

RESEARCH ARTICLE

THE IMPACT OF COVID-19 ON PAYMENT SYSTEMS IN TURKEY

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ABSTRACT

The negative effects of coronavirus on the economy are increasingly felt in all countries. Banks, which form the basis of payment systems in e-commerce, are rapidly affected by changing trade patterns and different channels and fintechs have a disruptive effect on the banking sector. Apart from the use of traditional banking products, fintech technology is increasingly preferred by consumers and banks, with increasing costs and the cost impact of digitalization. Increasing internet use, which enables e-commerce to grow with the increasing young population, paves the way for alternative digital payment systems. In this study, the accelerating effects of Covid-19 on digital payment and the current situation of alternative solutions in Turkey has been discussed.

INTRODUCTION

E-commerce is becoming widespread all over the world due to internet use and constitutes an important share in total trade, and we observe that a significant part of the US-China trade wars taking place on these platforms. E-commerce is defined as "buying and selling goods and services over the internet" without the need for a physical market space. Contemporary lifestyle requires an increase in fast, safe and cost-effective e-commerce services. Furthermore, it provides a chance to make a comparison in different dimensions among all products. Due to increasing advantages of e-commerce, the portion of e-commerce is growing in Turkey and global economy. Since December 2019, Covid-19 has taken over the world by causing millions of patients and hundreds of thousands of deaths with high contagiousness. The virus, which first hit the health systems of the countries, however by the tighten border controls and lockdown practices the world trade experienced a rapid negative affected. In many countries, lockdown and quarantine practices have led to the transfer of goods and services purchases from the physical environment to the digital environment. According to the researches conducted in Europe, 55% of the companies providing online service or selling product have been negatively affected by the current situation (Revotas, 2020).

According to the recent research conducted in the USA in March 2020, the highest increase in sales seen in disposable gloves with 670%, bread machines with 652%, cold products with 535%, the most decreasing; Travel bags were 77%, cameras and swimming clothes were 64% (Styrk, 2020).

E-commerce and payment systems relationship: If we focus on the global figures in order to give an idea about the size of e-commerce which is brought to life by Michael Aldrich in 1979, the top five players of the market reached approximately 3.5 trillion USD as of 2019. China was the leading country in 2018 with USD634 billion, US in second in ranking with USD504 billion, Japan in third place with USD123 billion, UK in fourth with a USD103 billion and Germany fifth with USD70 billion (DD and TÜSİAD, 2019). According to the data of Statista, by 2020, e-commerce sales worldwide are expected to reach USD4.2 trillion (Statista, 2020). In Turkey, the volume of e-commerce by 33% annual average growth rate increased from 18.9 billion TL in 2014 to 59.9 billion TL in 2018 (TUBISAD, 2019). It is expected that the upward trend will continue in electronic payments by the effect of increasing security applications, affordable prices, after-sales service and logistics practices. Clothing and accessories shopping, which we did not decide before entering the dressing cabins, has now replaced to the digital world under the attractive conditions of the internet. Regarding a research which is conducted by the interbank card center of Turkey, credit card holders are spending 32% for clothing and accessories, 14% for food orders, 10% for electronics and 8% for airline / travel of the total expenses (BKM, 2017).

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The factors that play an important role in the growth of the e-commerce sector are especially the emergence of e-wallets, the increase of alternative electronic payment options (70% in the world, 80% in Germany), developments in traditional bank credit and payment opportunities (i.e. instant credit, bank transfer, EFT) and especially current health and hygiene problems caused by Covid-19. In e-commerce services, payment must also be online. E-commerce payments are made in high levels by digital payment systems in the world and this rate reaches up to 90% in Turkey. Besides, integration with the electronic payment institutions for the mediation in payment activities is increasing. Customers who do not have a bank account (including under 18) and the people are not satisfied with the bank services encourages to pay online in a secure environment provided by digital payment systems. While the dominant buyers in e-commerce are women, teenagers are increasing their demand in this field. But, in spite of this increasing demand, instead of creating repeated e-commerce site inflation, the sites that make a difference among competitors and should create a competitive advantage by revealing synergy and cooperation opportunities among themselves. The dominance of global e-commerce sites as well as the sites opened by different leading brands, seem to be the obstacles to the growth of many e-commerce sites in international competition.

Banks, which are indispensable for e-commerce, are rapidly affected by changing trade patterns and different channels and fintechs (financial technology start-ups) have a devastating effect for the banking sector. Apart from the use of traditional banking products, fintech technology is increasingly preferred by consumers and banks, as well as increasing costs and the cost impact of digitalization. The increase in the use of the internet, which enables the growth of e-commerce with the growing young population, paves the way for alternative electronic payment systems. In accordance with the speed, cost, security and logistic problems in payment processes begin to be solved, satisfaction in customer experiences increases and these channels will be used more effectively. The cooperation (combination of competition and cooperation) approach among fintech companies, provides benefits in combating against traditional competition (Sironi, 2017, p. 19). One of the most important advantages of selling over the internet is that new technologies can be reflected on business methods quickly. In contemporary business where everything is digitalized, payment systems in e-commerce are also digitalized. Especially with the negative impact of Covid-19, which has been faced since December 2019, the lockdown of the people increases the need of a quick orientation to digital life by redesigning all traditional processes. This new situation, which creates an accelerating effect on the increase of digitalization, will make itself especially felt in the health, education, retail trade, finance and communication industries and will highlight the importance of electronic payment systems and internet security in the internet sales channels.

Existing digital payment systems in turkey: According to Law No. 6493, the payment system is the structure that provides the necessary infrastructure for clearing and settlement transactions to ensure the transfer of funds resulting from transfer orders between three or more participants. Securities settlement system, on the other hand, is defined as the structure that provides the necessary infrastructure for

clearing and settlement transactions to ensure the realization of securities transfers resulting from transfer orders between three or more participants (ResmiGazete, 2013). E-invoices and reports can be prepared easily by integrating electronic payment systems into any accounting and reporting systems out of traditional registration systems. Before start to talking about the payment systems, there are some features that the e-commerce website should have. Before deciding the appropriate payment system following features should be provided on the website:

- The products and services that are prohibited by law are not available on the site, and legal permits and authorization documents have been added to the site regarding the products and services subject to special regulation,
- Written information about privacy commitment and security policy in line with the provisions of the law on personal protection, obtaining necessary approvals if customer data will be stored,
- Information about the digital payment option on the payment page,
- Product catalog and shopping cart,
- Information to the consumer about company principles regarding product delivery, warranty, return and cancellation,
- If the sale will be made in foreign currency, exchange rate should be added,
- All contact information such as name, full address, fixed telephone and fax numbers, e-mail address of the vendor should be provided.

Another issue that needs to be done before starting to receive payments from the internet site is to be an official taxpayer and an application must be made to the digital payment service provider for an assessment. Although the application documents differ according to the digital payment service provider, companies can make and application some certain documents such as tax certificate, signature circular, identity copies of the partners and bank account receipts. Not only B2C (business-to-consumer) but also B2B (business-to-business, including export) sales are also possible with digital payment options. Member companies of the digital payment service provider can sell to all over the world and can receive their payments electronically.

Digital payment services provided by commercial banks

The digital payment system services that banks offer to their customers and which are provided by using the banking electronic infrastructure are as follows:

- **E.F.T. and Money Order:** E.F.T. (Electronic Fund Transfer) is an electronic funds transfer system between banks. It is an electronic system used to transfer money between banks domestically, established under the leadership of the Central Bank of Turkey (T.C.M.B.). Daily transactions can be carried out between 08.30 - 17.30, and the responsibility for the system belongs to T.C.M.B. Today, in accordance with E.F.T. system, organizations and individuals can make their payments to other parties, such as credit card debts, telephone, natural gas, electricity, water, fuel, school installments,

on the due date, instantly, by using the banking and internet banking services offered by their banks. On the otherhand money transfer is the process of transferring money to name or account of an individual or a company's customer accounts at the same bank (Yazıcı, 2015, p.94). E.F.T. is an application that extends the sales process and decreases gradually in customer experiences.

- **Virtual POS:** Virtual POS (Point of Sale / Payment Point) is a secure payment solution created to receive payments by credit card, debit card and virtual card for online sales. The most important and most used type of digital payment systems in e-commerce is credit cards. Credit card is a type of digital payment and loan instrument that allows the cardholder to purchase goods and services without paying cash and to withdraw money from bank branches and automatic cash withdrawal devices (Yılmaz, 2000, p. 124). Plastic cards are protected by encrypted methods or software used by the website, providing an opportunity to purchase goods or services without any violation with personal information (Parlakkaya, 2005, p.171). On the other hand, unlike credit cards, debit cards are the cards that is issued for withdrawing money from ATMs in bank branches (Reisoğlu, 2004, p.100).
- **Virtual Card (VC):** VC is a credit card that operates by a link with a credit card, is not physically present and therefore does not have the risk of loss / stolen, and can be used for internet and mail order shopping. VC is generated instantly, can be used immediately and generally without a card fee. with a virtual card, we can shop safely and easily from all domestic and international websites. It is based on transferring the price of the product and service received by the card. In accordance with the information entered over the internet, money transfers via wired clearing center (BKM) from the recipient's bank to the seller's bank. By the virtual POS, an online payment system and infrastructure is provided to the buyer and seller. In order to use this application, the website of the company must be accessible and must obtain a valid SSL certificate from authorized institutions to ensure a safe shopping environment for the clients. As a cost of virtual POS, additional commission fees calculated over transaction amounts can be requested as well as membership fees by the service provider. Contactless payments are the fastest growing product of this field, though not over the Internet. In contactless payment, the payment is carried out by bringing the card closer to the points with a contactless reader. Contactless payment transactions, which are approved in less than a second, realised through the antenna connected to the chip on the card and the radio frequency waves of the reader on the POS (BKM, 2020a). In e-commerce applications, one of the major payment methods made through banks is the payment at the door with a mobile POS. For customers who do not want to share their card information or do not want to pay before the goods and services have arrived, prefers to pay is an important payment method.

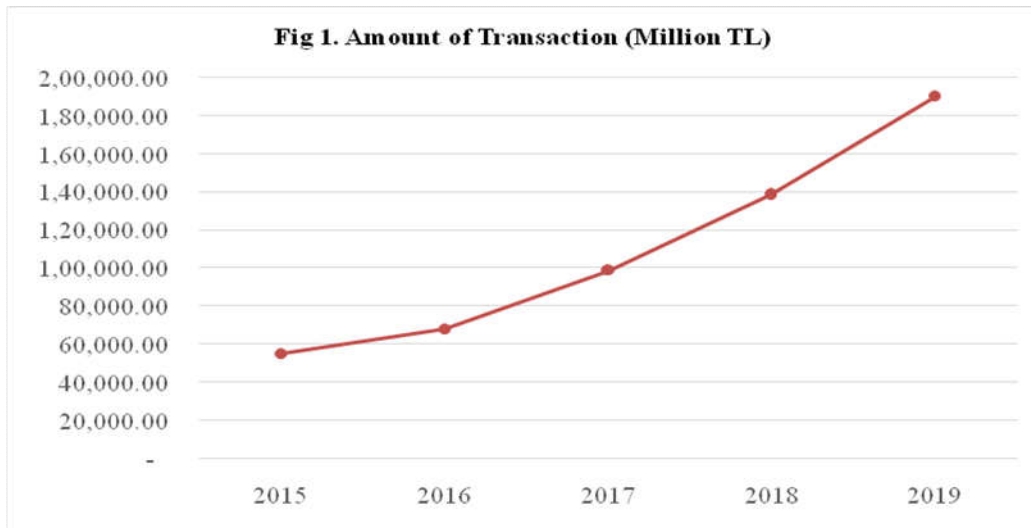
Online shopping with credit cards has increased significantly over the past five years (BKM, 2020b). The number of card

transactions in shopping online between the years 2015-2019 in Turkey increased by 167% from 227 million units to 607 million units, the transaction volume reached 55 million, an increase of 243% from TL 190 million. In order to ensure security in payments made over the internet via credit cards, secure payments can be made by SMS message sent before purchasing or by registering to 3D Secure system.

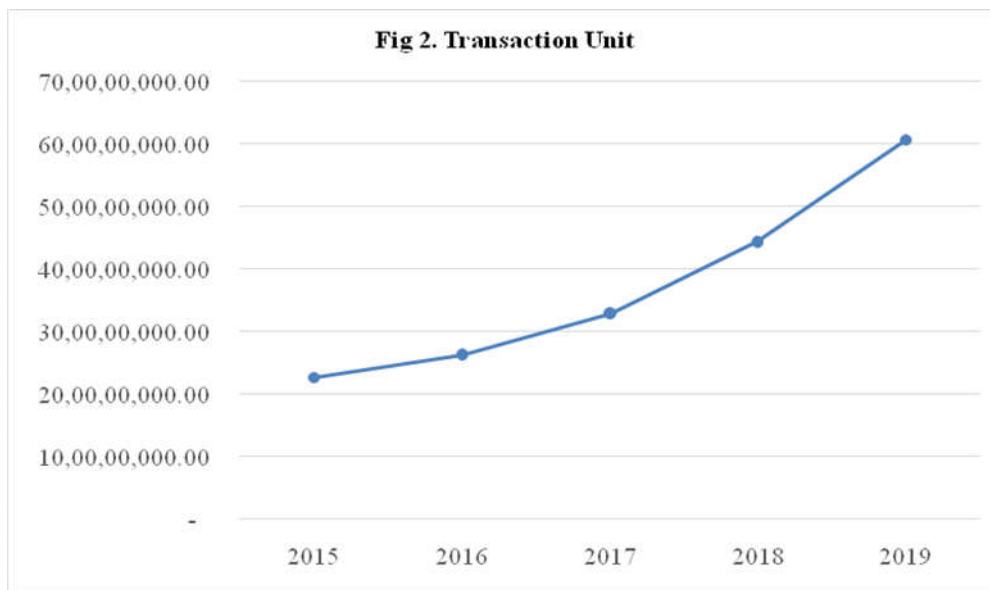
- **Instant Loan:** The amount of the shopping is limited by the allocated limit of the credit card, and if there is not enough balance in the credit card, a consumer who needs additional limit up to TL40.000 can be met instantly, depending on the customer credibility.

Digital payment services provided by mobile phone operators: Mobile payment systems provide great convenience to both the buyer and the seller due to the benefits they provide. Mobile payment systems, which are used all over the world and are a part of the e-commerce sector, are being used quickly and easily by integrating them. The new generation mobile payment systems, which are available in their newest form with all necessary security measures taken, continue to be among the most practical and advantageous payment methods of today. By the development in mobile payment systems, it has gained a considerable place in our lives in the recent years (Wirecard, 2020). In mobile transactions, payment is made through applications (Apps) instead of virtual POS. Mobile payment has made if the mobile payment is selected during the process on a website, the incoming confirmation SMS is answered by typing YES, and a password is entered in the relevant field or an in-app such as Google Play and Apple Stores. The transaction volume in payments made on mobile devices in the world was around USD700 billion in 2017, and this figure is expected to reach USD4.5 trillion in 2026 (Moka, 2019). As of September 2019 the number of mobile subscribers in Turkey is 82.9 million (BTK, 2020). Mobile payment systems, enables quick and easy payments by mobile phones and payments can be made with a single SMS without use of a credit card. In this case, the price of the goods or services sold in relation to the purchase is collected on the monthly invoice of the mobile operator, depending on the contract with the seller. This electronic money institutions in the scope of the licensing authority for the regulation and supervision was given to the Republic of Turkey Central Bank.

Digital payment services provided by digital payment institutions: In electronic environment, money is transferred between the parties in different channels, and in accordance with the developments in mobile communication tools and internet technologies, it is becoming more widely use to send money from one party to another person or organization or to buy any service or product. In accordance with the Law No. 6493 on Payment and Securities Settlement Systems, Payment Services and Electronic Money Institutions (Law No. 6493), which came into force in 2013, for the first time in our country's legislation, "payment system", "security settlement system", "payment service provider concepts such as ", "payment institution "and" electronic money institution "have been defined. The Banking Regulation and Supervision Agency (BRSA: BDDK) regarding "payment service providers", "payment institutions" and "electronic money institutions"; "Payment system" and "securities settlement systems" and regarding the Central Bank of the Republic of



Source: BKM (2020b)

**Fig 3. Credit Card Spendings**

INDUSTRIES	MOUNTHLY SPENDINGS (Million TL)		
	March	February	(%) Change
Airways	900,67	1.896,56	-52,5
Accommodation	619,74	1.113,84	-44,4
Jewelers	717,72	1.210,65	-40,7
Casino / Bars	66	110,85	-40,5
Travel Agencies / Transportation	1.119,22	1.724,05	-35,1
Education / Stationery / Office Supplies	1.461,48	2.198,03	-33,5
Clothing and Accessories	3.578,21	5.149,22	-30,5
Food	2.079,38	2.898,52	-28,3
Club / Association / Social Services	228,47	299,02	-23,6
Rent a Car	187,93	207,63	-9,5
Furniture and Decoration	2.213,76	2.360,29	-6,2
Health / Health Products / Cosmetics	3.089,97	3.117,83	-0,9
Gas and Fuel Stations	5.173,84	5.203,48	-0,6
Service Sectors	5.520,75	5.504,23	0,3
Telecommunication	2.037,15	2.007,38	1,5
Car Rental-Sales / Service / Spare Parts	2.699,99	2.656,73	1,6
Private Pension	777,58	754,34	3,1
Other	2.335,74	2.254,27	3,6
Electric-Electronic, Computer	4.471,51	4.294,90	4,1
Insurance	3.753,67	3.535,43	6,2
Direct Marketing	754,36	710,42	6,2
Contractor Works	890,55	825,19	7,9
Public / Tax Payments	1.823,10	1.657,78	10,0
Miscellaneous Food	5.707,25	5.132,50	11,2
Building Materials, Hardware, Hardware	3.267,76	2.864,99	14,1
Market and Shopping Centers	16.812,85	13.065,67	28,7
Total	72.288,65	72.753,80	

Fig 4. Debit Card Spendings

INDUSTRIES	MOUNTHLY SPENDINGS (Million TL)		
	March	February	(%) Change
Jewelers	407,28	1.145,83	-64,5
Airways	394,12	761,36	-48,2
Accommodation	180,67	315,71	-42,8
Clothing and Accessories	1.105,31	1.880,96	-41,2
Travel Agencies / Transportation	315,26	506,75	-37,8
Casino / Bars	31,47	50,25	-37,4
Education / Stationery / Office Supplies	272,52	422,3	-35,5
Other	503,79	731,81	-31,2
Building Materials, Hardware, Hardware	276,44	386,38	-28,5
Direct Marketing	8,66	11,88	-27,1
Food	1.166,65	1.568,48	-25,6
Rent a Car	14,68	19,12	-23,2
Club / Association / Social Services	35,36	45,46	-22,2
Furniture and Decoration	257,37	312,12	-17,5
Public / Tax payments	187,72	212,48	-11,7
Service Sectors	905,61	1.014,23	-10,7
Health / Health Products / Cosmetics	826,82	862,52	-4,1
Electric-Electronic, Computer	546,62	563,2	-2,9
Insurance	13,83	14,23	-2,8
Telecommunication	286,22	283,88	0,8
Car Rental-Sales / Service / Spare Parts	221,83	218,65	1,5
Gas and Fuel Stations	1.014,03	998,2	1,6
Miscellaneous Food	1.241,72	1.194,56	3,9
Contractor Works	51,39	48,98	4,9
Private Pension	0,97	0,85	14,1
Market and Shopping Centers	4.643,78	3.542,69	31,1
Total	14.910,11	17.112,91	

Turkey (CBRT: TCMB) has been appointed (TCMB, 2020a). But subsequent payment services since January 1st, 2020 with legislation and regulation of electronic money institutions and payment service providers, the Republic of Turkey as the authority responsible for licensing and supervision of the Central Bank has been appointed.

Digital payment institutions provide three main services in Turkey:

- **Virtual POS:** It is a product that allows to make sales on website and receive payment 24 hours from all credit cards. Virtual POS works in compliance with all banks' credit cards and eliminates the need to make individual agreements with all banks. Also, if the customer requests, the card information is stored for next shopping or monthly collections. Especially, companies that receive payments in digital environment integrate the payment institution's virtual pos infrastructure through software into their systems, but this requires a process. In order to perform this process, a software developer who can support the company inhouse or outsource is required.
- **Digital Wallet:** It is an electronic wallet that enables fast electronic payments by adding the necessary information of all credit cards, debit cards or prepaid cards in the same secured cloud platform. In Turkey, Interbank Card Center also has a product which is called BKM Express service digital wallet, like as digital payment institutions (BKM Express, 2020). With the electronic wallet, customers can have the right to securely add, store, update and cancel a large number of card information from different banks. By the system, card information can be usefor future purchasing activities without any card information.
- **Ready-To-Use Screens:** If the company doesn't hire a software developer to support the processes, it is a

product that enables the service provider payment collection byready-to-use screens of the payment provider without the need to integrate the service company with the API.

- **Collection by SMS and E-mail:** It is a product that allows to make collections 24 hours a day from anywhere with a secure link to be sent from the website by SMS or E-Mail after the purchase request is received.

Digital payment services provided bydigital money institutions: According to the Law No. 6493 on "Payment and Securities Settlement Systems, Payment Services and Digital Money Institutions", digital money; the monetary value, which is accepted as a means of payment by individuals and companies other than the digital money issuing institution, which is issued for the funds accepted by the issuing institution, is stored electronically, used to perform the payment transactions defined in this law, and the digital money institution is the law It refers to the individual authorized to issue digital money within the scope (Mevzuat, 2013). According to the European Central Bank (ECB), digital money is defined as prepaid technical tools that enable payments to be made widely to undertakings other than the issuing institution without the use of bank accounts and to save the monetary values electronically (ECB, 2020). In this payment system, digital money can be used for the purchase of goods and services in any business that accepts it as a money-like payment tool. There are 18 digital money institutions operating with the permission of the CBRT. Although it is often confused in the literature, virtual (crypto) currency is different from digital money. Virtual currency definition according to the European Central Bank definition is in the form of "virtual representation of the asset that has not been issued by any central bank, credit institution or digital money institution and can be used as an alternative to money in some cases" (ECB, 2019).

Virtual currency has not control by a center or an official organization. Digital money is linked to a payment institution. Although it may be used in future virtual currencies are accepted as legal digital money as yet in Turkey. Since the virtual currencies have similarities in structure with electronic money, BRSA in Turkey, made the first and only official statement on the subject on November 25th, 2013. In the related statement, it is mentioned that the identity of the parties is not known in transactions with Bitcoin, Ethereum, Ripple and Tether, providing a suitable environment for the use of these virtual currencies in illegal activities (BDDK, 2013a). In addition, the public has been warned that it is open to risks arising from operational errors or misuse of malicious sellers, as well as risks such as excessive volatile market value of virtual currencies, digital wallets being stolen, lost or used irregularly outside their owners' information (BDDK, 2013b).

The effect of covid-19 on card payment systems: Since March 11th, 2020, when Covid-19 was first seen in our country, it has been observed that pandemic also had an impact on consumption habits and shopping channels. In addition to quarantine citizens under the age of 20 and over 65, the curfew imposed on weekends and public holidays has led to increased shopping through digital channels and the use of credit and debit cards to move between sectors. November 12th, 2019 and dated 7192 Law No. 6493 dated Payment and Securities Settlement Systems, Payment Services and Electronic Money Institutions, the Central Bank of Turkey in accordance with the provisions added as the fourth paragraph of Article 8 of the Law "payment and uninterrupted securities settlement systems system operators with or without systemic importance have been given the authority to become shareholders" in order to ensure their operation (TCMB, 2020b). By the increasing importance of uninterrupted operation of payment systems with the emerging new situation increased because of the fundamental task to ensure price stability, the Republic of Turkey Central Bank became the main shareholder on 30.04.2020 of Interbank Card Center (BKM), regarding 6493 Law's fourth paragraph of Article 8. In this regard, the most important effect of the pandemic on card payment systems was the CBRT's partnership with BKM in order to control systemic risk. The effect of Covid-19's card payment systems on monetary volume and the distribution of expenditures is demonstrated by the change in February and March credit and debit card expenditures. Accordingly, it is observed that the airline, accommodation and travel / transportation sectors are the sectors that are negatively affected by credit card expenditures due to travel restrictions all over the world. However, when considered as an amount of loss, clothing / accessories took the first place with TL1.5 billion, while the airline sector reached the third biggest shrinkage with TL995 million, and the food sector with its TL819 million. On the other hand, the sectors where the spending increased due to changing spending habits are seen as market and shopping centers and building materials. Although debit card expenditures based on spending with cash in the current account are also parallel to credit card, jewelry taking attention with a 64% decrease and on the increase side, private pension expenditures taking attention with food expenditures.

CONCLUSION

After the first time Covid-19 was seen in December, the sectors that it had an impact on were the aviation and tourism sectors,

and the impact on household spending preferences was also seen on credit card spending. Due to the widespread contagion effect, curfew restrictions and quarantine practices increase to retail trade as well as food and basic needs, and the service sector is increasingly demanded through digital channels (i.e. finance, insurance, health, education). Revenues of places where people are concentrated (such as cinema, theater, concert hall, restaurant, cafe, sports halls, stadiums) will inevitably decrease and their way of doing business will change. In this sense, the accelerator effect of pandemic on digitization is high. The increasing control of the central bank over payments seems to depend on the fact that payments are being made in digital form. In the next period, it is thought that the use of physical money, ATM and POS devices which the Covid-19's contagious effect will decrease and payments through BKM, payment institutions and mobile phones will continue to increase in digital environment. It is predicted that the process related to crypto currencies will be difficult to solve due to the lack of legal infrastructure in the near future, but digital money processes under the control of the central banks will accelerate by diversifying.

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