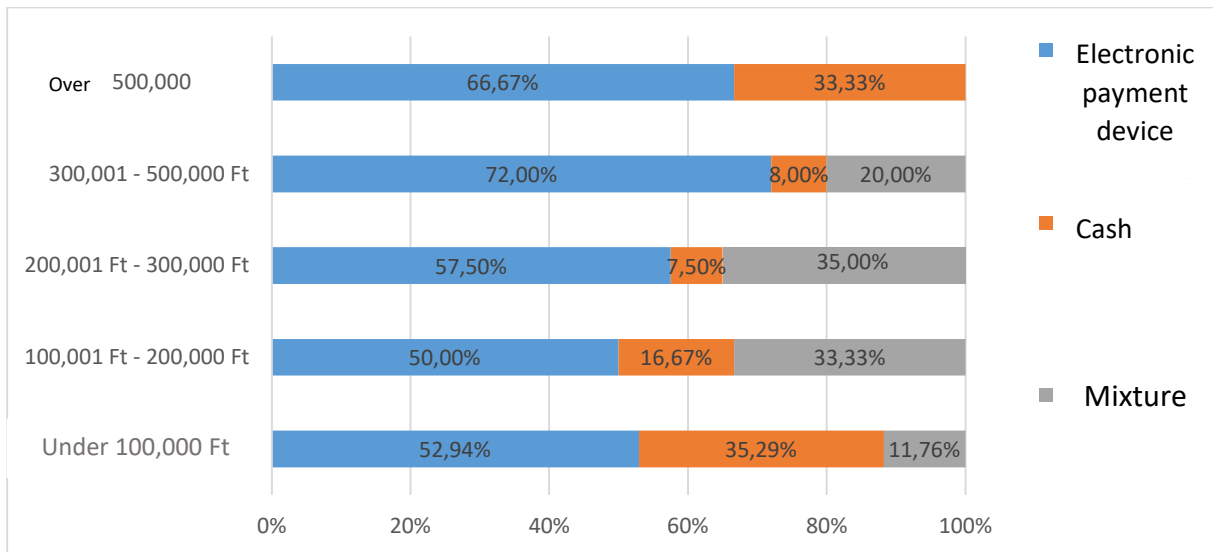
Figure 8: Most used method of payment based on level of education regarding most frequently used payment method at regular shopping.



Source: Self-edited

Moving on to the next demographic factor, regarding those earning less than a 100,000 HUF, cash still plays a main role in this group, with a remarkable result of 35,29%, which is the highest value proportionally, regarding all the other groups' cash usage. This is not surprising, as those earning less might want to carry their money in form of cash, in order to be able to track how much of it is already spent, and how much of it can be still used. Considering those earning between 100,001 HUF and 200,000 HUF and 200,001 and 300,000, at least 50% of them chooses an electronic payment method to conduct their regular shopping. However, in both cases, especially in case of the 200,001 HUF and 300,000 HUF, the usage of physical money is not that common, compared to the previously examined group. The explanation might be, that because of the nature of the job, they tend to receive their salary electronically, thus avoiding cash mainly. Although, I have to say, that in both cases, more than 30% of the respondents mix cash and card. This phenomenon may lead us to the assumption of them having already developed habits, or they might be using goods or services, that are not payable in an electronic way, such as day care for children, private teachers. Moving on to the 300,001 HUF to 500,000 HUF category, we can presume, that the usage of electronic payment devices is the highest in this group with 72%. Concerning this group, the explanation may come from the fact, that these people enjoy a greater financial freedom, than the previous ones, meaning, that they are more comfortable having their money in an electronic form, in order to keep it as safe as possible. The last group I would like to talk about is the group of those earning a salary over 500,000 HUF. The trend is almost the same in case of the electronic payment, showing 66,67%. However, the amount of cash used in their case is very outstanding with its 33,33%. The presence of cash in this group might be the result of the growing amount of 10,000 HUF and 20,000HUF bills in circulation. People show tendency to use these biggest bills, to save money, this way they might pre-plan to buy something more expensive good or service, as well as pay for it in cash, as their savings are in form of cash.

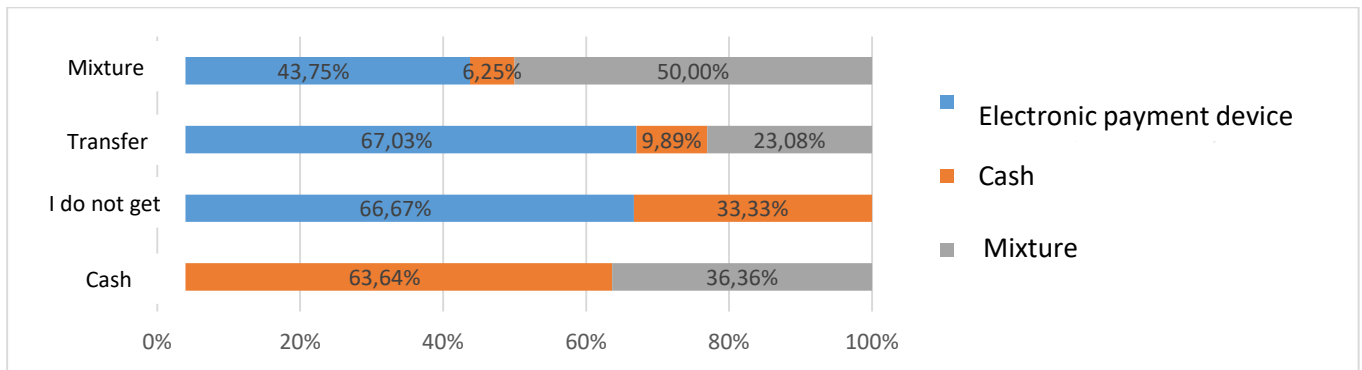
Figure 9: Most frequently used method of payment regarding the amount of salary received monthly.



Source: Self-edited

The last important demographic factor, that might influence our choice of payment method is the form of income. From the chart, apparently 63,64% of those who receive their wage in form of cash tend to spend it in the same form. However, despite the lack of dominance of alternative payment methods in this group, 36,36% of respondents pay their expenses as a mixture of cash and cash-free alternatives as well. This might happen in a way, that many ATMs nowadays are able to transfer money to one's bank account, by putting cash in the machine. That proves, people do take care of government restrictions, and try reducing their cash handling as much as possible. Moving on to the company of those who do not receive any salary, 2/3 of them stated, that they pay for their regular shopping in an electronic way, while 1/3 with cash. At this point it is very important to emphasize, that all of the people who marked, that they do not receive any income, are between the age of 16 as well as 29, this way we might assume, that they might be living with their parents, who provides them money in form of cash or via transfers. Regarding the column of those getting paid via transfers, more than 67% of them spends it via using a sort of electronic payment device, which might be the result of the high money withdrawal fees. However, we must note, that there are few people, 9,89% of the respondents to be accurate, who still uses cash primarily, also 23,08% who switch between cash and card alternately even though they get paid via transfers. The reason for this might again be the presence of old habits, or they might want services or goods that are not attainable by using an electronic equivalent of cash. Surprisingly enough, half of those receiving their salary as a mixture of transfers and cash, mostly spend their money in both ways. However, 43,75% uses an electronic form, rather than only cash, which stands at 6,25%. Based on this, I can conclude, that the only case, where the usage of cash was higher than the other two alternatives, was in case of the group, where they receive wage in cash. Regarding all the other cases, people preferred using an alternative instrument, or paid either by cash or card alternately.

Figure 10: Form of income regarding the most frequently used method of payment during a regular shopping



Source: Self-edited

The last two demographic factors, namely the place of living as well as the number of people living together in one household, are not connected as strongly to payment attitudes as the previous ones, examining them would bring inaccurate results. However, according to an MNB study, those people who live in small towns show a tendency to use cash in a greater volume compared to those living in the capital, although this is not the case regarding people living in the countryside. The reason might be, that getting to physical money may be not that easy, the particular reason for the circumstance is the lack of ATMs, thus being too complicated and time-consuming, or we might also assume, that the needed infrastructure for alternative payment methods is improving at a quick pace in the rural areas as well.

5.0 Knowledge, attitude, and behaviour concerning cash and alternative methods of payment.

In the second part of my questionnaire, I wanted to have a look at how well people know certain new methods of payment, but I also would like to understand, whether there are other influencers besides demographics, that makes somebody pay with a specific type of payment method. Nevertheless, I would like to give a review about what people think about different payment methods reliability.

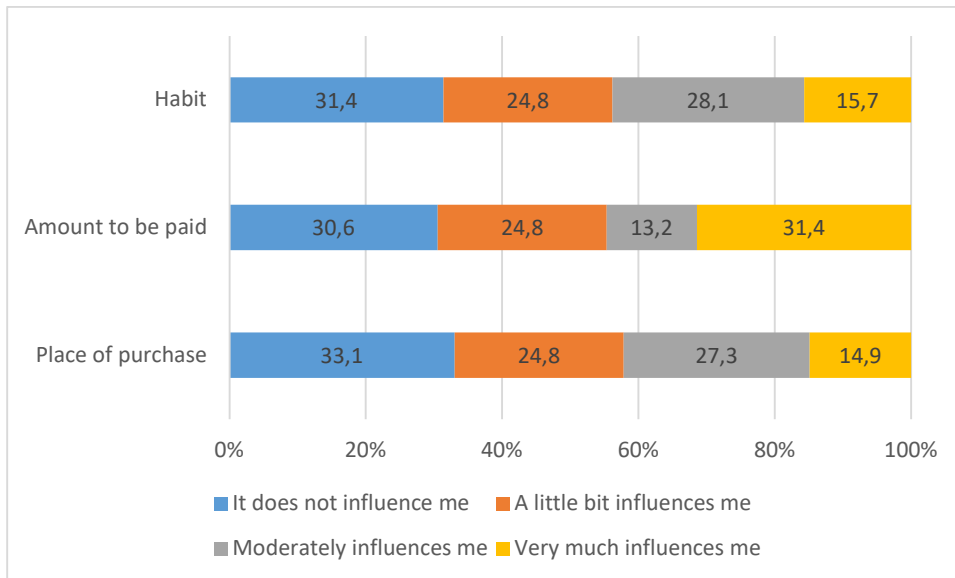
5.1 Further influencers

Although, demographic characteristics may influence someone's method of payment, but rather in an indirect way. In order to be more accurate, in the questionnaire I listed three options to be rated on a Likert-scale, to see out of these three factors, what are the main influencers. Regarding the first option, place of purchase, 33,1% of respondents agreed, that they do not feel like being influenced by the place of purchase when it comes to choosing their payment method at all. Furthermore, another 24,8% stated, that it influences them only a little. If we look at the chart, we can see, that in case place of purchase, the ratio of those agreed on that the place of purchase does not influence them, is the highest of all the values depicted, meaning that this was the most agreed option for not being the most powerful influencer. Furthermore, only 14,9% of the respondents think that place of purchase is a strong influencer. Moving on to habits, it shows quite a similar tendency compared to place of purchase, as 31,4% of the respondents think, that habits do not influence them at all on the occasion of choosing between cash or card, and only 15,7% thought of habits as a very influential factor. Last, but not least, I examined the amount to be paid, which turned out to be the greatest influencer of all, meaning that 31,4% of the candidates agreed that this makes them rethink their method of payment the most. Nothing proves it better, than the fact, that twice as many people voted for it being the most determining factor, than the other two groups.

However, that must be noted, that the reason behind this is, that Hungary might follow the eurozone in its steps, as in there people tend to pay with cash in case of purchases of smaller value and pay by card when it comes to purchasing something with a bigger value.

Furthermore, in the eurozone countries and in Hungary too, paying by cash in restaurants, cafés, confectioneries, is a sort of tradition, independently from the price (Belházyiné, Bódi-Schubert, & Végső, 2018).

Figure 11: How much certain factors influence someone's choice of payment method.



Source: Self-edited

Measurement: Percentage (%)

5.2 Attitudes and behaviour towards cash and AMOP

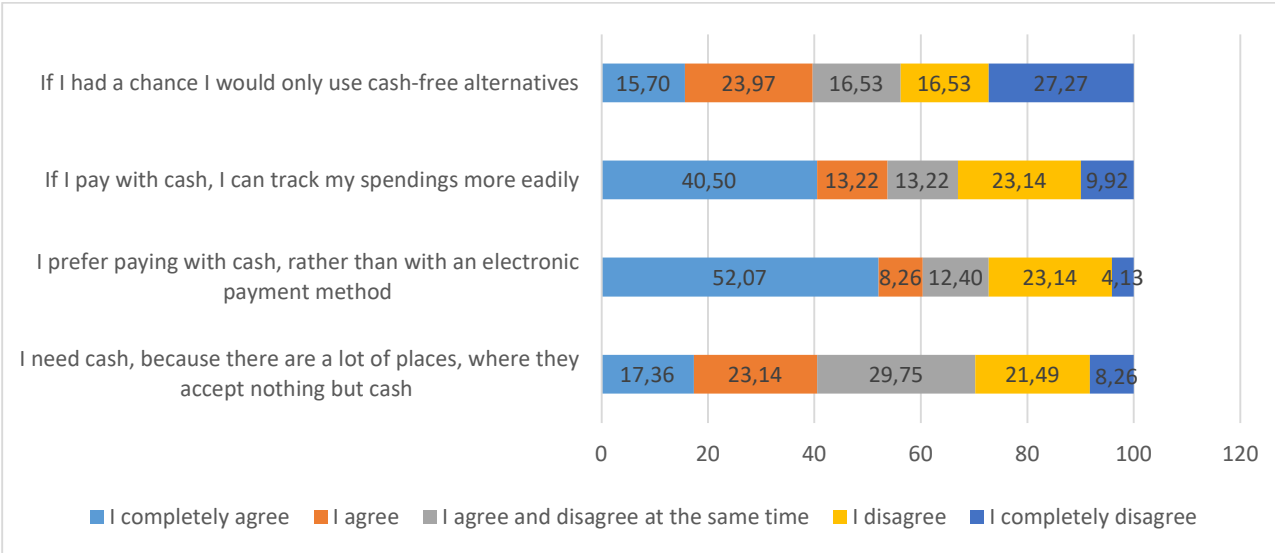
Regarding my next question, I listed a couple of statements about cash and card usage, where the respondents needed to indicate on a scale of completely disagree to completely agree, how much they either approve or rejects the previously referred statements. Concerning the first point, 17,36% of people said, that they need cash inevitably, due to the fact that a lot of service providers still do not accept anything but cash. In addition, another 23,14% agreed, they strongly insist on carrying cash with themselves, when it comes to shopping. On the basis of these, one possibility might be, that as of 40,5% (17,36% and 23,14% combined) would carry cash with them, that we have not reached the required number of POS terminals in the country in order to conduct every single payment of ours in an electronic way.

However, the constant need of carrying cash indicates that people are open to use other alternatives, if there is any. Moving on, we 40,5% agreed completely, that because of using cash they can track their finances, plus another 13,22% supports this statement too (Belházyné, Bódi-Schubert, & Végső, 2018). This might be relevant primarily in case of those, who receive their salary in cash, or developed a habit of preferring cash over card, as nowadays via using internet banking, we can track our spending entirely. In case of the statement “If I had a chance, I would only use cash-free alternatives”, the number of those completely disagreeing was the highest compared to the other groups, meaning that a remarkable 27,27% of the respondents completely disagrees with it, and would continue using

cash as well, supported by 16,53% of people who also disagree with the statement. Only 15,7% of them would be able to live cash-free completely, which also stresses the importance of cash. The most agreed statement was “I prefer paying with cash, rather than with an electronic payment method”, as 52,07% completely agreed on this statement, as well as only 4,13% rejected it completely, which also highlights the fact, that even in the 21st century, cash is unavoidable.

As we have seen, even though there are several possibilities when it comes to payment, we still would choose cash. It is still broadly used in the euro area, as we have already mentioned the majority of transactions are still conducted via cash, as it has important functions and benefits, which will be summarised in the conclusion.

Figure 12: Examination of attitudes concerning cash and card



Source: Self-edited

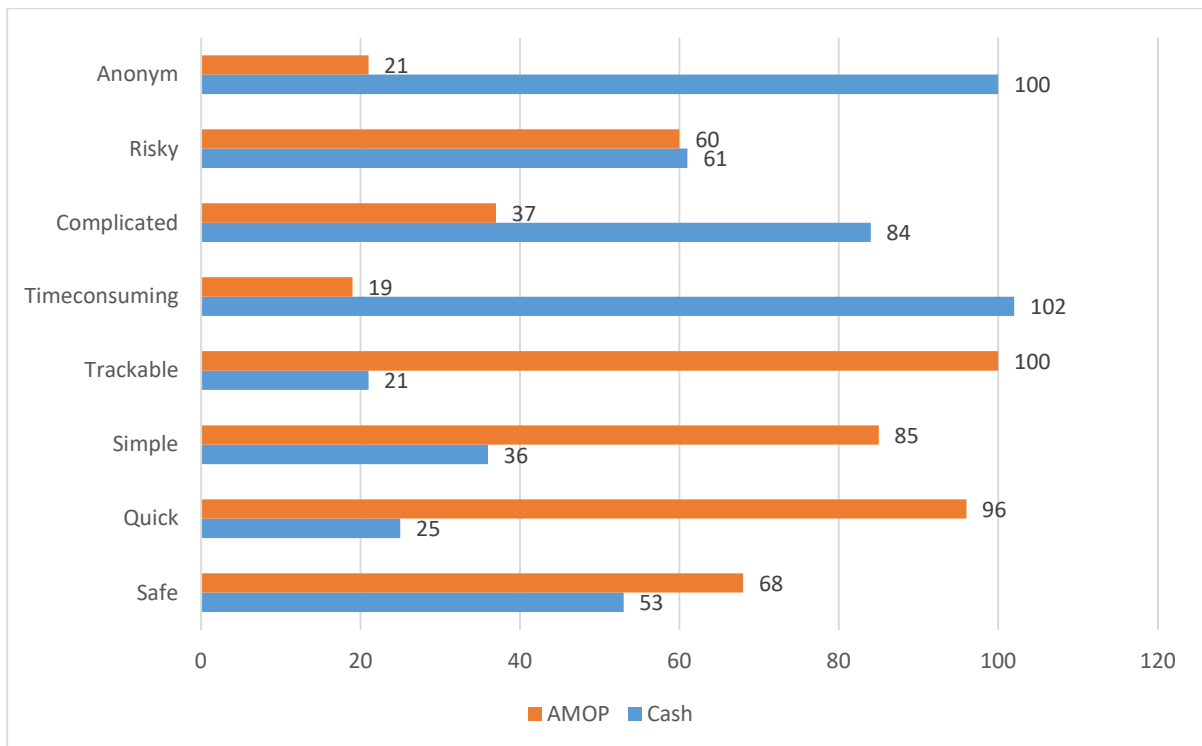
Unit of measurement: Percentage

5.3 Assumptions about payment methods

Having arrived at my last question, I am going to be dealing with people’s assumptions and opinions about cash and cash free alternatives. Here I presented several attributes, as well as the respondents had to match them with the most fitting payment alternative. The first attribute was safety. Out of 121 people 68 people voted for alternative payment methods to be safer, while 53 people chose cash as the more secure option. Those who chose physical currency to be the more reliable one might assume, that financial institutions rip money off people with their hidden fees, this way they might have their fortune in form of cash to keep it safe, also they might be afraid not having money in a physical form, which can make it inaccessible in certain situations, when there is no ATM nearby, thus not being able to pay, if

there is no chance to pay by card. Moving on, 96 people identified the word “quick” with AMOP, while only 25 people did the same with cash. This phenomenon might be explained by the fact, that nowadays using our smart phones as a payment device, which is always with us, is very popular, this way, we only have to unlock our phones, and put it near to the terminal, while in case of real money, we have to look for the right bill or coin that we would like to pay with. The following attribute, “time consuming” supports the previous assumption, as in this case 102 people thought of cash as being time consuming. Talking about simplicity, 85 people, meaning 70,24% thinks that using some kind of AMOP is easier, than using cash. The same can be applied in this case, just like in case of quickness. It is easier to carry out card or phone, than our wallet. As of it being trackable more than 80% of the respondents say, that they find paying by an electronic device more trackable. This actually might be true, as the only way we can track cash is through receipts, while there are several applications created by financial institutes, that makes tracking our finances accessible for everyone. 84 people out of 121 stated that paying with cash is much more complicated than using an electronic alternative. Again, this might stem from us carrying our electronic devices with us all the time, that makes payment a lot faster. When it comes to the risks, the ratio is almost 50%-50%, meaning that those preferring cash think that using it comes with less risks, while the other half of the group thinks the opposite. However, in case of losing our card we still have the chance to ban it from using by indicating the accurate financial institute that the card is missing but concerning cash we cannot. Although, cash is way more accessible and accepted, we can pay with it almost everywhere. Regarding anonymity, 100 people out of 121 presume, that using physical money can prevent stealing our identity. A lot of people fear, that by using any kind of AMOP, their account might get broken into, and become insolvent.

Figure 13: People's assumption of payment methods



Source: Self-edited

Unit of measurement: number of people

6.0 International overview

As my last bullet point, I would like to see how other countries reacted to the virus on an international level. Just like in Hungary, in most of the European countries, using cashless alternatives of payment was promoted by both the governments and the retailers as well. The tendency of electronic payment instruments being more and more attractive at the expense of cash to the population is an on-going phenomenon in other countries as well (Jonker, Cruijssen, Bijlsma, & Bolt, 2021). At first, I would like to introduce the situation in the Netherlands.

In the Netherlands, before the outbreak of the virus, in 2019 32% of point-of-sale transactions were conducted via using cash, while 24% of them were conducted with cards using a pin code, whereas 43% of the transactions occurred in a contactless was. However, due to the virus since the start of the lockdowns the usage of debit card over cash increased by 10%. There were also a 17% drop in cash usage, which has not been reversed yet, meaning that these changes might be quite permanent. These changes were not only stimulated by the virus itself, but there were several incentives introduced in order to make cashless payment even more convenient, for example the Dutch National Bank increased the pin code threshold of concerning the value a single transaction from EUR 25 to EUR 50. Nevertheless, the pin code threshold of cumulative value of transactions was raised as well to EUR 100 (Jonker, Cruijssen, Bijlsma, & Bolt, 2021).

Next, I would like to present data about Germany. In 2017, only 21% of transaction were paid for by using a card, while cash accounted for 74% of the value of all transactions, which supports the statement of Germany being a cash friendly nation. However, the pandemic caused deterioration in Germany as well, as since the presence of the illness, 30% of all transactions were paid for by using a card which is 9% higher than in 2017, while the rate of cash decreased by 14%, meaning 60% of the value of all transaction were in form of cash. Interestingly, the usage of smartphones as payment devices are not that popular in the country, as only 13% of those surveyed said that they use it as a primary method of payment (Deutsche Bundesbank, 2021).

To be able to investigate a closer example, I would like to continue with Croatia. Not surprisingly, Croatia experienced unexpected changes concerning consumer behaviour. In general, as a nation they preferred physical shopping instead of the online equivalent, and so did cash over alternative methods of payment. However, in 2020 a 34% increase was measured in the number of online transactions compared to the same period in 2019, while the

same data concerning the value of all transactions displayed a 38% increase (Manovelo, 2021). In addition, in the past 5 years the number of contactless cards issued increased by 21,6% annually, while the number of electronic funds transfer at point-of-sale devices showed a 44% increase as well. As a consequence, in March 2020 55% of all payment cards were contactless, while 80% of electronic funds transfer POS devices enabled contactless payment. Nevertheless, at the end of April 2020 the Croatian National Bank declared that banks must increase their pin code threshold from HRK 100 to HRK 250 (approximately from EUR 15 to EUR 30) in order to further improve customers' contactless experience (Manovelo, 2021)

Regarding the ratio of cash and card transactions, in Croatia this proportion slowly but steadily deteriorates in the direction of card payments. Nothing proves it better than the fact, that between March 2020 and October 2020, the number of contactless transactions increased by 76%, while its value reached an outstanding 161% growth, compared to data one year prior to the study. All in all, in 2019 regarding the number of transactions, 16% of all transactions were conducted by using a card, and the remaining 84% were paid for via physical currency. In addition, the value of transactions regarding the year 2019, 44% of it was paid by card, while the rest by cash, respectively. However, in 2020 21% of transactions were paid for by using a card, while value wise 46% was conducted via handling cash (Manovelo, 2021).

Last, but not least, I would like to present the situation in the Ukraine as well. Regarding the total number of cashless transactions as well as cash withdrawals issued by Ukrainian banks was 5,997.1 million, which is equal to UAH 3,597.3 billion. It indicates an 18,6% increase regarding the number of transactions, while concerning the value this change stands at 18,6%. Important to emphasise that in 2020 the number of contactless cards issued increased by 150% as well. Altogether, the Ukraine took a huge step in the direction of becoming a cashless society, as in 2020 the number of non-cash payment card operations increased by 25%, and the respective value by almost 23% (National Bank of Ukraine, 2021).

Regarding everything mentioned above, we can draw the conclusion, that every country examined displayed a higher rate of card usage and a lower rate of cash usage due to the presence of coronavirus, not to mention, that each of the countries' national banks increased the pin code thresholds regarding card payments to make contactless transactions even more touch-free. On that note, as a lot of people changed their mindsets about handling their finances, these changes, might turn into long-lasting traditions, as people became more aware of what benefits using an alternative payment method can provide. Although, at this point, it would be too early, to state with 100% probability, that humanity as a whole is ready to abandon cash completely.

7.0 On the way to becoming a cashless society.

The idea of becoming a cashless society has been a very popular topic, especially since the outbreak of the pandemic has become a widespread idea. As we have already discussed, Central Banks all around the world took measures to promote contactless payment. Becoming cashless would bring benefits for everyone from individuals, through banks, payment institutions as well as the government. But are we actually getting closer to it (Filipiak, 2021)? On one hand, people would gain a lot of convenience and security if cash vanished. Cash is stolen very easily, furthermore it does not require any passcode to make it work. However, in case of mobile payments biometrics make stealing almost impossible. Moreover, thanks to advanced technology, tracking our finances has become much easier, even from home with the help of a single smart phone. On that note, managing cash can become a very uncomfortable process, moreover it can be pretty expensive as well. This is why banks are interested in increasing the number of cashless transactions, as this can bring them a lot of data, that can be converted into money. For example, these data would be able to increase revenues by reducing grey areas, drug dealing and money laundering especially, and enforcing taxes, also it would be simpler to decrease crime with tracing suspicious transactions. Moreover, discovering and closing black markets would not cause as much trouble as it does at this point in time. In general, if a country relies on cash too much, the government only sees just a tiny particle of the whole picture, but by introducing alternatives that can substitute cash, fiscal stability could be strengthened as well (Filipiak, 2021)? In some countries, becoming completely cashless is not that far away, as we might assume. First of all, let us take the example of China. China is the absolute leader, when it comes to e-commerce, creating a perfect environment for the exact purpose of the needed infrastructure with their outstanding technological development. This development had a huge impact concerning smart phones as well, making mobile payment more widespread than anywhere else in the world. Interestingly enough, the most popular, and also easiest method of electronic payment is the quick response, also known as QR payments. The idea behind it is, that at the end of the transaction, the seller, instead of presenting the actual price to the customer, they present a QR-code, which must be scanned by the customer with the help of their smart phones. After scanning the code, a notification pops up, that contains the price to be paid. Nevertheless, it provides opportunity to either accept or reject the payment. This method provides excellent mobility, and it does not even require any additional device on the seller's side. It is so common in the country, that it can be found from market stalls to luxury

hotels as well (Filipiak, 2021).

However, China is not the only country that is skyrocketing in terms of cash-free transactions. Arriving to a closer example, Sweden has the strictest policies to become cashless. Here, only 20% of transactions are paid for with cash, the rest is conducted via some kind of electronic equivalent. Furthermore, in Sweden a lot of merchants do not even accept cash as a medium of exchange. They also developed a smart phone application, called Swish, which allows them to transfer money instantly with one another. Another example would be the neighbouring Finland, one of the leaders in card payment frequency. Finland is also about to be ready for the exact purpose of leaving cash behind, as they have one of the highest levels of banking as well as smartphone penetration level in the world (Filipiak, 2021).

However, becoming a completely digital society might sound charming, as it would be a huge technological milestone for humanity, it comes with just as many drawbacks as it brings benefits. First of all, unfortunately there would be layers of society for example the elderly and the poor, who would still be dependent on using cash as their knowledge of alternative methods of payment might be very limited, thus making it nearly impossible for them to keep up with the new techniques of payment possibilities. At this point, we also have to take into consideration those who do not have any access to the internet or do not have bank accounts. These people would also become insolvent, independently from the fact how much how much physical money they own (Fabris, 2018).

The lack of financial literacy is also a drawback, that cannot be easily managed. With the accelerated development of the internet, electronic payment and globalisation, finances have changed so much, that it might be impossible for some people to keep up with the pace of these radical changes (Fabris, 2018).

As the next point, it is very important to talk about cybercrime. Nowadays, as we can hear it from all the media, is a very popular method of stealing. Cyber criminals tend to have a high degree of inventiveness, and they are able to come up with new techniques and tactics every year to find ways to get through even the best protection systems used by the most protected financial institutions (Fabris, 2018).

The next problem, I would like to present is the loss of privacy. Most of the people like keeping their finances for themselves. However, electronic payments are easily trackable, thus if it gets into the wrong hands, our whole identity could be stolen. (Fabris, 2018)

Tradition plays an important role as well, when it comes to the disadvantages of the digital society. Abolishing cash completely would be one of the most revolutionary changes in

human history. However, when it comes to changes, especially at this extent, people show tendency to behave in a conservative way, especially when they are uncertain about how these changes will affect their lives in the future (Fabris, 2018).

Last, but not least, I would like to talk about the IT risks. What would happen if we all lived in a cashless society, and for some reason our IT system fails? An outage of Visa services occurred in June 2018 gave us a little taste as people across the globe were unable to pay for their goods and services using their Visa-made card. There are also speculations about how the world would react if a virus infected the platforms through which cashless transactions are performed.

However, becoming completely cashless on a worldwide level is not something that we are going to achieve in the near future, as there are still plenty of developing countries, that are still not able to afford to install the needed infrastructure to be able to abandon cash once and for all. In spite of humanity as a whole yet not being able to adopt only cashless solutions concerning payment methods, COVID-19 has definitely accelerated digital transformation.

The pandemic digitalised entire industries such as retail, restaurants as well as education, and many more businesses, that wanted to keep up their profit despite the presence of the virus. Let us take a look at how social distancing improved digitalisation (Soto-Acosta, 2020).

Essentially, social distancing was unknown for most of the people up until the outbreak of the virus but had a huge impact on digital transformation. In spite of teleworking has already existed, the acceleration of development created new technologies, and further improved the existing ones. As a result, many firms initiated new technologies in order to be able to carry out their daily tasks. For instance, in case of virtual meetings Zoom and Teams emerged and became one of the most well-known used applications of all times. In case of both of the applications, the quality of calls, usability has been optimised in order to create a more workplace-friendly environment, furthermore new functions were introduced, such as being able to share content and record meetings (Soto-Acosta, 2020).

Another great example is the way restaurants were forced to rethink and overwrite their business models. Most of the restaurants, who wanted to still be able to serve food, needed to launch an online delivery services, or join an already-existing food delivery platform. As a result of the increased number of delivery orders caused by lockdowns, some of these businesses managed to turn the threat of the virus into an opportunity, that certainly increased, or maintained their volume of business (Soto-Acosta, 2020).

Moreover, the pandemic opened up new business models as well, with the combination of digital and traditional models. For example educational courses were held either in person or

online. However, nowadays universities are introducing the so-called blended learning courses, where only the most important seminars are held in person. The rest, such as lectures are conducted online. Very similar case is the situation of artist, who used to give concerts for tremendous amount of people in person. It has also sifted in a way, that artists and performers perform online for the bigger audience, while when it comes to traditional performing, they tend to do it with a limited number of people (Soto-Acosta, 2020).

Equally important, that digital transformation gave place for the appearance of digital start-ups. These emerging businesses had the advantage of being flexible enough to work their way to be profitable. The pandemic created an ideal place for the creation of these start-ups, as they are able to satisfy the needs of people while creating new value for the consumers as the services are accessible online. Nevertheless, already existing start-ups, that used to work in-person traditionally, are now using digital techniques as well, in order to not be outdated, and be able to keep up the competition with the newcomers (Soto-Acosta, 2020).

As we have seen in this section, digital transformation although affecting every industry, it affects them in a very different way. For example, manufacturing industries are primarily focused on cost per product controlling, production period as well as the breakdown of total cost regarding manufacturing, logistics and administration. In order to remain competitive, their task is to provide flexible manufacturing, quality production, procurement cost optimisation and inventory management. Commercial businesses are engaged with monitoring product acquisition prices, together with the attention to logistics and customer service. Despite the business type, every industry shares one thing in common which is the need for continuous innovation regarding products and services, business processes and business models. Nevertheless, covid has affected businesses from both the demand and the supply side, since panic buying and unexpected peaks of demand in certain products caused supply chain malfunctions. In these circumstances, digital transformation and innovation in supply chains have been fundamental to avoid long-term out-stock (Soto-Acosta, 2020).

Conclusion

Having arrived at my conclusion I would like to summarise my findings as well as, I would like to either support or contradict my hypotheses, that had been stated in the beginning of the thesis.

In the beginning I wanted to give some information about the COVID-19 pandemic, also how governments all around the world introduced measures in order to avoid further contamination. These restrictions were completely new for the majority of the population, thus making everyone rethink their way of living from many aspects. Physical activities must have been transformed into online activities, and shopping was no exception, as most of the shops had to close their doors due to the government-imposed lockdowns. However, the online way of living created a good soil for alternative payment methods to skyrocket. In the first half of the thesis, I tried to find out, how Hungarians dealt with their finances before the appearance of coronavirus, as well as how people changed their way of thinking about the topic after the outbreak of the pandemic. Surprisingly enough before the virus, in spite of the fact, that in 2015 80,1% of the households owned at least 1 bank card, the proportion of cash and card usage did not correlate with above mentioned data (Ilyés & Varga, 2016). As it turned out in 2016 out of all transactions regarding the number of transactions, 87,7% of them was conducted via using physical money, while value wise this proportion stands at 71,2% (Végső, Belházyiné, & Bódi-Schubert, 2018). This means, that way before the pandemic, only 28,8% of all transactions was paid for by using a bank-issued card, while regarding the value of transactions, only 12,3% accounted for all transactions that had been paid by a card. Concerning the pre-pandemic ratio of cash and card usage, it is clear, that in Hungary, the most preferred method of payment was cash.

Furthermore, according to data provided by Magyar Nemzeti Bank, the amount of cash being in circulation within the country has been increasing since 2012 by an average 14% annually, which yet again, contradicts the assumption that despite most of the households having at least one card, cash is the most used medium of exchange (Magyar Nemzeti Bank, 2019). However, when we look at proportion of bank notes, we are able to realise that the most sought-after bill is the HUF 20,000 bills, as its number tripled during between 2006 and 2018. Coming at second, the HUF 10,000 bill showed a 70% increase during the same period of time, while all the other bank notes combined display a 25%-40% increase in number (Végső, 2020). As the two biggest bills were the ones, that stood out the most, we can assume, that these bills are not kept for transactional purposes, but people tend to have their savings in

form of high value bank notes, which indicates a resistance from people towards banks, as they do not intend to keep their savings in electronic form. This also suggests that Hungarian people do not trust banks enough to keep their savings in an electronic way, which also supports the idea of cash being the most favourable payment method both transaction wise and saving wise.

After COVID-19 struck the country significant changes occurred in the country's financial attitude. As most of the shops were not allowed to open, the amount of cash sent back for cash processing fell back by 30% (Végső & Bódi-Schubert, 2020). Concerning the usage of debit card this phenomenon might have impacted it in a positive way, but we have to keep in mind, that the 30% fallback is not only because of the conscious of people of abandoning cash, but because in most of the cases shopping at physical merchants was not achievable. A huge fallback took place concerning the number of transactions registered by Nemzeti Adó- és Vámhivatal as well, as it only reached 59% of the number of transactions compared to last year's results regarding the same period of time (Végső & Bódi-Schubert, 2020).

As a result of the pandemic, despite the slowed-down economy, the rate of electronic payments instead of the annual traditional 2%-3% growth rate increased to 5%. However, even after the outbreak of the pandemic cash still accounted for 76,3% of all transactions, while concerning the value of all transactions, cash was responsible for 59,2% (Végső & Bódi-Schubert, 2020).

In order to be even more precise, I would like to present my own findings concerning how people conducted their finances before and after the outbreak of the pandemic. According to my survey, 40,5% of the 121 respondents stated, that they prefer paying with cash over electronically, as this way they can track their expenditure more easily. Furthermore, 52,07% of the respondents said, that they prefer paying with cash rather than with an electronic equivalent. Moreover, 17,36% completely agreed, while another 23,14% agreed, that they need cash, as still there are a lot of places, where the only accepted payment method is cash. In addition, abandoning cash completely was the most disagreed statement, as 27,27% said, that they would not change to cash-free alternatives entirely.

As we have seen, the ratio of cash and electronic alternatives has definitely changed due to the presence of the virus. If we compare the situation before and after the outbreak, we can note a 11,4% drop regarding the number of cash-based transactions, while concerning the value the fallback is equal to 12% fallback. Upon these pieces of information, I can conclude, that due to the COVID-19 people the people of Hungary rethought the way they handle their finances, and the growth rate of electronic payments has never shown this significant increase over the

past years. However, it is still visible, that most of the Hungarians still rely on cash as their most used medium of exchange. Based on these data, I can conclude, that regarding my first hypothesis the ratio of cash and card usage changed due to coronavirus, however paying electronically did not become the new norm, thus I must reject my first hypothesis.

Regarding my second hypothesis I wanted to see, how demographic factors stimulate the way people handle their money before and after the appearance of the virus, also whether there are mutual preferences, that characterise one specific demographic group. Regarding age as the first demographic factor, the most preferred method of payment before the appearance of the virus among those between the age of 16 and 29 admitted, that 40,85% of them used a debit card as their most beloved method of payment, although 30,99% of them still uses cash as the most preferred medium of exchange. This phenomenon can be explained by the fact, that younger generations are more aware of alternative equivalents of payment, as well as they trust these new methods, as they have a certain knowledge about new methods of payment. However, the proportion of cash is outstanding as well, which can be explained by, that children who do not earn money tend to get pocket money from their parents, which in most of the cases happens in form of physical currency. Moving on to the group of those between the age of 30 and 39, we were able to see, that the ratio of cash and card preference stands at the same rate, 33,33%, meaning that here some of the respondents have already developed a habit of paying with cash, however the number of respondents uses card as their most preferred payment method, meaning that they are also ready to change. When it comes to the group of those between 40 and 49, the ratio of those using cash as their main medium of exchange stands at 34,78%, which is the most remarkable result regarding all the other groups, while the rate of debit card usage was the smallest concerning this group out of all the other age groups represented, standing at 21,74%. This might suggest that this age group has a stronger habitual preference towards cash, and in most of the cases, they do not intend to change. Lastly, I would like to deal with those between 50 and 59 and those over 60, as they show quite similar results. We can also see here that electronic payment methods are the ones, that stand out the most, however, the proportion of debit card is not that outstanding as in case of younger generations, which might derive from trust issues. Despite, debit card usage is still outstanding, which can be explained by the fact, that a significant fracture of people might already receive pension, which is transferred electronically, but cash is significant too, which suggests the tradition of paying with cash, yet again. In general, we can conclude, as all of the age groups showed a mutual preference towards at least one of the payment methods, that age does have an impact on the way we pay, so age as a demographic factor does stimulate people.

At this point, I wanted to see how age groups react to the same question after the outbreak of the pandemic. Interestingly, those between 50 and 59 showed the biggest change regarding debit card usage, as its ratio reached 57,14% from the 28,57%. Actually, this might mean, that a significant fracture of this group decided to change, as the virus is more dangerous for the elderly, so they tried to avoid contamination by reducing the usage of cash. Furthermore, regarding all of the age groups, debit card became the most preferred method of payment, which means that an external stimulus such as the presence of the virus can affect the method of payment as well.

Next, I would like to present the correlation between the level of education and the way of receiving income. 100% of those who only finished elementary school receive their salary in form of cash. This phenomenon might occur, because these people might be working jobs that pay daily, such as construction workers, or some of these people might be engaged in the grey economy as well. As we move upwards concerning the level of education, we can see that by each step the rate of using electronic alternatives at regular shopping grows as well, which means the more educated someone is, the more conscious and the more well-informed about the benefits of using alternative methods of payment. In general, we can conclude, that as the level of education grows, so does the trust towards electronic payment devices, meaning that the level of education as a demographic factor influences the designated payment method.

Thirdly, I would like to present the connection between the amount of salary received and the most preferred payment method at regular shopping. Those receiving under HUF 100,000 use cash the most, which can be explained by that these people might have not received a very good education, which makes them earn less money, also, they might get it on form of cash. However, if we look at the tendency, it is very similar to the level of education. So as the salary goes upper, the education received might have been better, resulting in a better understanding of the advantages of alternative methods of payment. In this case, I can conclude as well, that the amount of income as a demographic influencer does stimuli the way of payment.

The last demographic factor, I would like to deal with is the form of income. Mostly the tendency shows that people like to spend their money in that form, in which they received it. Interestingly enough, those who do not get salary likes to spend in an electronic way. Here I have to emphasise that people in this group are between 16 and 29, so they might receive pocket money in form of transfers. As also those, who receive their salary in form of a mixture like to spend it in this way too, meaning that none of the groups prefer cash over card, if they receive their salary party or fully in form of transfers.

Regarding my second hypothesis, we have seen that every single demographic factor demonstrated, that people from different groups show different preferences when it comes to payment, but people of the same groups mostly show a mutual agreement, they share a mutual way of thinking regarding their method of payment. Upon the information provided, I can conclude, that different demographic factors influence the behaviour and preferences of people of a certain group, thus I can accept my second hypothesis.

All in all, I can say, that COVID-19 impacted the usage of alternative payment methods in a quite positive way. All the restrictions and regulations, such as the law stating that from 1 January 2021 all of those merchants have to provide electronic payment possibility where an online cash counter is installed, helped the improvement in the short run definitely. However, adopting to the new circumstances in the short-run might result in changes in the long-run as well, as a lot of people came to the realisation how great benefits alternative payment methods have. If the government manages to keep up the promotion of electronic payment methods and builds the needed infrastructure as well as the trust of people along with the huge improvements that alternative payment methods went through in the past 1,5 years, the idea of becoming a cashless society is not unimaginable. Despite the rule of cash is still undeniably unbroken, we are on the good way to abandon cash in the future.

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Appendices

1. What is your gender? (Female / Male/ I would prefer not to answer)
2. Which age group do you belong to? (16-29/ 30-39/ 40-49/ 50-59/ over 60)
3. Where you live (Capital city/ Chief town of a county/ Other city/ Village)
4. What is your highest educational level? (Primary school/ Secondary school/ University/ Postgraduate course)
5. How many people live in the same household? (I Live alone/ two of us/ three of us/ four of us/ five or more)
6. What is your average monthly income (net)? (Under HUF 100,000/ HUF 100,001-HUF 200,000/ HUF 200,001-HUF 300,000/ HUF 300,001-HUF 500,000/ Over HUF 500,000)
7. In what form do you receive your monthly income? (Cash/ Transfer/ Mixture)
8. How do you usually pay for your regular purchases? (Cash/ Electronically/ Mixture)
9. In general, in what form do you settle your utility bills? (Cash/ Electronically/ Mixture)
10. To what extent do the following statements affect your choice of payment instrument? (Place of purchase/ Amount to be paid/ Tradition)
11. How much do you agree with the following statements? (I need cash because in many places today, daily payments can only be made with cash/ I prefer to pay in cash than electronically/ If I pay in cash, I am able to allocate my money better/ If I had the opportunity to make a decision, I would only make payments cashlessly/electronically)
12. Have you ever heard of alternative currencies? (Yes/ No)
13. Have you ever used an alternative currency? (Yes/ No)
14. If so, which ones? (Debit card/ Credit Card/ E-wallet/ Cryptocurrency/ Transfer)
15. In case you are using, please state in a few words why you are using alternative means of payment.
16. Which payment method is most characterised by the following statements? (Secure/ Quick/ Simple/ Trackable/ Time-consuming/ Complicated/ Risky/ Anonym)
17. Which payment method did you use most commonly before the outbreak COVID-19 pandemic? (Cash/ Debit Card/ Credit Card/ Transfer/ E-wallet)
18. Which payment method did you use most commonly after the outbreak COVID-19 pandemic? (Cash/ Debit Card/ Credit Card/ Transfer/ E-wallet)
19. If you have chosen a different method of payment as a result of the epidemic, please explain why!