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Decision Model of Use E-Money in Covid-19 Pandemic Situation

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Abstract. This research was conducted to determine what variables influenced the e-money usage decision model during the Covid-19 pandemic. The survey involved 160 respondents during the Covid-19 pandemic. This research uses a quantitative approach using structural analysis of the SEM-AMOS model. A person's decision to use e-money is significantly influenced by concerns about Covid-19 transmission when they leave the house. Other variables are the frequency of someone searching for news about Covid-19, transaction behavior, ease of electronic money, efforts to attract the use of E-Money by service providers, and the use of cash when COVID-19 does not have a significant effect. Suggestions that can be given if e-money services want to increase public interest in using non-cash services, it is necessary to increase the security of transactions and provide facilities or service features that can be accessed from home.

Keywords. E-Money, Covid-19, Non-Cash, Cash, Pandemic Covid-19

1. Introduction

The development of information technology is making changes to the needs of people for payment tools that are faster and more flexible. This brought a change to the emergence of innovations in the use of payment instruments. Payment instruments known by the public are

currency and demand deposits. One such innovation is the emergence of electronic payment instruments. Some literature mentions this type of electronic money as e-money is a type of electronic money that inserts the media chip on the card device as a means of payment. While server-based electronic money in some literature referred to as e-wallet or programming based items is a type of electronic money that is managed by a waiter to operate the payment system through standardized identification media contained in the application [1, 2].

The co-19 pandemic declared on March 11, 2020, has affected countries on all continents. COVID-19 or Coronavirus-19 began to appear in Wuhan, the capital of Hubei province in the PRC, in December 2019 and spread throughout Asia and the world. As of March 8, 2020, the cumulative number of confirmed cases worldwide reached 106,369. The PRC accounted for the majority of 80,695 confirmed cases but significant outbreaks also occurred in other countries and regions. The number of cases exceeds 7,300 in Korea and 5,800 in Iran and Italy. Many other large countries also witnessed a large number of infections confirmed by France (949), Germany (800), Spain (525), Japan (461), and the United States (433). The number of deaths worldwide is approaching 3,600 [3, 4].

Officially, the government has asked the public to reduce outdoor activities to reduce the spread of the COVID-19 coronavirus in Indonesia. This appeal is intended for the community so that activities such as study, work, and worship must be carried out at home. Event cancellation of actions that can attract the attention of many people is one example of social distancing. Quarantine is one of the ways the government has done to stop the spread of infectious diseases [5, 6].

Paper currencies are widely exchanged for goods and services. Paper money offers a large surface area to accommodate bacteria and microorganisms. Contaminants Microbial can be transmitted directly, through hand-to-hand contact, or indirectly, through food or other inanimate objects. As a result, hand hygiene is considered important to prevent food outbreaks and infections related to health care. However, little information is available about how long bacteria can survive on paper or how many organisms can be transmitted in the hand-to-paper transmission cycle. Although little has been written about but the potential of banknotes and coins are to become pathogenic transmission media. [7].

The rapid spread of COVID-19 is feared by all people and it is suspected that one that can become a medium of introduction is germs that stick to cash (paper/coins). To reduce the spread of COVID-19, WHO has suggested considering the use of electronic or non-cash money. Kakushadze and Liew stated that paper money and coins are a medium for spreading germs. The surface of banknotes can be filled with harmful bacteria such as methicillin-resistant *Staphylococcus aureus*, *E. coli*, *bacillus cereus*, flu infections, yeast, fungi, human feces, fungi, and even cocaine and heroin [8].

The virus originating from Wuhan, China has given a new emphasis on the transmission of the disease through paper money. The Bank of China announced in mid-February 2020 to sterilize and destroy cash to reduce the spread of this infection. In the 5G Era, many aspects of life changed. People turn to electronic money to clean paper money and coins which are expected to reduce the spread of germs. [9].

Indeed, unlike exchanging cash, exchanging electronic money does not require any physical contact. Everything can be done through scanning and other touchless technology. Even get cash from an ATM - requires a touching surface such as a touch screen and / or keypad. This is also a medium for spreading germs. The World Health Organization (WHO) encourages using contactless payment technology if possible because paper money can spread infections [10].

Minimizing the use of banknotes is an alternative solution to reduce the spread of germs during a coronavirus pandemic. This shift in consumer behavior and the increase in the use of Electronic Money will have an impact on traditional payment methods, pushing the way to a future without cash. The advantages of this transaction include convenience, cost savings, and electronic records in the financial services sector [11].

In the current economic development, the exchange of goods and services takes place quickly so that a payment system that is fast, efficient, safe, and reliable is needed. The development of payment transactions using electronic money or e-money is growing, but there are still people who prefer to use cash or are not interested in using e-money. Based on information from Bank Indonesia, there are 20 electronic money issuing companies, but until now there is still little electronic money circulating and used by the public [12].

Constraints faced are such as the still not opening up of people to use electronic money (e-money) because they are still accustomed to using cash or cultivating cash and do not yet know the efficiency provided by e-money. Bank Indonesia (BI) states, the smoothness of the payment system, both cash and non-cash, is maintained amid the spread of Covid-19. The position of currency circulated (UYD) per February 2020 grew 5.44% (YoY), while non-cash transactions using ATMs, charge cards, credit cards and electronic money (EU) position in February 2020 fell 1.02% (YoY). Transactions EU continue to grow rapidly, reaching 145.47% (YoY), indicating the high public preference for digital payments. Bank Indonesia strives to continue to strengthen the Payment System policy, including efforts to mitigate the impact of Covid-19 by ensuring that the operation of the Payment System and Rupiah Money Management (SPPUR) runs fully through the reliability and smoothness of the payment system. In this regard, Bank Indonesia will continue to encourage the use of non-cash payments and support government programs in channeling social assistance funds through non-cash payments [13].

The government is making every effort to prevent the spread of COVID-19. One that is believed to prevent is civilizing electronic payments for cash, both paper, and metal, changing hands from one person to another. The hand movement occurred hundreds or even thousands of times. So, the QRIS application is a form of infection prevention. To increase interest in using e-money, the government, banks, and publishing companies need to know several factors that influence people's interest in using e-money [14].

Based on the background described above, the researcher discusses the problem by knowing the attitudes and decisions regarding the use of e-money during the co-19 pandemic. This research was conducted with volunteers as a form of concern for the current state of society to address information related to the development of Coronavirus 2019 (COVID-19). This research was conducted on indicators that influence the spread of COVID-19 transmission. This research becomes useful for individuals and in general about indicators that influence directly or indirectly on the spread of COVID-19 transmission

2. Literature Review

2.1 Definition of Electronic Money

According to Bank Indonesia (2020) Electronic Money is defined as a means of payment that meets the following elements: (1) Issued based on the value of money paid in advance to the issuer, (2) the value of money is stored electronically in a medium such as a server or chip, (3) the value of electronic money managed by the issuer is not a deposit as referred to in the law governing banking [15].

2.2 Legal Basis and Benefits of Electronic Money

The implementation of money is stipulated in (1) Bank Indonesia Regulation Number 11/12 / PBI / 2009 April 13, 2009, concerning Electronic Money (2) Bank Indonesia Circular Letter No.11 / 11 / DASP April 13 2009 regarding Electronic Money. The use of Electronic Money as a means of payment can provide the following benefits: (1) Providing convenience and speed in making payment transaction transactions without the need to carry cash. (2) No longer accepting change in the form of goods (such as candy) (3) Very applicable for mass transactions of small value but high frequency, such as transportation, parking, tolls, and fast food [16].

2.3 Electronic Money Risk

Although on the one hand there are several benefits of Electronic Money, on the other hand, there are risks that need to be addressed with caution from its users, such as (1) The risk of electronic money being lost and can be used by other parties, because in principle money electronic is the same as cash which if lost cannot be claimed by the issuer. (2) Risk due to the lack of understanding of users in using electronic money, such as users not realizing that the electronic money used is pasted 2 (two) times to the reader for the same transaction so that the value of electronic money decreases is greater than the transaction value [17].

2.4 Types of Electronic Money and Limits of Electronic Money Value

Types of electronic money based on whether or not the holder's identity data is recorded at the Electronic Money issuer is divided into (1) Registered Electronic Money, which is Electronic Money whose identity data is recorded/registered with the Electronic Money issuer. In this connection, the issuer must apply the principle of getting to know customers in issuing Money. The maximum value of Electronic Money stored on a media chip or server for registered types is IDR 5,000,000 (five million Rupiah). (2) Unregistered Electronic Money is Electronic Money whose identity data is not recorded with the issuer of Electronic Money. The maximum limit on the value of Electronic Money stored on media chips or servers for unregistered types is Rp1,000,000.00 (one million Rupiah) [18].

2.5 Parties in Providing Electronic Money

Cardholders are legitimate users of Electronic Money. Principals are banks or institutions other than banks that are responsible for managing the system and / or networks among its members, both those who act as issuers and / or acquirers, in Electronic Money transactions in cooperation with members based on a written agreement. (1) Issuers are banks or institutions other than banks that issue Electronic Money. (2) An acquirer is a bank or institution other than a bank that cooperates with a merchant, who can process Electronic Money issued by another party. (3) A merchant is a seller of goods and/or services that receives payments from transactions using Electronic Money. (4) Clearing Operator is a bank or institution other than a bank that calculates the financial rights and obligations of each issuer and / or acquirer in the context of Electronic Money transactions. (5) Final settlement providers are banks or institutions other than banks that carry out and are responsible for the final settlement of the financial rights and obligations of each issuer and / or acquirer in the context of Electronic Money transactions based on the results of calculations from the clearing operator [19].

2.6 Definition of Perception Benefits

Perception is a process by which a person chooses, accepts, organizes, and interprets the information he/she receives from the environment. Someone's perception of technology will be perceived differently. Someone's perception is that there are new technologies that are very beneficial to their daily activities. But there is also the perception of someone who states that the existence of technology makes him uncomfortable and makes work more complicated because it is not by one's ability to use or not a product or service [20]

3. Research Methodology

Instruments in this study used an online questionnaire developed by researchers using the Google form tool. This research is a quantitative descriptive study. The sample was chosen based on the technique of Unknown Populations. The population in this study is people who have electronic money or e-money and who do not. The population size cannot be known with certainty. This is because every community can have more than one product, remembering that the owner is easy and does not need an account and some people have not used a sampling technique that is using the technique Unknown Populations. The determination of the number of samples in the study is using respondents totaling 160 respondents. This research uses a quantitative approach using SEM-AMOS. This approach is used to examine the symptoms of a particular population or sample by using research instruments as statistical data collection [21].

Variable Attitudes towards the decision to use E-money (Y1) when the Covid-19 pandemic is influenced by several variables namely X1 Looking for Information, X2 Transaction Behavior, X3 Concerned about contracting COVID-19, X4 Ease of Electronic Money, X5 Efforts to attract the use of E-Money, X6 Use of Cash when COVID-19. The theoretical model can be illustrated in Figure 1 below:

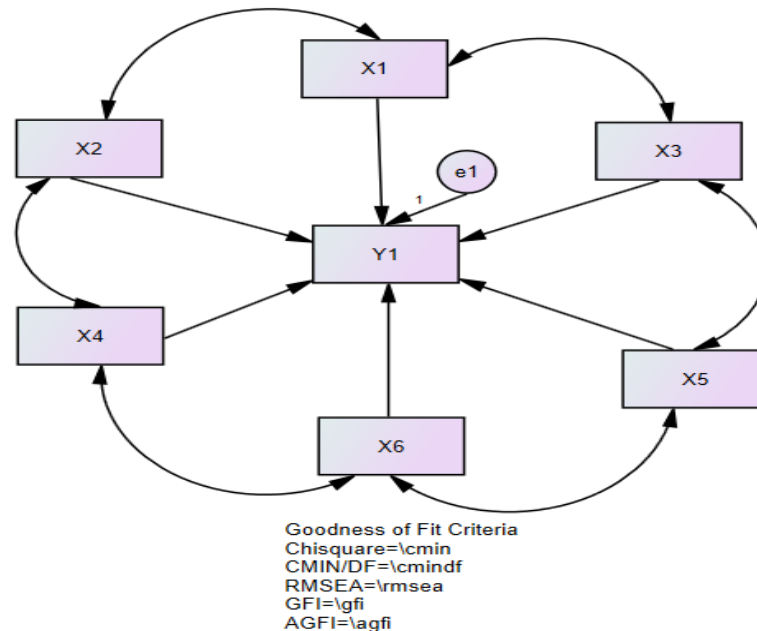


Figure 1.

Model Decision To Use E-Money In The Covid-19 Pandemic [22, 23, 24, 25].

From the Model of Attitudes towards the decision to use E-money when the Pandemic Covid-19 can be determined as follows:

- 1) The more often a person (X1) seeks information about Covid-19, the more attitudes towards the decision to use E-money (Y1).
- 2) The better the person's behaviour (X2) in the transaction, the more attitudes towards the decision to use E-money (Y1).
- 3) The more worried a person is (X3) Worrying about contracting COVID-19, the more attitudes towards the decision to use E-money (Y1).
- 4) The more available (X4) convenience of electronic money, the more attitudes towards the decision to use E-money (Y1).
- 5) The more (X5) attempts to attract the use of E-Money, the more attitudes towards the decision to use E-money (Y1).
- 6) The more occurrences (X6) of the use of cash during COVID-19, the decreasing attitude towards the decision to use E-money (Y1).

4. Research Finding

4.1 Respondent Profile The

The study involved 160 respondents with a predominance of respondents aged 16 to 25 years at 51.2%, and then 46 to 55 years at 16.3%, 36 to 45 years at 14.4%, 26 to 35 years at 13.8%, and the remaining 56 to 65 years of 4.4% (see Table 1).

Table 1
Profile Of Respondents By Age

Aging Group	Frequency	Percent
16-25 Years	82	51.2
26-35 Years	22	13.8
36-45 Years	23	14.4
46-55 Years	26	16.3
56-65 Years	7	4.4
Total	160	100.0

Research also dominated by respondents who work as Students or Students at 46.9%, then Private Employees at 22.5%, Teachers/lecturers at 18.1%, and the rest of the other professions (see Table 2).

Table 2
Profile Of Respondents By Occupation

Work	Frequency	Percentage
Teacher / Lecturer	29	18.1
Others	3	1.9
Students	75	46.9
Civil Servants	6	3.8
Private Employees	36	22.5
Entrepreneurs	11	6.9
Total	160	100.0

When viewed from the educational level, research is dominated by respondents with education D4 / S1 / Bachelor 65.6%, and then S2 / Masters 15.6%, and the rest (see Table 3).

Table 3
Profile Of Respondents Based On Education

Education	Frequency	Percent
D1 / D2 / D3	6	3.8
D4 / S1 / Bachelor	105	65.6
S2 / Master	25	15.6
S3 / Doctor	3	1.9
SMA / SMK	21	13.1
Total	160	100.0

4.2 Description of Research

Results Survey results from 160 respondents describe that Attitudes towards the decision to use E-money (Y1) during the Covid-19 pandemic are influenced by several variables namely X1 Looking for Information, X2 Transaction Behavior, X3 Fear of Contracting COVID-19, X4 Ease of Electronic Money, X5 Efforts to attract the use of E-Money, X6 Use of Cash when COVID-19. (see Table 4).

Table 4
Respondent Profiles Based On The Attitude

Research Variables	Mean	Std. Deviation	Information
X1 Finding Information	4.29	.901	Very often
X2 Transaction Behavior	4.23	.848	Very careful
X3 Worried about contracting COVID	4.46	.784	Very Worried
X4 Ease of Ease of Money	3.97	.934	Agree
X5 Interesting attempts to use e-money	4.40	.762	Very interesting
X6 Use of Cash at COVID-19	4.17	.940	Agree
Y1 Attitudes towards E-Money at COVID-19	4.43	.895	Strongly agree

Note: The mean value is a value that indicates the average respondent's perception of the respondent's answer categories. Note: Range 1.00 - 1.80 means Strongly Disagree, 1.81 - 2.60 means Disagree, 2.61 - 3.40 means Disagree, 3.41 - 4.20 means Agree, and 4, 21 - 5,00 means Strongly Agree.

4.3 Decision Model of Use E-Money in Virus Pandemic Situation

Model Attitude towards the decision to use E-money (Y1) when the Covid-19 pandemic is influenced by several variables namely X1 Looking for Information, X2 Transaction Behavior, X3 Concerned about Contracting COVID-19, X4 Ease of Electronic Money, X5

Interesting efforts Use of E-Money, X6 Use of Cash during COVID-19 [22, 23, 24, 25] can be proven as follows (see Figure 1).

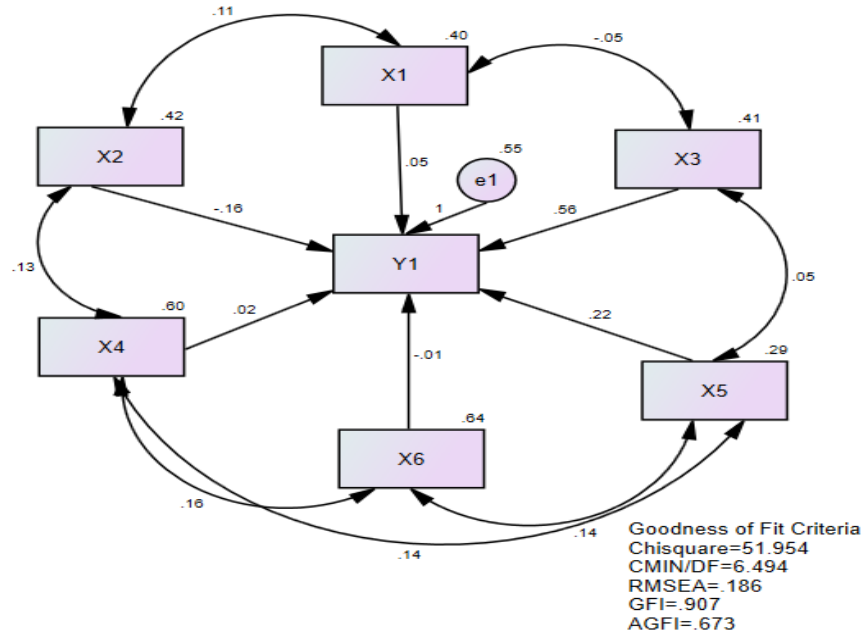


Fig 2.
 Decision Model of Use E-Money in Virus Pandemic Situation
 (Goodness Of Fit On Gfi 0.907 > 0.90)

Attitudes towards the decision to use E-money (Y1) when the Covid-19 pandemic is influenced by several variables, namely X1 Looking for Information, X2 Transaction Behavior, X3 Worried about contracting COVID-19, X4 Ease of Electronic Money, X5 Efforts to attract the use of Electronic Money, X6 Use of Cash during COVID-19 and the results of the analysis test can be explained in the following Table 5:

Table 5
 Hypothesis Test Results in the Model Attitudes towards the decision to use E-money during the Covid-19 Pandemic (Goodness of Fit on GFI 0.903 > 0.90)

Relationship of	Estimate	SE	CR	P	Decision
Y1 (Use of E-money) <-- X1 (Finding Information)	.046	.134	.347	.729	No significance
Y1 (Use of E-money) <-- X3 (Worrying Infected)	.555	.114	4857	***	Significance
Y1 (Use of E-money) <-- X2 (Conduct Transaction)	-.164	.110	-1487	.137	No Significance
Y1 (Use of E-money) <-- X6 (Use of Cash)	-.014	.084	-.168	.867	No significance
Y1 (Use of E-money) <-- X5 (Interesting effort)	.219	.144	1,519	.129	No significance
Y1 (Use of E-money) <-- X4 (Convenience)	.022	.088	.252	.801	No significance

Regression Weights: (Group number 1 - Default model)

Model decision to use E-money can be explained as follows:

- 1) The more often a person (X1) seeks information about Covid-19, the attitude towards the decision to use E-money (Y1) is increasing, but this relationship is not significant because (CR) is only 0.347 smaller than 1.96.
- 2) The better a person's behavior (X2) in a transaction, the lower the attitude towards the decision to use E-money (Y1), but this relationship is not significant because (CR) is only -1.487 smaller than -1.96.
- 3) The more worried someone (X3) Worried about contracting COVID-19, the more attitudes towards the decision to use E-money (Y1), and this relationship is significant because (CR) of 4.857 is greater than 1.96.
- 4) The more available (X4) convenience of electronic money, the more attitudes towards the decision to use E-money (Y1), but this relationship is not significant because (CR) is only 0.252 smaller than 1.96.
- 5) The more (X5) attempts to attract the use of E-Money, the more attitudes towards the decision to use E-Money (Y1), but this relationship is not significant because (CR) is only 1.519 smaller than 1.96.
- 6) The more occurrence (X6) of using cash during COVID-19, the decreasing attitude towards the decision to use E-money (Y1), but this relationship is not significant because (CR) is only -0.168 smaller than -1.96.

5. Conclusion And Recommendation

5.1 Conclusions

A person's decision to use e-money is significantly influenced by concerns about the occurrence of Covid-19 transmission when they leave the house. Other variables are the frequency of someone searching for news about Covid-19, transaction behavior, ease of electronic money, efforts to attract the use of E-Money by service providers, and the use of cash when COVID-19 does not significantly influence, and this finding is different from Rahmatika's findings and Priambodo [22, 23].

5.2 Recommendations

Suggestions can be given if the e-money service wants to increase public interest in using non-cash services, it is necessary to increase the security of transactions and provide facilities or service features that can be accessed from home. This advice was given because the decision to use non-cash services was not caused significantly by frequent someone searching for news about Covid-19, transaction behavior, ease of electronic money, efforts to attract the use of E-Money by service providers, and use of cash when COVID-19 was not significantly influenced.

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