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ALTERNATIVE PAYMENT METHODS IN INTERNATIONAL TRADE
ANALYSIS OF COVID-19 EFFECT ON
PAYMENT METHODS IN HUNGARY

Mónika Ábel

2020

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ALTERNATIVE PAYMENT METHODS IN INTERNATIONAL TRADE
ANALYSIS OF COVID-19 EFFECT ON
PAYMENT METHODS IN HUNGARY

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INTRODUCTION

During the first months of 2020, almost every country in the world was faced with a new and unknown virus, which soon led to an emergency that has evolved into global public health and economic crisis. The pandemic situation had a deep and negative impact on both the local and world economy and changed people's lives. The different regulations that were made by governments to defend humankind from being infected, led to the fear of physical contacts. Customers have had to make significant decisions about their method of payment each day since the virus appeared.

The appearance of alternative payment methods can be traced back to the second half of the 1800s. Today, the improvement of information and telecommunication technology fostered innovations in the payment industry as well as payment cards (credit, debit, and prepaid), mobile-wallets, and cryptocurrencies. Governments also have a significant role in the expansion of these innovative payment methods, as they aim is to confine the shadow economy. Therefore, they formulate different regulations that contribute to the competitiveness of the businesses and make the economy more efficient.

The aim of my thesis was to find out whether the Covid-19 virus affected the usage of payment methods. Hence, a research statement was formulated, which states that Covid-19 has a positive impact on the rise of alternative payment methods. This paper was structured in a way that in the end I will be able to approve or reject this statement upon my primary and secondary findings.

In the first half of my thesis, the establishment of FinTech and the fundamental pillars regarding the history of alternative payment methods can be found as well as the details of the current alternative payment methods.

The second half of my thesis involves the research on the impact that Covid-19 had on the different payment methods. The need for primary research was soon realised because of the characteristic of this topic. As it is an on-going issue, therefore it became difficult to find reliable and accurate data. To find a solution for the above-mentioned problems, I conducted qualitative and quantitative analyses as my primary research. My qualitative research covered a questionnaire that was built up of 14 questions regarding demographic data and their payment habits before and after the virus appeared. 364 volunteers answered and fortunately, every age group who purchases on a regular basis presented themselves. Therefore, thanks to the wide range of information that I acknowledged, I could testify a hypothesis that stated the

dependency between age groups and the most used payment methods. Regarding my qualitative research, six interviews were done. Five interviews were conducted with different businesses' leaders or employees to find out how Covid-19 affected their operation. I found it inevitable to choose the interviewees in a way that from small and medium-sized enterprises to international companies could represent their experience. The sixth interview was done with a business consultant to receive answers about customer payment habits and the future of cash. The last section of my thesis involved different regulations, which are already in use or will come into force, and suggestions to enhance the usage of alternative payment methods.

I. THE BIRTH OF ALTERNATIVE PAYMENT METHODS

This chapter gives an outline of FinTech that is the base of alternative payments.

Fintech, which is an abbreviation for Financial Technology, in Leong's and Sung's (2018, p. 75) understanding is *“a cross-disciplinary subject that combines Finance, Technology Management and Innovation Management.”* Leon and Sung (2018, p. 75) explained in more detail as well, as *“any innovative ideas that improve financial service processes by proposing technology solutions according to different business situations, while the ideas could also lead to new business models or even new businesses”*.

FinTech penetration occurred due to various factors and led to the eruption with a steady increase in the value of investments in these companies. While in 2010, only 9 billion US Dollars were invested in FinTech companies globally, nine years later this value radically increased up to 135,7 billion US Dollars (Statista Research Development, 2020). Consumer behaviour changed with the innovation of information technology that includes development in mobile and internet technology as well. Generations differ according to their competence in digitalization and FinTech can provide solutions for each age group. In addition, after the Financial Crisis in 2008, people started to lose faith in financial institutions and they rather turned to FinTech companies (Kerényi & Molnár, 2017).

Regarding the effects of FinTech services on the present technology, they can be categorized as sustaining and disruptive technology. Sustaining technology is when a present technology is further developed. Disruptive technology can rearrange the existing business models and may reshape the market (Gazdasági Versenyhivatal, 2019).

FinTech can be distinguished according to their business operations as well: advisory service, financing, compliance, and payment. Advisory service companies were established to give instructions, a recommendation to users who need help in each field of business. They can create value in the topic of investment, assets, insurance, customer support, and even in management decision makings. On simple businesses that deal with the same topics, FinTech companies have a disruptive effect, as they provide the same services with implementing for instance artificial intelligence, internet-of-things, and automation. Financing as a second classification refers to any other financing ways for businesses that are not considered as a traditional system. By traditional system, borrowing money from family or bank, stock markets, bonds, government funds are meant. A popular development is the so-called crowdfunding. It is also an effective financing way for startups, businesses can easily collect money from

investors, without any involvement of financial institutions. It also helps to fight equity and social cohesion. There are many FinTech companies whose company profile is to help SMEs to solve liquidity problems, as banks would not lend them money, or even to help to deal with gender discrimination. Compliance is getting bigger emphasis among the companies' business processes as it involves conformation to regulations, specifications, policy, and standards. Besides giving advice, FinTech companies use developed technical appliances such as drones for audits, mobile devices, artificial intelligence. The last group FinTech can be categorized in is payment. FinTech companies innovated Alternative Payment Methods, as they are heading towards a cashless society (Leong & Sung, 2018). Alternative methods of payment will be detailed in the following chapters.

In summary, FinTech aims to develop present technologies to improve directly or indirectly each business processes, enhance sales and profits, and to satisfy customer needs and expectations.

History of FinTech

By introducing the history of FinTech, we will find the fundamental pillars of APMs as Alternative Payment Methods are the portion of FinTech companies. The most significant cases will be introduced chronologically because after understanding its evolution, the terminology of APM will be easier to understand.

Western Union was established in 1851 and new technology was soon introduced, which was the precursor of the transcontinental telegraph. This innovation made the information possible to flow, being able to communicate even from hundreds or thousands of kilometres distance. 20 years later in 1871, Western Union was the first company, which made it feasible to send money within the United States of America, later it was enabled to world-wide usage (Western Union, 2016).

The invention of credit cards started when merchants recognised that they would be more financially efficient and could gain competitive advantage against their rivals if they gave credit to their customers. At the turn of the twentieth century, the definition of „credit revolution” was born. The advancement of mass production resulted first in instalment lending. It meant that until a settled date consumer had to pay weekly or monthly a fixed amount to be able to purchase those durable goods, that would be too expensive for them to pay the full amount upfront. Charge account was the second innovation in the name of credit. According to the Cambridge dictionary, (2020) it is „*a formal agreement between a shop or other business and a customer, in which the customer can take goods and pay the shop or business for them at a later time*”.

The difference between the above mentioned two innovation is that for instalment lending purchasers borrowed money for that one particular good, while for charge account they had a fixed amount each month which they could spend upon their wish. These two credit forms helped to ensure steady consumer demand that leads to mass purchasing. Another significant step was when the first bank-issued charge card was born. In 1946, John Biggins a Brooklyn banker invented it. It was soon noticed that local purchases could be settled and only bank customers could obtain them. Around the 1950s, Diners Club Cards have appeared that could be used for payments in restaurants, for entertainment, and at travel agencies. However, these cards were made on credit, they still served as a charge card, therefore at the end of each month the purchased amount had to be repaid. American Express (AMEX) showed a different provenance when they launched their first card in 1958. The invention of the first plastic card belongs to Amex, leaving cardboard and celluloid behind. Only just in 5 years' time, American Express cards were used at just slightly less than 100,000 foreign and domestic merchants. Thanks to the above-mentioned company, which started to issue credit cards in foreign currencies, the international evolution of credit cards could start (Vanatta, 2018). After this enormous revolution, only one step was needed to reach today's status of a credit card. 8 years later, BankAmericard, later re-named to Visa, became the United States' first licensed credit card that was used for general purposes. In the same year, MasterCard was established, so the real competition could begin enlarging the demand for credit cards (McDonald & Tompkins, 2017).

The need for early ATMs appeared as people could only get their money during their bank's working hours that limited their opportunity to receive cash. In 1967, Barclays Bank launched the first cash machine in the world that enabled customers to withdraw £10 at a time. Soon it was realised that the identification of the customers is essential, so Shephard Barron who was a retired soldier came up with an idea of a six digits code. His wife suggested reducing it to four digits as it is much easier to remember, and this leads to the invention of the PIN code that is still a part of our everyday life (Barclays Bank, 2017).

It may hard to imagine our lives without possessing a debit card. However, humankind had to wait until 1978 to be faced with the fact that not only credit cards are existing, but debit cards were also brought to life. At first, only business executives had the ability to adopt this payment method and they were offered large saving accounts. By 1984, Landmark issued a nationwide debiting system built upon the crediting system and ATMs. The number of uses of debit cards over cheques started to increase substantially (Parker, 2015).

The history of mobile payment is traced back to 1979, which is interesting because the famous ‘www’ – worldwide web- did not exist at that time. Michael Aldrich invented teleshopping, what we nowadays call online shopping or e-commerce. Teleshopping means purchasing from a distance. It is important to note the difference and to avoid misunderstanding with those television-advertising programmes, in which people are selling products. Aldrich connected his domestic television to a processing computer that could communicate in real-time with a multiple number of other computers. Aldrich could easily dial like using a normal telephone line and had his grocery shopping done by calling up the store. Although, this was just the first step of online shopping, 5 years later, Mrs. Jane Snowball was the first one in the world who bought groceries from Tesco while being home during the entire shopping (Aldrich, 2011).

The inchoate mobile banking was built upon the same base as the Aldrich kind of teleshopping. Bank of Scotland, the first bank in the United Kingdom, which introduced online internet banking, named HomeLink in 1983 by connecting to a telephone line with the help of television. Customers could have a look at their financial statements, bank transfers, and bill payments. Stanford Federal Credit Union in the United Kingdom was the first bank which introduced online internet banking and offered an all-around service for each of their customer in 1994 (Griffin, 2018).

A significant technical improvement came in 1989 with the brainchild of Tim Berners-Lee, who is the father of the World Wide Web. According to Berners-Lee, *“It worked because it was valuable, in a novel way. The value added by the Web is the unexpected re-use of information. People learned that if they went to the trouble of putting something on the Web for some reason, that others would benefit later in ways they never anticipated. The experience of surfing the Web, which blew some of the early users away for days and nights, was of discovering things you never knew existed.”* (Berners-Lee, 2007, p. 1).

Only a few years later, in 1994 the first secured online retail transaction was made. Even the New York Times has written about this event, in which Phil Brandenberger was involved. Brandenberger purchased with the help of his computer a Sting CD from Daniel M. Kohn. The reason we can state that it is secured because Brandenberg had to use a secret code therefore only the seller, Daniel M. Kohn was aware of the purchaser’s Visa credit card number. Nowadays, we would only call it data encryption, as it was completely secured from thefts (Lewis, 1994).

In 1997, Coca Cola carried the first mobile payment into execution by launching vending machines. With the help of this innovation, people could communicate and purchase by sending SMS (Kongaut & Lis, 2017).

After Coca-Cola's big innovation with SMS purchasing, the next significant step was in the same year, contactless mobile payment was born at a gas station named ExxonMobil. It used speed pass technology, which means that after the cash usage the pumps activated automatically and charged the customer's card (ExxonMobil, 2018). People realized that in this way they can avoid standing in long queues, payment became easier and quicker. It is not a surprise, that ExxonMobil became popular for this innovation and served as a base of further technological innovation.

Another contactless payment method that uses radio-frequency technology is the NFC. NFC stands for Near Field Communication and in agreement with Roland Minihold, NFC is "*...a new short-range, standards-based wireless connectivity technology, that uses magnetic field induction to enable communication between electronic devices in close proximity*" (Minihold, 2011, p. 1). It was approved as an ISO industry-standard in 2003, thanks to standardization every person no matter their location could use it equally. This technology could be found first in Android phones in 2011 and 3 years later Apple has also adopted it. Thanks to the presence of NFC in almost all smartphones, Apple Pay was introduced in 2014, and a year later Google has also launched Android Pay (Lohiniva, 2017).

The means of payments have always changed to make more comfortable and easier our lives. In addition, merchants always had to find new ways to attract new buyers. when the definition of e-commerce appeared, consumers were faced with similar goods and their only opportunity to gain competitive advantage was to supply more convenient payments for the purchasers. Since the year 2010, the technology that enables electronic purchasing is changing and improving rapidly.

II. ALTERNATIVE PAYMENT METHODS TODAY

In this chapter, the most used alternative payment methods will be introduced by groups and examples. It is significant to be aware of their disadvantages and risks besides being familiar with their several benefits that make the consumers' lives easier.

Investopedia (2020) defines Alternative Payment Methods as they are “*means of making a payment other than cash. This collective noun includes payments made using a credit or debit card, loyalty program points, cryptocurrencies, or virtual wallets.*”

It is worth of mention that APM is not a completely new innovation. The base of new innovative payment methods are existing methods of payment with modernized technology. In most cases, these AMOPs are the same as existing methods transacted electronically, which can make the process more reliable, quicker, and safer.

Wire transfer

Wire transfer is one of the most used methods of payment nowadays. Not only single person prefers to choose it over other methods, but small and medium enterprises and giant incorporations also do. Wire transfer makes easier the payment itself, as there is no need for physical meeting of the parties, enhancing the demand for e-commerce. Transfer of funds can be done in a few minutes with the help of internet bank applications or internet banks accessed online.

We can talk about wire transfer if the cash flow is done between banks or inside one bank, from one bank account to another. In Hungary, Instant Payment Service was launched on 2nd March 2020. It enables all bank users in Hungary to remit and to obtain the transferred fund inland in just 5 seconds. Previously, it took hours or even a day to receive money via wire transfer (Kajdi, et al., 2019).

The first transfer of funds can be associated with Western Union in 1871 with the help of telegraphs. Its evolution is explained in the first chapter. However, the SWIFT (Society for Worldwide Interbank Financial Telecommunication) system that is the base for today's wire transfers was established in 1973. It aimed to solve the problem of cross-border problems, such as linguistic difficulties and system boundaries. Therefore, standards were developed, which is the same in all country, so messages enabled common understanding. It became widespread less than in 10 years' time with a presence in 79 countries (SWIFT, 2020).

After the birth of the SWIFT system, the presence of an international bank account number was indispensable, and that is named IBAN.

Single Euro Payment Area (SEPA) was established to have safe and fast fund transfers in 36 European countries, including non-European Union joint countries. It enables users to transfer funds as easily as it would take if they sent money within the borders. Using the words of the European Central Bank SEPA “...contributed to the efficiency and competitiveness of the European economy as a whole by eliminating differences between national and cross-border payments by harmonising standards in all the participating countries.” (European Central Bank, 2020)

Bank transfer

Bank transfer and the above-mentioned wire transfer is very similar as the result in the end of the transaction is the same. However, some differences must be cleared.

Bank transfer can be called Automated Clearing House (ACH) transaction, which means that there is no need for attention, it is a fully automated process. Due to the automatization, banks collect the money from the bank account once a day, therefore it takes more time than it would take with a wire transfer. In general, ACH is used when purchasing in a shop or paying online bills. This process charges no transaction fees, and the customer may see on his or her online bank that the purchased amount is blocked, but not transferred. When the time for the collection comes, banks transfer that amount without any other due of the customer (My Security Awareness, 2020).

With the help of Instant Payment Service, the number of bank transfer usage was reduced only to fund transfer from a customer’s bank to a merchant’s bank, both in case of online shopping and purchasing in physical shops as well.

Payment with cards

Several card types can be differentiated when it comes to purchasing. There exist debit and credit cards, pre-paid cards that are uploaded in advance, charge cards that are uploaded after purchasing, and gift cards as well. In this section, I detail the features and working methods of debit and credit cards.

Debit and credit cards look almost the same, although they have significantly different characteristics that will be detailed below.

The biggest difference between debit and credit cards is the owner of the collateral. In the case of credit cards, banks settle an allowance according to the customer’s credit chargeability. This amount can be spent freely, however, after a given period (usually it is 1 month) it must be paid back to the bank generally in four weeks. In case the customer is in arrears, banks tend to levy

a high percent of interest on the missing amount. Although, in the case of debit cards this risk is not possible, as customers can only spend their amount of money on the bank account.

We can distinguish Closed-loop and Opened-loop payment systems depending on their working process when a transaction is made. The open-loop transaction means that debit cards are connected to an association or network and therefore, it can be used in each store that is also connected to those associations or networks. Visa or MasterCard are the best examples of an open-loop system. In the case of closed-loop systems, retailers issue their own cards, and with these cards, customers can only pay at a particular retailer. A closed-loop system is always easier as there is no need for the other two banks besides the company that issues the cards. For example, American Express, Diners Club (Parker Corby, et al., 2011).

Direct Banking

Thanks to the persistent growth of information technology and the evolution of internet banking, the definition of direct banking was born. Regarding this payment method, there are no physical or Brick-and-mortar structured banks. The actual bank is only present on the internet and with the help of the internet and smartphones, customers can have a solution for almost all of their questions. Customers can open an account, transfer money, and deposit cash as well (Singh, 2014).

Direct banks can be appealing as they offer better interest rates and lower fees than a traditional bank in general. They can allow it, as they save a lot of overhead costs by not opening physical offices. Moreover, customers can have a better online experience, and it is more convenient and quicker as they do not have to visit bank branches and wait in long queues (Beers, 2019).

People can choose traditional banking over direct banking for several reasons. There is a lack of human interaction when using direct bank accounts. Many people prefer to meet personally and build personal relationships with employees. If any question arises, it is difficult to find a telephone number or an e-mail address where you can get help, in addition, the lead time of answering takes in general 1-2 weeks. It is also true, that those banks who have only an online presence, tend to have less service, for example, insurance and brokerage accounts, or bank signature guarantee which is indispensable for some financial transaction (Beers, 2019).

Electronic wallets (E-Wallets)

Smartphones soon became the most used devices since their first appearance, and their usage started to replace computers and laptops. It is more convenient to carry a mobile phone than a laptop, and people can use phones almost for all those things that a computer can provide. In

addition, the presence of smartphones contributed to the rise of e-commerce. People can purchase and sell goods or services more flexibly.

Dr. J.Mohamed Ali and Mr. L.Vijaya Gopalan define e-wallets as “...*a sort of pre-paid account wherein a person can keep her cash for any future on line transaction. An e-pocket is included with a password. With the help of an e-wallet, you possibly can make bills for groceries, online purchases, and flight tickets, among others. Epockets have in particular components, software program and information. The software program issue shops personal facts and gives security and encryption of the statistics. the facts thing is a database of details furnished via the consumer which incorporates their call, delivery cope with, payment technique, quantity to be paid, credit score or debit card details, etc...*” (Gopalan & Dr. Mohamed, 2018, p. 155).

Electronic wallets can be categorized into four groups according to their delivery technology, however, the base for online shopping is the same. People can use their electronic wallet to store all their physical cards in it and can easily choose the appropriate one when purchasing. It can be a timesaving opportunity, as e-pocket can save all the data of the user and automatically fill out the requested information referring to for example the client’s bank account, delivery place.

The appearance and expansion of mobile payment are playing a significant role in the payment industry.

NFC based E-Wallets

Electronic Wallet transactions can be made through Near Field Communication (NFC) technology. NFC built-in technology can be found in smartphones since 2011, it enables devices to communicate with each other from a small distance with the help of a magnetic field induction. We can conduct in-app purchases, use it in physical shops or online shops as well. These transactions are very secured, thanks to the mobile wallet’s high security. We can only finish a transaction if we use our biometrics along with the two-factor authentication. This payment method is easy to adopt for merchants also, it can be easily integrated into international markets. However, the availability of NFC-enabled POS terminals is limited in physical stores, therefore we have a chance that we cannot pay with it. Apple Pay, Google Pay, and Samsung Pay use this methodology, although they are not available in every country, for instance, Google Pay is still not available for users in Hungary (Peterson & Wezel, 2016).

Apple advertises Apple Pay as “*Cashless made effortless*” (Apple, 2020). This slogan refers to the easy handling of payment with an alternative payment method that is called Apple Pay.

iPhone or Apple Watch owners have the ability to store all their debit or credit cards, pre-paid cards and even their boarding passes in a Wallet. Before paying, the appropriate card can be chosen for payment. People are allowed to use Apple Pay in 60 countries of the world and where terminals accept contactless payment. Almost all merchants who made card payment available has a terminal that enables NFC, which can contribute to the widespread use of this method. Payment is as simple as it would be with a debit card, but before the transaction would be finalised, it asks for biometric data that can be a fingerprint, face identification. This two-factor authentication is quicker and more reliable than typing in a PIN-code or answering questions, as other people may be aware of the person's PIN-code, but they will never have the same fingerprint. This regulation is called the Payment Service Directive and it is detailed in the last chapter. Moreover, users' card number is not available for Apple servers and therefore neither for merchants. Payments are done with a unique transaction code therefore, no transaction can be traced back to the buyer (Apple, 2020).

QR code-based E-Wallets

QR code that stands for Quick Response, is a type of 2-dimensional bar codes. The matrix of the QR code is more complex than a bar code. Therefore, QR codes are able to embed SMS, URL link, and plain text, and can be read with a smartphone with the help of its camera. Thanks to its three detection-helper patterns that are located in the corners, QR codes can be recognised from any angle. Unfortunately, payments are not successfully done at first in all cases. Bright lights can be an obstacle for the optical reader. Secure data can be handled confidentially, however, these transactions are not secured incrementally, so our personal data is not encrypted as much as in the case of the above-mentioned technology (Shetty, et al., 2014) (Peterson & Wezel, 2016).

Alipay is a popular QR code-based payment method among Chinese people. Alipay was established in 2004 to support safe purchasing via Alibaba that is the biggest online shopping platform in China. Alipay served as a consumer protection platform, as the purchased amount was only transferred to the merchant when the buyer received the product. It became soon very popular, thanks to the reliable delivery of goods (Zhu & Li, 2018). Since then, Alipay went through a lot of technological change and adopted significant innovations. QR-code acceptance is one of the most significant technological change they have adopted. There are two ways to use QR code for in-store purchasing. First one happens when the customer presents a QR code with his or her electronic wallet after the merchant specified the purchased amount. Merchant can easily scan the code with a bar code or QR code identification device, in case the scanning

was successful, the payment transaction automatically starts. The second option involves a QR code from the merchant. The transaction can be done if the customer scans the special store code to identify the right merchant and types in the purchased amount. After the buyer does the verification process, the transaction is finalised automatically (Alipay, 2020).

While QR-code based Electronic Wallets are beneficial considering the technical requirements and the low cost of implementation, it takes more time than touching our NFC-based E-Wallet application to the POS terminal. Cybersecurity risk can easily arise because QR-codes can be barely distinguished. Users can be victimised by cybercriminals who may steal their identity or their fund with the help of a harmful QR-code.

Online-based E-Wallets

There is a digital type of E-Wallet that is designed for mainly online usage and just a limited number of application is available for in-store purchasing. They are very simple to use, after downloading their app, but there are only a small number of merchants who accept their plastic cards or QR codes (Peterson & Wezel, 2016).

PayPal uses this methodology. It is mainly prevalent in the United States of America, but PayPal is available in more than 200 countries.

In accordance with Eric M. Jackson's words, the mission of PayPal is *„Paper money is outdated - inconvenient, can be lost. People now need a form of money that can be accessed anywhere through the Internet. This will not just be convenient for the developed world; it'll be revolutionary for the developing world. It'll protect citizens from governments that manipulate currency; these people can transfer money without borders, exchanging for stable currencies in offshore accounts. We will become the Microsoft of payments, the financial operating system of the world.“* (Jackson, 2006)

Since its launch in 1998, PayPal has become the fastest-growing company that gained popularity because of its payment system. In 2002, eBay, an online auction site, acquired PayPal. According to eBay's vision, PayPal was user-friendlier than their own payment service and this move helped PayPal to reach the constantly increasing popularity from customers. However, after thirteen years, in 2015 these two corporate giants decided to be two separate public trading companies. Although PayPal has become independent from eBay, customers will be able to choose PayPal while shopping until 2023 (Trautman, 2016). The opportunity to send money in different currencies such as American Dollars, Australian Dollars, Canadian Dollars, Euro, Pound Sterling, and Japanese Yen to over 130 countries makes this process outstanding

and appealing. Moreover, the possibility to transfer the received amount to a saving account or invest it in a PayPal Money Market Fund is really upon the customers' wish (Emmerson, 2006). These are just a few reasons why PayPal became so popular, that they gained 346 million active registered accounts by the second quarter of 2020.

According to PayPal's website (2020), they provide security for both buyers and sellers. It consists of the encryption of their financial information, prevention of fraud and identity theft, monitoring online transactions all day and all night. Moreover, there exists a so-called dispute resolution, which means that PayPal only finalise a transaction when the problem about quality or quantity issue is solved. For merchants, PayPal offers the same conditions, extended with credit supply to small businesses.

PayPal can be beneficial if you are purchasing in a merchant where PayPal is accepted. In other cases, the company charges a relatively huge amount for a non-PayPal transaction. Furthermore, PayPal helps small businesses to expand, which is a very generous move, although we should not forget that amount is paid by individual shoppers. The only problem with that action is that these are hidden fees, and customers can be surprised when later they are faced with the invoice. Despite putting a big emphasis on personal security, we always have to be aware of the fact that we are paying online.

SMS-based E-Wallets

The last type of digital wallets regarding their delivery technology is based on text messages, SMS messages. As it was detailed in the historical chapter, Coca-Cola was the first company who launched this type of payment. Since then, this payment method is available. It is beneficial for those customers as well who do not own a smartphone, as for this transaction internet access is not needed. The drawback of this function that it is not integrated with payment networks, only a few things can be purchased by this method (Peterson & Wezel, 2016).

Every mobile network service operator offers at least one type of purchasing against phone bills. In Hungary, Telekom is the biggest company in this sector, provides the possibility to purchase several services. Clients are able to buy a high-way ticket, lottery, tickets to theatres and to pay for parking. The cost adds to the monthly invoice, and customers can easily make up their accounts. There is no need for the presence of cash or debit cards, only a mobile in which SMS sending is available.

Other Alternative Payment Methods

Here I would like to list alternative payment methods that are also available but not so popular as the ones that I listed above. This is a non-exhaustive list.

Local card schemes

Local card schemes are limited to one particular store or chain store. They operate like normal debit cards or credit cards with some favorable offers for loyal consumers (Wordpay, 2014).

Auchan credit cards can only be used in their own stores, therefore potential Auchan card users can lay their claim in one supermarket of Auchan.

Auchan credit cards can offer several advantages to the customers. By paying with this card, customers receive a 5% reduction from their amount. They also can collect redeemable points. Nevertheless, it must be mentioned that Oney, which is the bank that serves credit to Auchan buyers, offers commodity credit at 0% Annual Percentage Rate (APR). It can be appealing as this supermarket sells household appliances and other technical devices that may not be affordable for an ordinary person. However, in other cases, the Annual Percentage Rate is at 36,83 %, so one forgotten payback can be very costly for customers (Auchan, 2015).

“Local currency”

The local currency has similar working logic as the local card scheme. While local cards can be used only in a particular chain store, a local currency is limited to a geographically defined region.

It aims to help encourage the economy in that particular place. By this method, local currency users contribute not only to the well-being of local merchants but also to reduce air pollution, which is caused by transportation, and can eliminate the use of unnecessary power equipment. It could be a very adequate instrument towards reaching sustainable development. The consumption of locally produced products serves as a booster for the community and utilize local resources. Although its name refers to currency, in legal understanding, it is not accepted as legal money. It is more like a voucher. However, vouchers originally do not enable circulation, local currency can enhance economic activity. (Varga & Juhász, 2018).

From 2012, customers can use Balatoni korona as a payment opportunity within Veszprém county. This local currency can be exchanged in the local office or in tourist offices in the county and have the same value as the Hungarian Forint. The number of places where Balatoni Korona is accepted is still increasing because of the growing demand for this payment method.

Customers, who use this payment option, receive price discounts, and support the local economy.

Pre-Paid cards

These pre-paid cards or vouchers must be purchased in advance and uploaded with a certain amount of money before customers could use it for purchasing. In general, these types of cards are limited between a timeframe and chargeable amount can be limited as well. Because of these reasons, this type of card is mainly used for purchasing small-valued goods (Wordpay, 2014).

Revolut is a British FinTech company that offers online financial services by providing pre-paid cards. Revolut was launched as a start-up company by Nikolay Storonsky and Vlad Yatsenko in 2015. The big success came when they realized the emerging need for online banks, as well as providing favorable exchange rate commissions and transaction fees.

Revolut is developing at a rapid pace, launching some new service for their customers in each year. In the early years, Revolut only offered services for private people, however, in 2017 they introduced Revolut Business and made trading with cryptocurrency available for both personal and business usage. One year later, opportunities were expanded with stock trading without paying any commission fee. From this year, users are possible to have all their external bank account in one place. Thanks to the big popularity this FinTech company receives, they could expand to Australia, Singapore, and to the United States as well (Revolut ltd., 2020).

People can become a member of the Revolut society in just a few minutes without paying any fees. Potential customers can choose from three pricing plans that provide different services: standard, premium, and metal. The standard pricing plan is free for clients and provides a full range of financial services. Among the three types, a difference can be made by taking into consideration the amount until money withdrawal is free. In addition, in cost-charging accounts, travel and health insurance are involved in the package. Both business-aimed users and private people are able to transfer funds abroad in more than 30 currencies in the interbank exchange rate or purchase outside the borders in more than 150 currencies, and the interbank exchange rate is considered for this method as well (Revolut ltd., 2020).

The use of a Revolut pre-paid card can benefit people when they are trying to save money, by enabling cost-free withdrawal from ATMs all around the world until a settled amount, cost-free wire transfer unless clients would like to send money in a different currency, and also it provides cost-free maintenance services.

In the latest annual report of Revolut several risks were detailed that can affect the company and the users as well. The most significant risks are going to be detailed in the following part. Macroeconomic environment risk is very high, especially during the Covid-19 pandemic situation, as Revolut has revenue from people who spend according to their income. People spend more if they are financially stable and tend to save money when their income is unstable, or economic situation is damaging. Moreover, the United Kingdom will exit the European Union at the end of 2020, which raises several questions according to its regulations for other members of the European Union. It can lead to credit and liquidity problems, however, Revolut works with Tier-1 banks in the United Kingdom. Therefore, the chance of credit or liquidity risk to appear is low. Personal security is significant especially when the only way to store clients' funds is online. For that reason, Revolut introduced Know-Your-Customer and Anti Money Laundering policies and procedures to avoid both cyber-crime and financial crime risks (Revolut ltd., 2019).

Revolut can be beneficial for those, who regularly travel abroad or would like to benefit from interbank currency changes. Even though Revolut has a banking-license, this FinTech company is not a bank, it cannot provide the same range of services as traditional banks. In addition, it has poor customer service and problem-solving methods can take several weeks. Therefore, Revolut is not able yet to take over the place of traditional banks.

Fringe benefit card

Fringe benefits or cafeteria can be provided to employees. This is a non-salary compensation, which can be offered upon each employee's salary. The cafeteria is usually determined, which means employees have limited ability on what to spend that particular amount. It is beneficial for the government as they can predict purchasing, gaining transparency in the economy. In exchange, the government offers tax redemption to employers, which is beneficial for the company.

In Hungary, SZÉP-card (Széchenyi Recreation Card in English) can be a very good example for fringe benefit cards. This electronic voucher was created to enhance the inland economy while providing easy and reliable purchase. Soon this method became very popular among businesses and users as well. It can be prosperous for employers, as a more favorable tax rate is levied, and for employees as well, because the amount they get can be spent for what they want to (Széchenyi Pihenőkártya, 2020).

While it looks the same as a debit card, its usage method is different. Companies can choose among three banks' assortment (OTP, MKB, K&H) from where they provide SZÉP cards for

their employees. There are some slight differences in the conditions, but it only concerns employers. As it is a fringe benefit, company owners decide upon the amount they charge up this card with. Three different pockets exist where the money can be transferred; however, employers and employees have to revise this decision, as it cannot be changed later. The first pocket can be used for paying for any accommodation inside Hungary, which accepts SZÉP-card. In addition, people can also use it when purchasing entrance fees for baths, or different services in baths. The second pocket is for catering. People can use this pocket in every place where warm meals are prepared, and they accept SZÉP-card. The last pocket is called leisure. This type consists of many activities that can help people to spend some quality time while on vacation or even in their every-day lives. People can purchase a ticket to a festival or a theatre, go to a zoo, or even buy tickets to baths. A very important rule is that in case of accommodation or bath that accepts SZÉP-card we can use all three pockets to pay, no matter what we would like to pay for (Magyar Turisztikai Ügynökség, 2020).

Payments can be made as simple as it is by paying with a simple debit card, or there is a chance to purchase with it online with the help of a smartphone. There is no need to remember PIN codes, each person can prove their identity by signing the receipt and showing their ID.

This form of a fringe benefit can be a great opportunity for those who like to travel inside of Hungary. When planning a trip, with the help of mobile application users can check beforehand the places where their SZÉP card can be accepted in the mobile application.

Cryptocurrency

“Cryptocurrency in its purest form is a peer-to-peer version of electronic cash.” (Chuen, 2015, p. 8) Peer-to-peer system in the case of electronic cash means that the mentioned digital currency is sent from one party directly to another party, without involving a financial institution in the transaction.

It all started at the beginning of the 1990s when Dr. David Chaum found a solution for working with digital cash. He developed a software, which became the first electronic money payment system, named DigiCash. However, e-cash was popular in the beginning, soon it started to fade into the background. In 1999, digital gold currency appeared, and the use of cryptocurrency started to come back to life even though, e-Gold had some issues with hackers. During the time of the global financial crisis in 2008, cryptocurrency became more popular as it had more beneficial features than a fiat currency, we can clearly understand just by taking as an example their decentralized presence on the market (Chuen, 2015).

Bitcoin is one example of cryptocurrencies. It was born in 2008, thanks to Satoshi Nakamoto. It is a quite complicated system defended by a very developed and complicated encryption system. This encryption is needed to always have the opportunity to allocate the owner of the bitcoin in order to expel the possibility of double selling (Chuen, 2015).

You can get access to Bitcoin in three different ways. Mining is one option, although it comes with high costs and a lot of time. What makes this whole system very difficult is its payment operation. The computers have to solve very complex mathematical problems (HASH) for which a normal computer is not able to, that is why users need to have a special video card in their computer. To miners whose computers are equipped with ordinary features does not worth this method as computers need so much energy that their reward for mining would be less than the electricity bills. Other users check the correct solution, and if it is correct, the payment is valid and this new block, which was done, can be joint to the chain. The summary of the blockchain is the general ledger where we can find all the payment transactions. The miners, who can solve these mathematical problems (HASH) successfully, get bitcoin as their reward (Gyüre, 2019). The second option is to purchase it against some currency on the exchange for example on FOREX. Thirdly, we can sell goods or services and receive the offset in bitcoin.

The biggest advantage of a digital currency can be the lack of a third party. It means that it is decentralized so a single group or an entity cannot influence its value. For example, the government can influence the inflation of a national entity by changing the amount of printed national currency. Here, in this case, it is impossible, as its name also indicates that it is digital, it has no physical form. In addition, as there are no financial intermediaries involved, there is no transaction cost when transferring digital cash. While it is an open software, it is available to everyone upon their wish, a big group of professional developers is checking every transaction, and thanks to HASH, it is very hard to commit a cyberattack. Moreover, this currency can be found globally, so users do not have to worry about the exchange rates. It can be advantageous for merchants also, as it is much cheaper to introduce for example bitcoin than credit cards among their payment methods because there are no transaction fees, interchange fees, and statement fees. (Chuen, 2015).

However, we should not forget the risk that comes along with digital currencies. I have mentioned decentralization among the advantages, although it can have a negative effect also. Without the influence of governments, only demand sets the price of digital currencies. It results in an unpredictable value, which can be either beneficial or disadvantageous.

Hypothetically, we can use it globally; however, it is not a widespread payment method. It may serve well as an investment than a payment method nowadays. Even if bitcoin is putting a big emphasis on personal data safety, more and more criminals started to appear and steal cryptocurrency, personal data and can have access to user's digital wallets. In this system, if someone spends a bitcoin, that money is lost forever as it joined to the blockchain. In addition, we should not neglect the fact, that government does not regulate bitcoin at all; there are no rules or regulations made considering bitcoin or any other digital currency (Chuen, 2015).

III. COVID-19 IMPACT ON PAYMENT METHODS

Research method

When I was planning the structure of my thesis, I realized that I need to make both quantitative and qualitative research as well. While I was reading lots of sources and gathering secondary data, I was faced with the lack of updated data regarding payment habits. I would not be able to draw an accurate conclusion from outdated sources as alternative methods are rapidly changing these days. Moreover, it was hard to find reliable sources among that huge number of articles that come from simple journalists or not trustworthy sources.

My aim was to find reliable and actual data from customers and merchants as well. Therefore, I made a questionnaire addressed to purchasers and made interviews with employees and their superiors who are working for different stores.

Questionnaire

I made my questionnaire bilingual, so both Hungarian people and English-speaking foreigners could get a chance to answer my questions. I was focusing on a wide range of target groups from under the age of 16 to above the age of 70. I proposed in the introduction part of the questionnaire that only those people should fill it out who purchases on a regular basis. My aim with this questionnaire was to find out their purchasing habits before the appearance of Covid-19 and whether it has changed or not on account of the presence of the pandemic situation. My questionnaire took around 5 minutes and provided full anonymity for people.

At the beginning of the questionnaire, 5 demographic questions can be found. I believe that according to these questions I am able to draw a reliable conclusion of different classes of demography. After the first part, I asked 9 questions considering the out-fillers knowledge about alternative payment methods, and their purchasing habits before the virus appeared and nowadays.

In the great majority, I asked closed-end questions to easier interpret the answers. The possible answers were listed, and of course, there were always given the ability to choose the other option where they could write in their own answer. There were only two dichotomous questions asked. By this type of question, I wanted to ask whether they heard about alternative payment method and whether they have already used it. If the question was no, even for one question, the questionnaire ended. In the biggest portion, I used multiple-choice questions, with three or more answers listed. I asked a question that is very similar to the semantic differential type. My aim was to find out what are the customers' opinion about the different methods of payment.

In those cases where the potential answers could be very diverse from people to people, I chose open-ended questions.

With the help of the diversity of the used question types, I could get more genuine answers. All in all, I wanted to make a simple questionnaire which does not take a lot of time to fill out, but still, I can get primary data to support my thesis.

In the end, I closed down this questionnaire with 364 answers. The volunteers had the ability to fill out the questionnaire from the 22nd of October until the 06th of November, so I gathered all the information in around 2 weeks. The reason I decided to close down the questionnaire was that in the last 6 days I did not receive any answer.

The analysis of the questionnaire was made with the newest version of Microsoft Excel in all cases.

I tested hypotheses with the help of the Goodness-of-Fit test, in order to confirm my assumption with statistical data. The answer to a potential connection between the demographic data and the different use of several methods of payment will be tested. This hypothesis will be rejected or failed to be rejected with the help of a Contingency Analysis, and it will turn out whether the two factors are dependent or independent of each other. This hypothesis can be found after the analysis of the informative question it refers to.

Demographic data

Among the surveyed people more than two-thirds are women and one-third are men.

The great majority according to the distribution of location is living in a town or in a chief town of a county. 8,8% chose capital as their living place and 15,1% stated they live in a village. This questionnaire is focusing on several regions, and it covers locations where the state of development can diverse.

The age from 36 to 55 is the majority with 49% of the sample. Out of the 364 surveyed people, 53 people (14,6 %) stated that their age group is between 16 and 23, 68 people's age (18,7 %) are between 24 and 35, and 60 people (16,5 %) are between 56 and 70. There was no person who is under 16, although it was originally another option in my questionnaire. I assume that teenagers who are under 16 are not paying for products or services regularly, especially not with alternative payment methods. Among the volunteers, there were only 5 people (1,4%) who are above the age of 70. Presumably, people around 70 or above are more likely to refuse to use the internet.

Regarding their relationship status, 154 people are a parent and have at least one child that they live with, 100 people have a live-in relationship without a child, 41 people live all alone, 40 people still live with their parents and 29 people are retired. This question is significant because people in every stage of their lives have other demands and needs. These influence the payment methods, for instance, a mother with a newborn child may not go into physical shops to buy some dress for herself, rather choose online shopping and have a higher chance to use alternative payment methods.

The last demographic question that was asked referred to their highest educational level. Out of the surveyed people, high-school graduation is in majority (48,4 %) according to their highest educational level and 153 people (42%) has at least a bachelor diploma. The number of those, who only ended their studies at primary school and those who chose other as their answer, only take up 9,6% of the whole. 5.8% (21 people) wrote in the other option that they either have OKJ qualification, which provides a qualification for adults in different professions or they learned in a technician secondary school where they did not receive a graduation certificate. This question has high importance as a parallel can be drawn with being appraised of new technologies and the educational level. In addition, the method of payment may depend upon the way people receive their wages. For example, I assume that those people who get their wages in cash may not have debit cards or choose any kind of alternative payment method.

At the beginning of the informative questions, a question referring to the knowledge of the presence of alternative payment methods was raised. Out of 364 surveyed people, there were only one who never heard about alternative payment methods before. It means, that this survey was only continued by 363 people. This questionnaire was planned to take a person to the end if he or she answers here no, this way I could avoid receiving false or misleading data. Unfortunately, as only one person chose 'no' as his or her answer, I am not able to measure dependency between the knowledge of AMOP and for example the age group in this case.

However, the number of people who refused to use or to try out at least one alternative payment method is more. 36 people, almost 10 % of 363 people have never used AMOP, even if they are familiar with these methods. A hypothesis was tested, which was concluded upon the dependence of the age and the usage of alternative payment methods. I made this chi-square test with the help of Microsoft Excel, and it was calculated at a 10% significance level. The solution can be interpreted easily, as the probability (p-value) that belongs to the value of the test function is less than the alfa (α). Therefore, the test function falls into the rejection region, which means that the null hypothesis is rejected, and the alternative hypothesis is not rejected.

It means that at a 10% significance level, the usage of the alternative payment methods is dependent on the different age groups.

Table 1

Analysis of dependence between age group and AMOP usage with the help of Goodness-of-Fit test

Unit of measurement: -

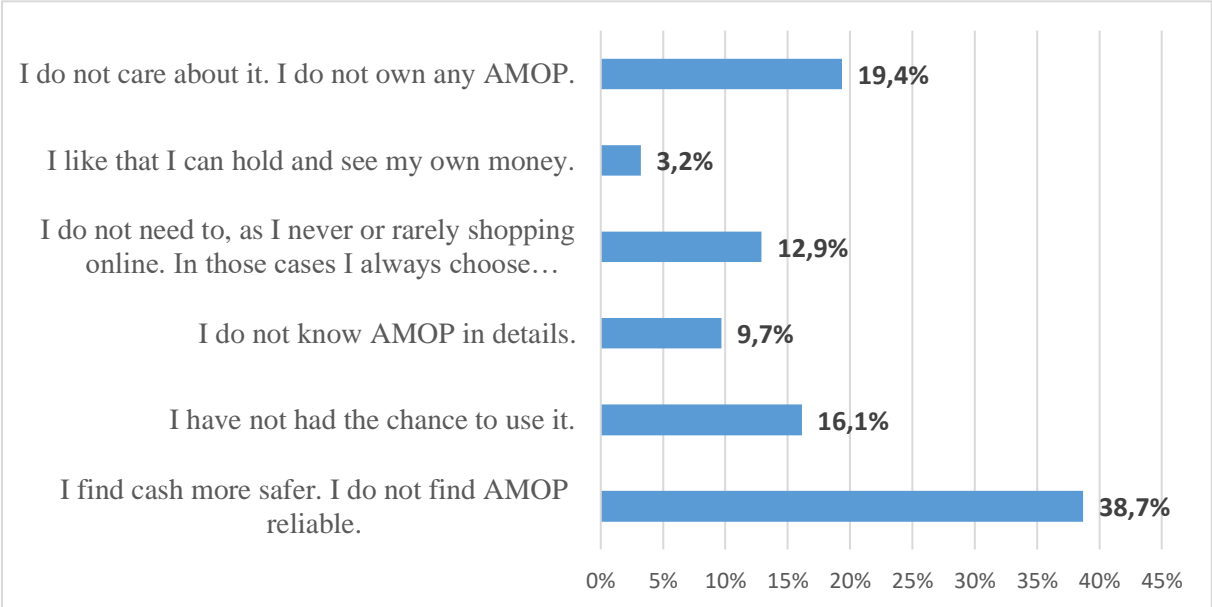
Age group	f _{ij}			f* _{ij}			(f _{ij} -f* _{ij}) ² /f* _{ij}	
	Yes (no of people)	No (no of people)	Grand Total (no of people)	Yes (no of people)	No (no of people)	Grand Total (no of people)	Yes	No
16-23	46	7	53	48	5	53	0,06	0,58
24-35	63	5	68	61	7	68	0,05	0,45
36-55	160	17	178	160	18	178	0,00	0,02
56-70	53	7	60	54	6	60	0,02	0,19
Above 70	5	0	5	4	0	4	0,25	0,50
Grand Total	327	36	363	327	36	363		

2,12	chisquare
significance level	0,1
degree of freedom	4
cu	7,77944034
p value	0,18362649

Source: Self-edited

For those 36 people who answered as ‘no’ to the previous question, whether they have used at least one alternative payment method, another question was raised before the questionnaire ended. It was an open-end question because I was curious about the honest opinion of why people decided to refuse any other payment than cash. Writing an answer to this question was not mandatory due to the above-mentioned reason. However, I gathered 31 answers and only 5 people did not write any answer. As a result, from now on, 327 people’s opinions will be analysed in the case of the following questions.

Figure 1
Distribution according to the reason for rejecting AMOP
 Unit of measurement: percentage



Source: Self-edited

I was able to categorize them into 6 groups because very similar opinions were given. According to most people’s opinion, they did not use any kind of alternative payment method when purchasing because they do not find it reliable, they trust in cash more. Almost the same amount of people answered that either they do not care about it, or they have had no chance to try them out so far. We can state that just a few people rejected APM due to the lack of knowledge or information about it.

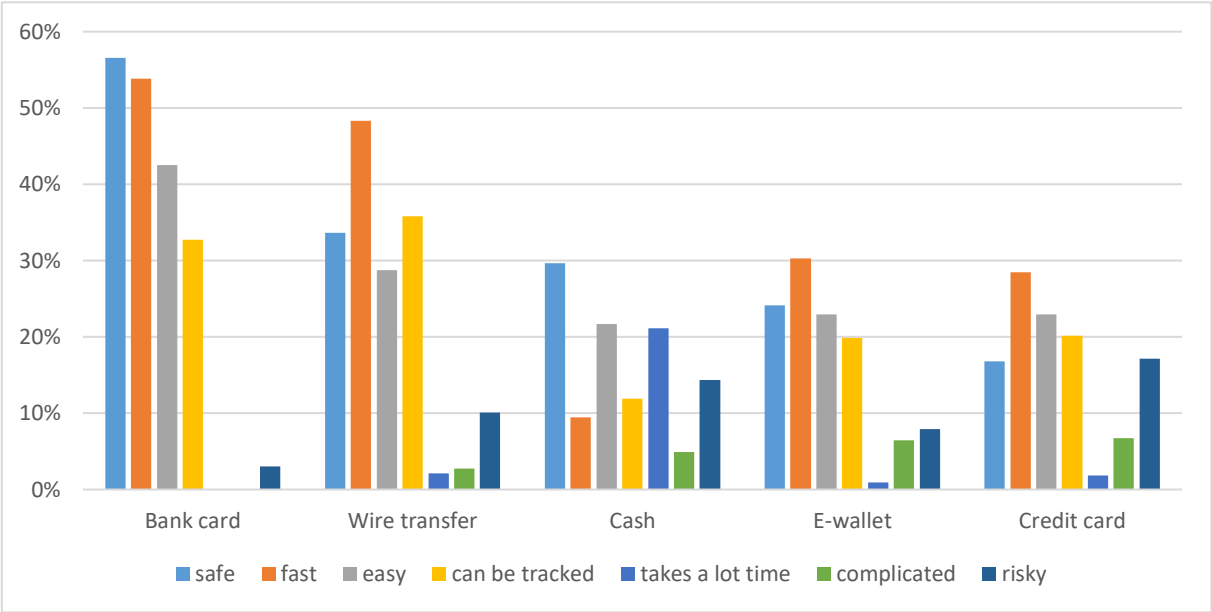
Those people, who used AMOP at least once in their lifetime were asked to name all the alternative methods of payments they tried out. From 327 people, the debit cards seem to be the most popular as 326 people chose it as one of their answers. 79% has already tried out transferring fund online and 36% purchased by sending SMS. Credit card usage is less preferred as only 28% of the sample has used it so far and even fewer people (13%) has chosen the mobile

wallet as a purchasing method. Cryptocurrency usage is negligible, considering that only 2% chose this method of payment. As the population of this sample is mainly living in Hungary, only one person chose Scotland as their location, the most popular alternative payment methods can be determined in this country.

In order to understand the reason behind their choice, they were asked to pair an already given adjective to each payment method.

Figure 2
Distribution according to the people's opinion about payment methods

Unit of measurement: percentage



Source: Self-edited

This diagram is sorted in descending from the safest payment method to the least safe because I believe, personal security is at the top of everyone’s own priority. Bank cards seem to be the safest, fastest, and easiest solution from these 5 most common purchasing methods. Another essential factor when choosing the most suitable payment method is the traceability of our spending, the ability to see in one place all our purchasing, for example, to possess all information about the location, amount or even the time of our payment. Wire transfer is the most appropriate for this aspect, while according to people cash is the least adequate for this purpose.

It turned out from the questionnaire that people are open-minded to new technologies, however, there are still a significant number of people who do not trust cashless payment methods.

Covid-19 effect on Alternative Payment Methods worldwide

At the end of 2019, the number of Covid-19 infections started to rise in Wuhan, People's Republic of China, and the rapid spread of Covid-19 has emerged soon as a global concern. Therefore, the most urgent priority is to minimise the number of infected people and the number of deaths. However, the economy both in the country and at the international level is suffering from the effects that come along with the appearance and the defense of the virus. Infections of the Covid-19 virus appeared in different stages in the countries, although it can be categorized into different waves. The definition of a wave can be understood in two ways. According to Dr. Sheldon Preskorn second wave occurs when those people who were already infected, and became immune to the first version of the virus can be infected again, as their immunity is no longer available due to the appearance of other versions of Covid-19 (MD, 2020). World Health Organization (WHO) differentiate waves by "*activity spread over months*" (World Health Organization, 2020). The second wave in WHO's interpretation is going to reach every country if the overall active infections are taken into consideration. Its trend shows a steady increase from its appearance (John Hopkins University of Medicine, 2020).

To prevent an even bigger pandemic situation several actions and regulations have come into force. Social distancing means the limitation of physical interactions is applied to every person. Due to the rising number of infected people, governments introduced restrictions such as curfew, change in opening hours of shops or other service providers, shut down of schools. Despite having an enormous decrease in several sectors, for example in the travel and entertainment category where spending shows a substantial decline between 80 and 90%, these regulations lead to the rise of sales in E-commerce (Bruno, et al., 2020). As stated by the United States Census Bureau, the adjusted estimate of E-commerce sales increased by 31,8% as opposed to the previous quarter, which was the fourth quarter of 2019, and a 44,5% rise in E-commerce sales can be observed considering the same quarter a year ago (United States Census Bureau, 2020). As a consequence of the growing demand for online shopping, the popularity of those FinTech companies that provide alternative payment methods increased because people are becoming more precautious and started to use cashless methods when paying or rather arrange their shopping online. Swiss National Bank reported actual data in credit and debit card usage that enables contactless payment methods. From January until August 2020, credit card usage increased by 6%, and debit card usage increased by 18%. However, automated teller machine (ATM) usage decreased by 2%, which means that people started to refuse to withdraw cash (Swiss National Bank, 2020). Fear of physical interactions, lockdowns, and merchants' refusal of cash acceptance also contributes to the fall in cash and ATM usage. There

was a considerable dip per month at an average of 46 percent from March until June 2020 in United Kingdom's ATM usage, while India experienced a 47 percent decline. 2150 ATMs were shut down in Australia until the middle of August, which results in the lowest ATM numbers Australia has had in the last 12 years. This rate can be five times more than the annual decline in cash usage that was observed in the previous years. Banks all around the world have an impact on the rise of alternative payment methods. Several bank branches are closed to reduce long queues to prevent the expansion of Covid-19, therefore online banking is becoming more and more popular. This way, people are forced to keep up with digitalization and can adopt to new methods of payments that differ from cash (Bruno, et al., 2020) (ATM Marketplace, 2020).

Covid-19 effect on Alternative Payment Methods in Hungary

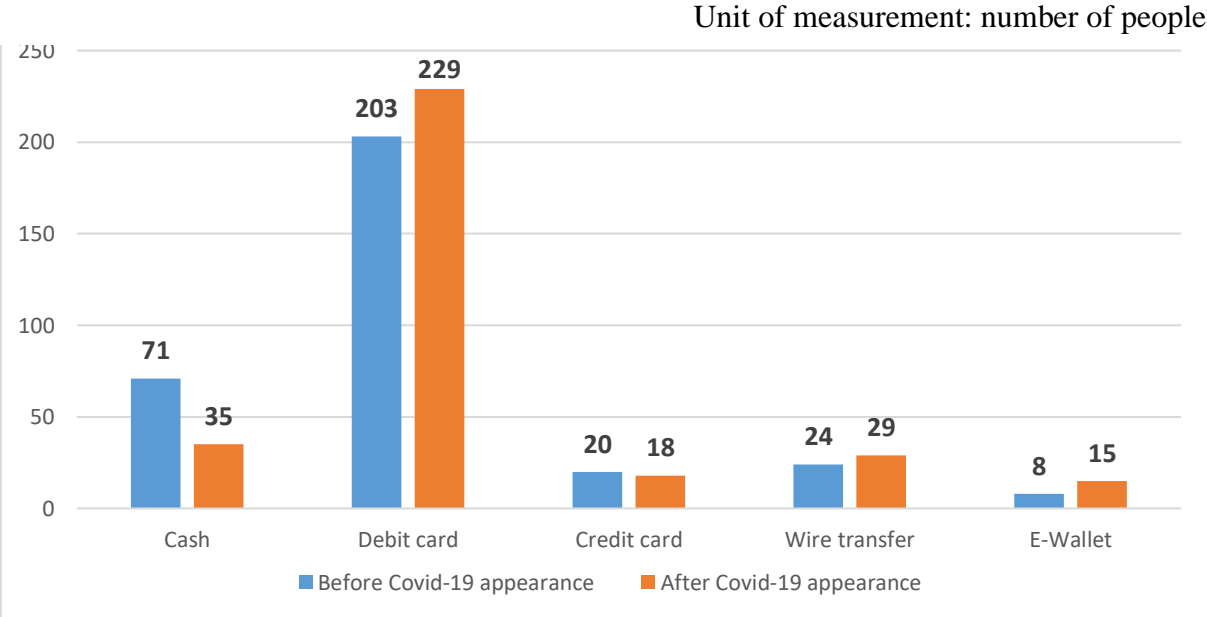
In the country, the Covid-19 virus appeared first on the 4th of March 2020 and the first wave lasted until the country stepped into the post-pandemic period that happened during summer. The emergency situation came into force on the 11th of March and involved the whole nation. The first actions that were a part of the emergency response plan involved the switch to digital education, lock-down of borders in front of civil people, shopping in the permitted time frame, and curfew besides several regulations respecting the defense of the economy. The payment limit was ordered to be expanded until the PIN-code is needed. During summer, the government loosened up the restrictions as the number of infected people started to decline. However, with the beginning of autumn, the number of active cases began to rise. As a consequence, stricter actions came into effect. People are not allowed to leave their homes between 8 PM and 5 AM, the breach of this regulation is only accepted in defined cases. Therefore, the shops and service providers must be closed latest by 7 PM. Hotels are not obliged to host guests unless they are on a business trip. Restaurants are only permitted to take orders and deliver food while serving dishes at their place is not allowed. Amateur sports, which include more than one person, are prohibited as well.

The above-mentioned actions play a significant role in each person's decision while choosing the purchasing method. Due to the curfew, people have less time to organise their shopping, which may lead to an increase in online shopping. According to my questionnaire, 55% stated that they started to use different cashless payment methods to avoid physical contact. Expansion of PIN-code limit was suggested by the Hungarian National Bank, and the government soon ordered all banks to adopt this change that also contributed to the decline in cash payments, as people who purchase under 15 000 HUF do not have to type in their four-digit PIN-code.

However, several statistics of the Hungarian National Bank shows a significant rise in cash resources. Due to the uncertain position that humankind was faced, one day after the emergency

situation was announced, a surge of the demand for cash can be observed. A similar amount of cash outflow happened during the Great Recession between 2008-2009. The demand was significant mostly for 10 000 and 20 000 banknotes, and this phenomenon can be explained with the aggregation of cash. Coins did not follow the pattern of banknotes, which also supports the conclusion that the rise in the demand for cash happened, because people wanted to save their money without the contribution of any financial institution. By this move, people would like to avoid the same problems that arose at the time of the Great Recession. Moreover, the number of outflow of cash in August, when the number of actively infected people has been declining for 3 months, could not even reach the average value of former years' outflow. In agreement with the Hungarian National Bank report, a moderate decline can be observed in the case of the number of cash usage that was registered by online cash-registers. Cash transactions fell by 46% in March, 36% in May, and by 26% in June compared to the same months in 2019. The distribution according to the value of cash and card usage has the same tendency as the previous data. In March 38,3% of transactions that were made through the online cash register was conducted by card and 61,2% by cash, in April the respecting values are 40,5% and 59,2%, in May these are 40,4% and 59,2% and in June they are 40% and 59,5%. However, cash usage started to slightly increase from April, it still remained under the average as it can be observed from the previous years (Végső & Bódi-Schubert, 2020).

Figure 3
Change in the number of people regarding payment methods since the appearance of Covid-19



Source: Self-edited

Figure 3 describes the distribution change in payment methods among the people who filled out my questionnaire. Alternative payment methods gained popularity over cash, as 49% of people, who declared cash was their most preferred payment method before the pandemic, has turned to an alternative payment method. As we can see, the debit card receives the most demand overall. However, E-wallets gained new users at the biggest rate (47%). Until the autumn of 2020, the value of transactions that were made with the use of E-Wallets became around three times more than it was in 2019 (Az Én Péntem, 2020). The only exception is seen in the decrease in the number of people who use credit cards. By credit card usage the same mentality is applied as to the human behaviour observed in the demand for banknotes. In uncertain times, instead of taking out loans or credits, people tend to save and purchase their own money.

The distribution of transactions online and in physical shops shows the opposite trend. Online purchasing within the country increased by 13% from the second quarter of 2019 until the same quarter in 2020, and a 5 % increase is seen in 3 months between the first and second quarter of this year, meaning that almost every fifth people who purchased by card chose online shopping. The rate of purchasing in physical shops declined from January 2019, the most significant drop (18%) happened between January and June 2020, presumably due to the appearance of Covid-19. Physical and online shopping that was made outside the country but with nationally issued cards shows a 78% and 48% fall respectively since the end of 2019 (Deák, et al., 2020).

A Hungarian content and lead agency, named Yellow Bird, made a research of people's purchasing habits focusing on Black Friday and preparation for Christmas. There were two questionnaires prepared, the first one was addressed to customers and in the other questionnaire managers and entrepreneurs of local businesses were asked. Among 1599 answers, 47% are moderately apprehensive of pandemic and they buy only the most important products in stores, 32% of the customers stated that they rather avoid physical shops, while only 21% answered that they are willing to purchase in stores. The fear of Covid-19 and therefore, from shopping in physical stores leads to the strengthening of online shopping. 57% stated that they would shop online more and according to the point of view of 20% of the customers, they are going to shop online for the rest of this year. It means that out of 1599 people, 1231 are turning to online shopping, while only 368 customers excluded the chance of purchasing online. From a previous report of Yellow Bird company turned out that during summer, when the restrictions were mitigated, customers started to come back to offline shopping, which also buttresses up the argument that states Covid-19 has an effect on payment methods. From the questionnaire that was addressed to business leaders turned out that slightly more than 50% increased their presence online or developed a webshop (Jagodics, 2020).

Qualitative research

To be able to draw a complete conclusion based on my research, it was important to ask not only customers about their payment methods, but business leaders, managers, and employees also. When the potential businesses were considered, the most significant aspect was to choose at least one small- and medium-sized enterprise and a multinational corporation that are inevitable for everyday life even in the middle of a pandemic situation. For this reason, the food and mobile technology sector was chosen. Interviews with six leaders or employees of different companies were conducted, half of the interviews were made through a phone call and the rest was done via e-mail. Among the asked people, 3 women and 3 men can be found within an age group from 28 to 45. One of the men is a department leader in a multinational chain store, one woman works as a commercial agent in a national chain store, another woman is an accountant in a restaurant chain, the third woman is the owner of a local grocery store, the second man is the leader and owner of a shop that sells mobile phones accessories and components, and the third man works as a business consultant. The questions were structured to collect information on the effect that Covid-19 caused in the usage of AMOP and to receive answers regarding the future of payment methods.

According to the department leader of an international supermarket chain, the biggest impact of the virus is seen on the distribution change among cash and card usage. While more cash replacement payment methods are available for the customers, significant change can be observed in these two options. SZÉP-card is only available at the snack bar, which is quite limited considering the products that can be found there. The opportunity to pay with credit or debit card is the biggest because until the end of summer 2020 self-checkouts were implemented into each physical shop, where only card-based payment is allowed. It became quite popular among customers as self-checkouts are faster and more reliable regarding the prevention of Covid-19 infections. In addition, the account in case of online payment can be settled only with card or NFC enabled mobile payment, therefore there is no option to pay with cash even when the customer chooses cash on delivery. A considerable rise can be observed in online shopping at the expense of offline purchasing. Since 2016, in the capital city and its agglomeration customers are able to choose door-to-door selling even in case of perishable goods, other parts of the country are only capable to order non-perishable products. Thanks to the significant demand in online shopping near Budapest, the company's short-term aim is to expand the delivery to other locations as well. In more than a half year, online shopping increased by 23%, and overall, 68% of customers decided to purchase with one of the accepted cashless payment

methods. During the interview, the status of foreign stores of the same supermarket was also mentioned. In general, payment methods gained more popularity over the years and its usage kept rising due to the appearance of the virus, therefore, their level is higher but the distribution among payment methods is very similar.

The second company is a national chain store, and the interview was made with their local commercial agent. Due to the government restrictions, the emerging need for expanding their capability in shopping was soon realized. Therefore, online shopping and delivery were launched during the first months of the pandemic. Thanks to this innovation, the number of purchases increased. Online purchasing was not so popular until August, due to the lack of awareness in the first months, and the easing of restrictions during summer. That is the reason, why there were only 20% of customers who purchased online in August, however, this rate increased by 15% until October. This significant increase contributed to the change in the distribution of payment methods, even though customers are able to pay with cash at delivery. Payments that were made with cash has dropped by 32% between 1 January 2020 until 1 November 2020. While there is a steady increase in the usage of alternative payment methods, which are in this case credit card, debit card, mobile wallet, and SZÉP-card is offered to the customers In October, 31% of the customers used debit card while purchasing, 2% paid with credit cards, 21% chose SZÉP-card and 13% selected NFC-enabled mobile wallet. From the statistical data, it can be clearly seen that the ratio between cash and cashless payment method replaced each other. 65% of customers used cash as a purchasing method before the virus appeared and in October this rate was only 33%. Alternative payment methods were used by 35% of customers before the pandemic and this number increased up to 67% until October.

An accountant of a local restaurant was my third interviewee. Even though this company had a delivery option before the virus emerged, they introduced contactless delivery. It means that the person who delivers the product, here it means the meal and beverage, does not meet the customer. In this case, only the alternative payment method can be the solution for purchasing, with the help of a new platform that was developed for this reason. They accept debit cards, credit cards, SZÉP-card, and NFC mobile payments as well. Unfortunately, the interviewee was not allowed to give out exact data, but she mentioned that card payments almost replaced cash due to this pandemic situation. In majority young, who does not have own earnings, and the older generation pays with cash, as they are less open to new technologies. SZÉP-card is used by around every fifth person, debit cards are used by every third, while cash takes up only one-third of the payments.

The fourth interview was made with a local grocery store owner. While this store had to invest the most to develop the payment methods it offers to its customers, Covid-19 had the least impact on the purchasing habits. According to the interviewee, cash was the only payment method until the virus exploded. Due to the fear of physical interaction, POS terminals were introduced that enables cashless payment. Cash remained in the first place and card usage covers only the 30% of all payments, however, it is slightly increasing. In the owner's explanation, the reason for the low usage of cash replacement methods of payment is the age group. In this local shop, the average age is around 60. Younger generations tend to get through their shopping in a supermarket where they can find anything at one place, while older people prefer small shops that are specified to different products, especially when it is about grocery. Preferred payment methods can be distinguished between the different age groups, as for example, pensions are still paid out in cash to a significant number of people, and retired people may adopt innovative technologies harder. Moreover, the configuration of cashless payment methods needs responsible management decisions as it takes time and capital. Each bank offer varies for example in implementation cost or transaction fees, and it can happen that merchants can not afford it due to the amount of their annual turnover.

The fifth interview was conducted with the owner of a business that provides mobile phone accessories and components to its customers. The company is built upon a webshop, although one physical shop can be found in the capital city. According to the interviewee, a wide range of alternative payment methods are available for customers, however, Barion and Sofort Banking were taken out from the list because only a few customers chose these two payment options and charges became so high that it was no longer affordable for the company. Moreover, several different payment options can easily lead to dropouts, as the platform where online orders are handled would look too complicated and could easily confuse the customer. Therefore, cash at delivery, advance payment with a transfer of fund, debit card usage through Simple Pay and PayPal is available in case of online shopping; by offline purchasing, people are allowed to pay with cash and their card with the help of an NFC-based terminal. It enables contactless payment, which means that customers can pay with their appliances that have built-in NFC and a mobile wallet, for example, a smartwatch or their mobile phone. In compliance with the interviewee, the company could remain in an advantageous situation even after Covid-19 emerged thanks to their well-developed and well-functioning webpage. Before the virus, 27,2% of the buyers visited the physical store, while this amount dropped to 9% until autumn 2020. It also turned out that card payments rose by 9% at the expense of cash at delivery that

declined from 65% to 57%. Purchasing that was done by PayPal stagnates, while a slight rejection can be seen in advance payment. This amount is negligible, as the decrease covers 1% in one-year scope.

While Covid-19 has played a significant role in the usage of alternative payment methods, the question is how long this substantial increase will last. Therefore, the last interview was taken with a business consultant to receive answers about the future of payment methods. According to him, despite the growing numbers among AMOP users, cash balance has never been so high as it is now, which means that people still use cash. People prefer cash over other payment methods because it provides anonymity, simple and quick payment. People tend to pay with cash if they have a lower income, as money can easily be traced, and when the value of the purchasing product is relatively low. Cash preferred payment depends on age groups as well. Young generations tend to use cash because generally, they do not have income, therefore they get money from their parents. Moreover, a huge part of the retired society receives their pension in cash. Lack of information can also enhance this form of payment. Many customers choose the cash at delivery option in case of online purchasing, as they do not trust the store or the delivery company, however, charge-back was invented to protect customers. Even more people pay utility in paychecks while using QR codes on the utility bills and direct debit could be a more convenient solution as a payment method. In agreement with the business consultant's words, due to the above-mentioned arguments, the phenomenon of a cashless society is hard to imagine, even though there is a rapid growth in the usage of alternative payment methods.

AMOP initiative in Hungary

Cashless payment initiation can be traced back for years. The law of maximization of interchange fees and the program of the Hungarian Ministry of Finance about terminal (POS) settlements provide equal conditions for every merchant while contributing to the enhancement of debit card usage (Gazdasági Versenyhivatal, 2019). It resulted in around a 40 percent incremental turnover (Nézőpont Intézet, 2020). Instant Payment Service was launched in 2020, which makes available for all bank users in Hungary to remit and obtain the transferred fund inland in just 5 seconds.

However, these actions were not enough to confine the rapidly growing cashflow. The uncertain situation that came along with the appearance of Covid-19, in favour of sparing, contributed to the aggregation of cash, especially in high-value banknotes. In August 2020, the current value of the banknotes in circulation exceeded 7 milliard Hungarian Forint (MNB, 2020). This huge amount of cash flow has some significant negative impact on the economy. Anonymity, which

is provided by cash payments, strengthens grey income, which leads to the destruction of competitiveness. Therefore, the aim of the government is to whiten the economy with the enhancement of alternative payment methods to have a more efficient, developed, and transparent payment system (Nézőpont Intézet, 2018).

From 1 January 2021, every merchant, who owns an online cash register, will be obliged to offer electronic payment opportunities to its customers. Debit card acceptance fees might be higher for those merchants who have less turnover; therefore, ensuring card acceptance to everyone would not be logical. Thanks to the recommendation of the Hungarian Competition Authority, acceptance of electronic payment methods will be compulsory instead of card approval. This regulation provides the opportunity for FinTech services to spread and lead to the reduction in payment transaction fees for both merchants and customers. Moreover, the significant use of cash payment can be confined, which is an essential public purpose (Gazdasági Versenyhivatal, 2020).

The Hungarian Bank Association (2019) expressed different suggestions towards a cashless society in a report.

- Limitation in cash usage should be introduced in case of transactions above 500 000 Hungarian Forint. In Hungary, only the enterprises' cash usage has been restricted so far with a limit of 1500000 Hungarian Forint. At the global level, several examples can be observed, however, there are no common agreement on the volume and the type of cash flow.
- Above a defined annual revenue, merchants should be obligated to provide the opportunity for electronic payment.
- Bank transaction fees should be annulled, while banks should introduce packages with different transaction limits. The number of people who do not own or use cards are still relatively high because of the charges they are demanded to pay, while cash usage is free.
- Charge-free withdrawal from ATMs should be eliminated or the lump sum should be narrowed to 50000 Hungarian Forint.
- Steps toward the stimulation of electronic payment should be made with clearly defined advantages in the case of utility bills.
- Abolition of income in cash. A black economy can be confined if employers are obligated to use a bank transfer when they pay out their employees.

- Stimulation of electronic cash flow among the state, local governments, and private people. Pension and other social assistance are still granted in cash. To solve this problem, it should be mandatory for every people who have income to have a bank account. Moreover, every merchant should be able to provide electronic payment, therefore there is a need for a POS terminal network that covers the whole country.
- Stimulation of electronic savings. People tend to aggregate their cash instead of collecting it in a bank account or invest their money in term deposits.

The European Union's Second Payment Services Directive (PSD2) ensures the legal background to have a better integrated internal market for all electronic payments within the borders of the European Union. This directive aims to provide international payments within the European Union with the same conditions as it is in a single country. Therefore, it can enhance equal competition that leads to better prices and greater choice of products while ensuring transparent legal services. Customer security is essential to strengthen their trust by protecting consumers' financial data and reducing the risk of fraud. The rules have been applied and been incorporated in EU countries' national law since 13 January 2018, although, regulations under PSD2 can come into force additionally (EU Commission, 2020).

To minimize the number of fraud Strong Customer Authentication (SCA) will be obliged before all European online transactions from 31 December 2020. SCA is practically a two-factor authentication that consists of two different information that should be provided to identify the purchaser. It can happen with the help of their biometrics data (fingerprint or face recognition), a PIN-code, or with their mobile phone (a code sent in SMS). There are some exceptions of transactions that can be concluded without the two-factor authentication. For example, in case of low-cost or reoccurring transactions, or if a customer regularly purchases in a shop and they do not want to be authenticated each time. In the new regulation, Third-Party Providers (TPPs) will be able to access the customer's bank and even to initiate payment on behalf of the customer. It can be beneficial for customers as online banking and therefore payment will become more flexible. The above-mentioned rules can lead to a radical change in the FinTech industry, as new innovations that provide security can attract more customers that inherently increase the number of alternative payment method users (Gaynor, 2020).

CONCLUSION

Each of the previous chapters served as a fundamental pillar of my thesis work to execute the research and back support my conclusion. In the first part of my thesis, secondary research was done to introduce Financial Technology as a business sector and a big emphasis was put on its history, as Alternative Payment Methods emerged on account of FinTech. Thereafter, the most used alternative methods of payment were categorized by their physical execution and were demonstrated by examples.

In the other half of the thesis, the impact of the pandemic situation on different payment methods was analysed. First, quantitative research was done to find out the customer's opinion about different payment methods. The first part of the questionnaire covered the customers' payment habits before the Covid-19 virus appeared. Out of 363 people, 36 people (10%) stated that they use cash even they are aware of other opportunities as well. The main reason is that they find payment with cash the most reliable and they do not trust in any other method. According to the distribution among the other 327 people who use at least one alternative payment method, debit card usage is the most popular as 99% paid with it at least once in their lifetime. 79% tried out wire transfer, 36% purchased by sending SMS, 28% used credit cards, 13% chose mobile wallet and only 2% used cryptocurrency. The second part of the questionnaire reflected the change in the distribution of payment options after the Coronavirus appeared in our lives, and several actions and regulations came into force to preserve each person's health. A significant turn can be observed in the direction of cashless payment methods, as 51% of the asked people stated that they started to use cash replacement methods to avoid physical contact. Therefore, cash usage decreased by 51%, most of the customers replaced coins and banknotes with debit cards, hence its usage increased by 13%. Wire transfer usage increased by 17%, and E-wallets received the most users according to the percentage, as their usage jumped by 47%. However, in numbers, E-wallets gained 7 new users, while 26 people turned to debit cards instead of cash. People rather save money in crucial time than taking up loans that are the reason why credit card usage fell by 11%.

The secondary research that was made both on the global and Hungarian level supported the findings of my quantitative research. In the United States, e-commerce sales increased by 44,5% in a year, and as a consequence demand for cashless innovative payment methods grew (United States Census Bureau, 2020). While debit card usage increased by 18% and credit card usage by 6%, withdrawals from ATMs decreased by 2 % in Switzerland (Swiss National Bank, 2020). Statistics of ATM usage in the United Kingdom, India show a considerable dip per month in average with 46% and 47% respectively (Bruno, et al., 2020). Considering the change in the

consumer usage of payment options in Hungary, in spite of the surge of demand for cash, people started to turn to alternative payment methods. The aggregation of cash is the explanation for the significant demand as the increase was observed among the high-value banknotes and the demand for coins decreased. However, the rate of cash usage remained under the average. During March, when the first actions came into force, transactions that were conducted with cash fell by 46% (Végső & Bódi-Schubert, 2020). A moderate change is seen in the distribution of online and offline purchasing. People tend to purchase on the internet 13% more, while in 6 months' time from January until August 2020 a significant drop happened in physical shopping (Deák, et al., 2020).

In a form of qualitative research, six interviews were made with different companies' representatives to gain information about their reflections about the change in the preferred payment options and their actions to suit the new purchasing behaviour. In the first five interviews, the same methodology was followed, therefore the same questions were asked. My aim was to find out the effects that were caused by Covid-19 and the actions that were done depending on the size of the company. Each company needed to introduce new ways of shopping that enhance the usage of alternative payment methods directly or indirectly. The direct way is when the company implements a new way of cashless payment methods, while the indirect way depends on the method that is adopted, for example, a door-to-door delivery, and by using that implementation they purchase with an alternative payment method. According to the owner of the mobile phone accessory selling shop, there was no need to introduce any action, as their webshop has operated before the occurrence of the pandemic situation and it enables every payment method that is popular in Hungary. A conclusion can be uniformly drawn upon the interviews, as people started to prefer shopping or ordering online, and using cashless and contactless payment methods.

The sixth interview was made with a business consultant to receive some answers on the future of cash and alternative payment methods. In agreement with the interviewee's words, the cashless society is hard to imagine in a short period of time as people are bound to cash. However, the government aims to reduce cash usage to prevent black and shadow economy with a transparent payment system. The huge amount of cash flow has a negative impact on the competitiveness of the country also. Therefore, in Hungary, those merchants who own at least one online cash register will be regulated to enable electronic payment to their customers from 1 January 2021 (Gazdasági Versenyhivatal, 2020). Further suggestions were expressed by the Hungarian Bank Association (2019) to push customers towards cash replacement payment methods. The recommendations involved the limitation of cash usage above 1500000

Hungarian Forint for businesses and private people as well, the abolition of income in cash and to lower bank transaction charges while increasing ATM withdrawal fees. The European Payment Services Directive (PSD2) ensures the legal background of having an integrated internal market within the European Union. From 31 December 2020, an additional regulation will come into force under PSD2 to defend customers from cybercriminals and minimize the chance of potential fraud. The regulation covers a two-factor authorization, which is called Strong Customer Authorization (SCA), that is obliged to be done before every electronic payment. Customers have to choose at least two out of three elements, which can be something a customer knows (password), something a customer has (smartphone), and something a customer is (fingerprint or face identification) (EU Commission, 2020) (Gaynor, 2020).

While exploring the situation from multiple perspectives, it can be undoubtedly stated that the Covid-19 virus had a great impact on the rise of the usage of alternative payment methods therefore, my hypothesis was proved. The numerous different regulations and actions, which were brought to confine the infected number, developed a fear of cash in the consumers. As a consequence, both customers and merchants had to find a way to adopt cash replacement payment methods. In addition, the governments' aim is to slowly approach a cashless society, hence they make regulations to support alternative payment methods. While this is a long-term goal for the government, it is certain that due to the appearance of Covid-19 people started to be open-minded and trust more in new technologies in this field as well.

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APPENDICES

Questions of the questionnaire

1. What is your gender? (Woman/ Man/ Prefer not to answer)
2. Where do you live? (Capital city/ Chief town of a county/ Town/ Village/ Other)
3. Which is your age group? (Under 16/ 16-23/ 24-35/ 36-55/ 56-70/ Above 70)
4. Which of the following most accurately describes your current situation?(I still live with my parents/ I am living alone/ I am in a live-in relationship without kids/ I am a parent living with at least one child/ I am a retired person/ Other)
5. What is your highest educational level? (Primary school/ Graduation from high school/ diploma/ other)
6. Have you ever heard about alternative method of payments? e.g. debit/credit cards, use of mobile payment, Android Pay, Apple Pay (Yes/No)
7. Have you ever used AMOP when you were purchasing? (Yes/No)
8. Which AMOP have you used? (Debit card/Credit card/Mobile payment via SMS/E-wallet/Cryptocurrency/Transfer of fund/Other)
9. Please indicate why do you use AMOP.
10. Which attributes fits the most each payment methods? (safe/fast/easy/traceable/takes too much time/ complicated/risky)
11. Which payment method did you prefer the most before the appearance of Covid-19? (Cash/Debit card/Credit card/ Transfer of fund/E-wallet/Other)
12. Which payment method did you prefer the most after the appearance of Covid-19? (Cash/Debit card/Credit card/ Transfer of fund/E-wallet/Other)
13. In case your most preferred payment method has changed, please write down the reason.
14. What was the reason you have never used AMOP?

Questions of the interviews (1-5 interviews)

1. Do you have online shopping or home delivery option?
2. What are the payment options that the customers can choose from?
3. If there is an option for AMOP, would you be so kind to tell me why do you introduced it?
4. Did you introduce any kind of actions or other payment method since the virus appeared?
5. Did the distribution among payment methods changed?

6. In case there is an opportunity for delivery or online purchasing, did the distribution between offline and online purchasing changed after the virus appeared?

Questions for the business consultant

1. Will this rapid growth of AMOP usage present after the pandemic situation?
2. What can be observed about the usage of different payment methods among different generations?
3. What is the future of cash?