




Factors Affecting Switching Intention from Cash on Delivery to E-Payment Services in C2C E-Commerce Transactions: COVID-19, Transaction, and Technology Perspectives

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Abstract

During the COVID-19 pandemic, the application of e-payment has rapidly increased. However, e-payment has not been able to achieve a trustworthy level in e-commerce transactions. Thus, cash payment methods with Cash On Delivery (COD) services still dominate C2C e-commerce payment transactions in Indonesia. This study aims to investigate factors that affect users' switching intentions from COD to e-payment services. The research model was adopted by using the Push-Pull-Mooring framework, integrating perceived COVID-19 risk, technology acceptance, and transaction effort. Empirical research was conducted using data from 546 COD and e-payment users in Indonesia, with Structural Equation Modelling (SEM) being used to validate the model and analyze the hypotheses. The results indicate that switching intention from COD to e-payment is significantly influenced by pull factors in e-payment, which are economic benefits, performance expectancy, effort expectancy, and critical mass. There are also two mooring factors that significantly influence the switching intention from COD to e-payment, which are trust and perceived security and privacy. This study makes a significant contribution to the literature in terms of validating a theoretical framework that emphasizes factors that influence user switching intentions from COD to e-payment in the context of the COVID-19 pandemic. This research can be a reference for Indonesian payment system regulators and e-payment service providers in formulating regulations and strategies to accelerate the spread of digital transactions in Indonesia.

Keywords:

E-Commerce;
Payment Systems;
Switching Intention
COVID-19;
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1- Introduction

COVID-19 is currently the biggest global health crisis of the 21st century [1]. In the pandemic, digital technology plays an important role in ensuring public health and safety and maintaining the country's economy [2]. One of the activities supported by the presence of this digital technology is the payment systems for electronic commerce (e-commerce) [3]. One type of e-commerce transaction activity that is growing rapidly is C2C (customer-to-customer) e-commerce [4]. By using electronic payment (e-payment) services, transactions can run easily and quickly and are safe from the risk of COVID-19 because the transactions are contactless. The benefits and convenience offered by e-payments have led to an increasing trend of e-payment usage in Indonesia. Based on data from Bank Indonesia, this positive trend has occurred since 2015, and the amount of electronic money in circulation increases every year. These

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positive trends, benefits, and convenience have subsequently supported the government through Bank Indonesia (BI) in the establishment of the National Non-Cash Movement (GNNT) on August 14, 2014. GNNT aims to create a payment system that is safe, efficient, and smooth, which encourages a national financial system to work effectively and efficiently, as well as a cashless society ecosystem or non-cash payment ecosystem. Along with the efforts to boost the GNNT, BI launched the Indonesia Payment System (IPS) Blueprint 2025 so that payment systems in Indonesia can be more adaptable to the presence of digital technology. The IPS Blueprint 2025 is designed to navigate Indonesia's digital economic transformation. Well-functioning payment systems, monetary systems, as well as financial systems will yield economic growth sustainability, prosperity, and financial system stability.

However, the realization of a cashless society in Indonesia will certainly not be easy. This is due to the uneven distribution of e-payment services in Indonesia, where social and economic conditions in each region are different. Ventures et al. classify the territory of Indonesia into four tiers based on their potential to adopt a technology [5]. Areas that fall into tier one (metropolitans) and tier two (rising urbanities) are considered to have the potential to accelerate the growth of technology adoption in Indonesia. Meanwhile, areas that have the potential to hinder the growth of technology adoption in Indonesia are those that are classified into tier three (slow adopters) and tier four (rigid watchers). Areas in tier three and tier four require fast handling for the realization of equitable digitalization in Indonesia. The realization of a cashless society ecosystem, especially in e-commerce transactions, can also be hampered by the perceptions of users. One of the problems is user trust [6]. Although stringent measures have been implemented to make e-payment services a safe and secure method with minimal risk of fraud, it still has not been able to increase user confidence in the security of e-commerce transactions [3]. Therefore, this study discusses how to accept e-payment services in transactions between fellow C2C e-commerce platforms that occur in Indonesian society.

Due to the lack of e-payment services, the presence of a Cash On Delivery (COD) payment service has become a choice as a method of e-commerce payment transactions [7]. COD service offers flexibility where buyers can pay only after the product has arrived in their hands [8, 9]. That way, the risk related to fraud problems can be minimized. Although the COD service violates the basic concept of e-commerce payment transactions, Indonesian people are more inclined to use the service. This can be seen from the results of a survey conducted by the Central Statistics Agency (BPS) Indonesia, indicating that the use of COD services in e-commerce transactions in 2020 ranked higher compared to e-payment services, with a percentage of 73.4%. Therefore, to support the development of digital transactions in Indonesia, this study discusses factors that influence user intention to switch from COD to e-payment services in C2C e-commerce transactions during the COVID-19 pandemic. Several studies have discussed consumer behavior in choosing the two methods to be used in payment transactions [10–12]. However, these studies do not explain the change of behavior when they shifted from COD services to e-payment services. Efforts to encourage users to switch from COD services to e-payment services in e-commerce transactions need to be made. Therefore, this research examines what factors influence the users' switching intention from COD services to e-payment services.

While few studies have discussed switching intention related to COD and e-payment, only a few studies discuss switching intentions from cash payments to non-cash payments in retail store transactions [13–15]. As for the context of e-commerce, there is only a study conducted by Loh et al. (2021) [16]. By reviewing the Transaction Cost Theory and the Push-Pull-Mooring (PPM) Framework, [16] has succeeded in identifying factors that influence users' intentions to switch from cash payments to mobile payment services on e-commerce transactions. However, the research was conducted in the context of mobile commerce and does not explain what cash payment methods are. Therefore, this study performs a specific analysis of factors that drive users to leave COD services and switch to e-payment services, with integration between perceived COVID-19 risk, perceived technology acceptance, Transaction Cost Theory, and Push-Pull-Mooring framework (PPM). This study was conducted to investigate factors that influence users' intentions to switch from the COD payment method to the e-payment method. The research will identify factors that affect users to switch from using the COD payment to e-payment services. Based on the findings, recommendations and feedback are given to specific stakeholders. This research can be used as a reference to accelerate the spread of digital transactions in Indonesia.

The rest of the article is arranged as follows: The second section discusses the proposed research model and hypotheses developed. It also reviews the relevant literature. The research design, data collection process, and questionnaire development are described in the third section. The findings of the research are provided in section four. Finally, sections 5 and 6 provide the discussion and conclusions, as well as limitations and suggestions for future research.

2- Literature Review

2-1- C2C E-Commerce

C2C e-commerce is an innovation in the e-commerce business that allows customers to interact with one another [17]. In the current C2C market concept, there is an environment that provides facilities where customers can sell goods or services to each other [18, 19]. The concept is almost similar to B2B (business to business) and B2C (business to

customer). The difference is that the C2C concept usually involves bargaining transactions and the use of liaison facilities between consumers by involving third parties, commonly called platform-based e-commerce [20, 21]. The platform allows business actors to sell as in conventional online business transactions through the platform services. By utilizing the platform, consumers or users can publish their goods or services for sale and other consumers make offers to buy these products or services. The platform only serves as an intermediary. It is a place where consumers can interact with each other in buying and selling activities [17]. In Indonesia, there are several large platforms such as Shopee, Tokopedia, and Lazada.

2-2- Cash On Delivery (COD) Payment

Cash On Delivery (COD) is a payment method in online shopping activities where buyers can pay for orders in cash when the orders have been received [22, 23]. Payments in COD are made through the courier who delivers the ordered goods. Until now, payments to couriers in the COD payment system can only be made in cash. Therefore, buyers are required to prepare the right amount of money so that the transaction can run smoothly. Usually, COD payments are made when the buyer is meeting directly with the courier. So, it is difficult for buyers who are not at home or the place agreed at the time of delivery [7, 8].

2-3- Electronic Payment (E-Payment)

Electronic payment or e-payment is a payment mechanism that uses electronic media and does not involve cash [24, 25]. According to the Federal Financial Institutions Examination Council, e-payment is a new payment practice for retail companies in which sellers receive payment information for the goods or services they offer and place this information in an electronic template that creates an electronic file for processing over the network [26]. E-payment can also be defined as the electronic transfer of value from the payer to the recipient through an electronic payment mechanism. E-payment services allow users to access and manage their balances and transactions remotely [27, 28]. In general, e-payment refers to an electronic payment mechanism in the context of e-commerce transactions conducted through the internet network. Electronic payment can also be defined as a non-cash or cashless payment process [6], [29]. Figure 1 shows an overview of the distribution of e-commerce payment methods in Indonesia in 2021 [30]. The e-payment system discussed in this study consists of bank transfers using mobile banking and internet banking, online credit card transactions, electronic wallets (e-wallet), and pay later installments.

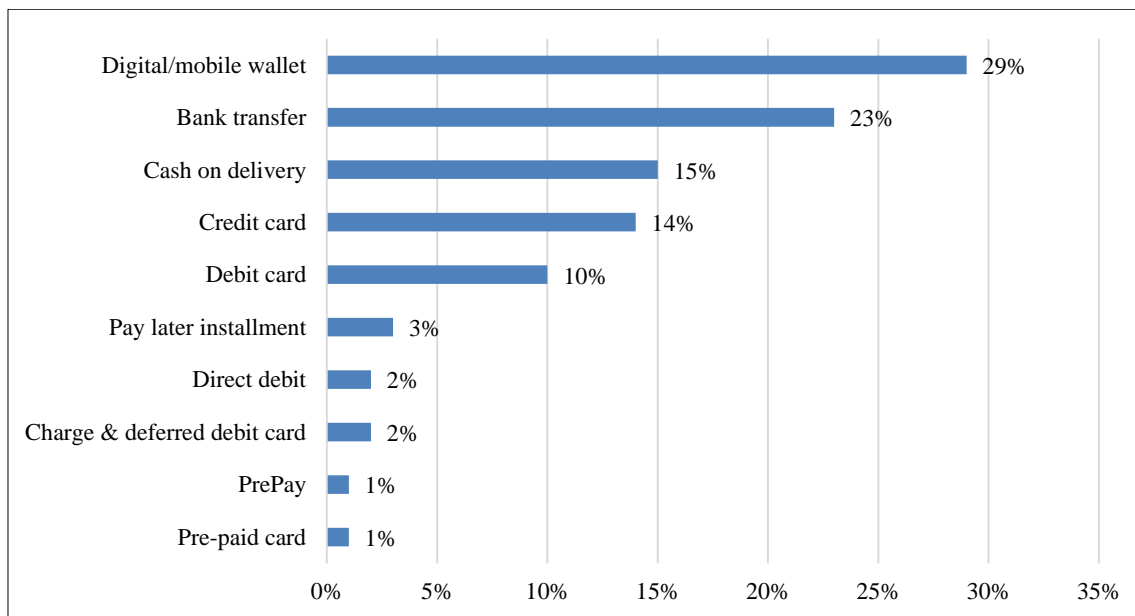


Figure 1. Distribution of e-commerce payment methods in Indonesia in 2021

2-4- Push-Pull-Mooring (PPM) Framework

PPM is a framework that has long been used to study the motivations underlying migration in humans, that is the movement from one condition to another [31]. This framework reviews factors that encourage users to leave the initial condition (Push), the attractive factor of the destination condition (Pull), and the inhibiting factors in the movement (Mooring) [16]. Push can be defined as a negative factor that exists in the initial system, encouraging users to leave the system. It can also be interpreted as a weakness in the service that will be abandoned [32]. On the other hand, pull is defined as a factor that attracts users to use a new service due to the advantages possessed by the new service [16]. The last is the Mooring factor, referring to internal and external factors of the transfer process, which in nature can hinder or encourage users' decisions to switch from one service to another [33].

2-5- Research Model and Hypothesis

The research model was designed by integrating the PPM with the COVID-19 risk, UTAUT, and Transaction Cost Theory perspectives, considering the insights from [14, 16, and 34–36]. Those are most relevant to the context and the hypotheses that have been developed. This research model contains eleven variables, ten exogenous variables, and one endogenous variable, as illustrated in Figure 2.

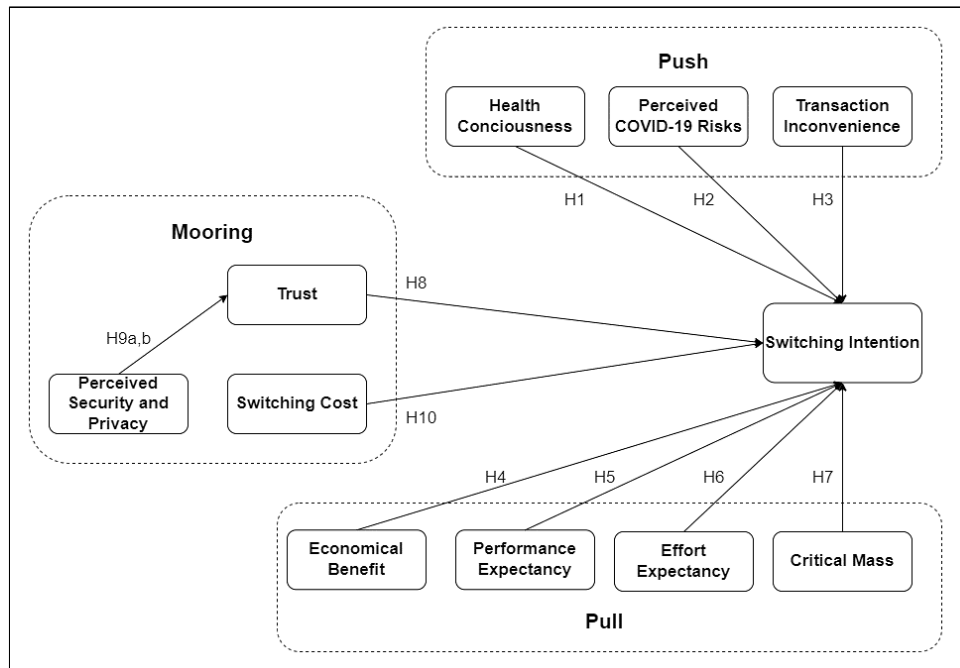


Figure 2. The proposed research model

This study uses the PPM framework as the main basis for determining the variables used. First, on the push factor, variables related to health in the context of COVID-19 are proposed, which are the Health Consciousness (HCO) and Perceived COVID-19 Risks (PTR) factors. HCO is defined as the degree to which health problems are integrated into a person's daily activities [36, 37]. In this study, HCO talks about how consumers are aware of their health, thus encouraging them to switch from COD to e-payment. This awareness includes how high the level of user knowledge regarding how to stay healthy is, how important health is for users, how active users are to maintain their health, and how much effort users are willing to expend to stay healthy [36]. Therefore, the proposed hypothesis for the HCO variable is proposed as follows:

H1: Health consciousness (HCO) has a significant positive impact on switching intention from COD to e-payment (SWI).

According to [35], the use of e-payments is one of the best solutions to prevent the risk of COVID-19 transmission. Furthermore, [35] explains that the perception of risk is indicated by the fear of contracting the disease and the presence of health threats. In this study, when the value obtained on Perceived COVID-19 Risks (PTR) is high, users will tend to leave COD services and choose e-payment services. Therefore, the proposed hypothesis for the PTR variable is as follows:

H2: Perceived COVID-19 risks (PTR) have a significant positive impact on switching intention from COD to e-payment (SWI).

Transaction Inconvenience (TIN) is a variable proposed in this study which is taken based on an understanding of Transaction Cost Theory. In the Transaction Cost Theory, TIN refers to any costs and efforts incurred to facilitate transactions [14]. Time-consuming, tiring, untrustworthy, and uncomfortable conditions will increase transaction costs. On the other hand, factors such as saving time, saving energy, being trustworthy, and being comfortable will reduce transaction costs. Consumers will evaluate the total cost and effort of the transaction to determine whether to adopt or change their behavior. In this study, the inconvenience factor was considered as the push factor. Tran et al. in their research proposed this variable as an inconvenience factor that encourages users to leave cash payments and switch to mobile payment services [38]. Therefore, in this study, when the TIN value obtained is high, the user feels uncomfortable in using COD and chooses to leave it. Therefore, the proposed hypothesis for the TIN variable is as follows:

H3: Transaction inconvenience (TIN) has a significant positive impact on switching intention from COD to e-payment (SWI).

On the pull side, as a factor in the advantages offered by e-payment services, this study proposes several variables that attract users to switch to e-payment services in C2C e-commerce transactions, namely Economical Benefit, Performance Expectancy, Effort Expectancy, and Critical Mass. The Economical Benefit (EBE) variable was taken from the results of the synthesis of variables in the Transaction Cost Theory proposed by Lu and Wung (2020) [14]. According to [14], EBE talks about how many rebates, discounts, and bonus points are provided by mobile payment services, as well as how cheap the use of these payment services is compared to using cash payments [14]. Therefore, the EBE variable is proposed by measuring how e-payment can provide discounted prices, cashback, and bonus points on online shopping transactions through e-commerce, as well as how cheap it is compared to COD payment services. If the value for this variable is high, it will describe the tendency of users to switch from COD payment services to e-payment services. Therefore, the proposed hypothesis for the EBE variable is as follows:

H4: Economic benefit (EBE) has a significant positive impact on switching intention from COD to e-payment (SWI).

Then, by reviewing the theory related to technology acceptance, this study also proposes Performance Expectancy, Effort Expectancy, and Critical Mass variables taken from the UTAUT model [39]. Performance Expectancy (PEX) refers to how useful and how fast transactions can be made using e-payments compared to COD payments. (PEX) measures how reliable e-payment is as a non-cash payment by helping increase user productivity, save time and speed up user transactions [39]. Therefore, the proposed hypothesis for the PEX variable is as follows:

H5: Performance expectancy (PEX) has a significant positive impact on switching intention from COD to e-payment (SWI).

On the other hand, Effort Expectancy (EEX) refers to how much effort must be expended and how easy it is for C2C e-commerce transactions to be carried out using the e-payment payment method compared to the COD payment method. EEX measures how e-payment as a non-cash payment can be relied upon because of the convenience provided when using and learning to use e-payments, as well as the minimum effort and time that users must spend to become proficient in using e-payments [39]. Therefore, if this variable has a high value, users will tend to be comfortable and switch from COD services to e-payment services in transacting in C2C e-commerce. Therefore, the proposed hypothesis for the EEX variable is as follows:

H6: Effort expectancy (EEX) has a significant positive impact on switching intention from COD to e-payment (SWI).

Critical Mass (CMS) is one of the concepts of social influence in the UTAUT model. It describes a user's decision to use a payment application, which is influenced by other users [40]. This study assumes that if most of the friends or relatives of users have the potential to switch from COD to e-payment services, then users will follow the move. Therefore, the proposed hypothesis for the CMS variable is as follows:

H7: Critical mass (CMS) has a significant positive impact on switching intention from COD to e-payment (SWI).

In the mooring factor, the Trust variable (TRU) is proposed. TRU has a major role in individuals in determining the adoption of technology because electronic transactions involve confidential data such as personal data. Having a sense of trust that transactions are safe to do will encourage someone to use the technology. Many previous studies have shown that this factor is significant in identifying technology adoption intentions [41–43]. According to [16], TRU acts as a guarantee felt by users that the technology used is reliable, puts the interests of users first, and can provide services as promised. Therefore, the proposed hypothesis for the TRU variable is as follows:

H8: Trust (TRU) has a significant positive impact on switching intention from COD to e-payment (SWI).

Sarkar et al. (2020) identify several factors that can be the antecedent factors of building trust in technology adoption in e-commerce activities [41]. This study proposes several antecedents of trust, which are used as factors that indirectly influence the intention to switch from COD to e-payment through Perceived Security and Privacy (PSP). They also revealed that increasing the adoption of e-payment services can be done by increasing the trust of users. Therefore, it is important to know the antecedents as a reference to increase trust in e-payment services, which will then indirectly influence users to switch to these e-payment services. This factor is the combined result of two variables that have been proven in previous research to significantly influence the adoption of electronic payments [16, 44]. PSP refers to the ethical perception of users regarding transactions made via the internet and is also related to the risk of information theft by unauthorized parties, viruses, and malicious software [45], as well as user perceptions related to sharing of personal information without permission (Sarkar et al. 2020). PSP is proposed because e-payment involves data transactions in an online environment where there are security and privacy risks. Thus, privacy and security concerns can reduce the motivation to switch from COD to e-payment because of doubts about the capabilities, integrity, and virtues of e-payment services [16]. Therefore, the proposed hypothesis for the PSP variable is as follows:

H9a: Perceived security and privacy (PSP) has a significant positive impact on trust (TRU).

H9b: Perceived security and privacy (PSP) has a significant positive impact on switching intention from COD to e-payment (SWI).

This study also proposed the Switching Cost (SWC) variable as a factor that directly influences consumers' intention to switch from COD to e-payment services. SWC refers to the costs and effort that users need to incur in using a new service [16]. In this study, SWC refers to indicators that prevent consumers from switching from COD to e-payment services, one of which is that consumers must have an e-payment payment account which requires effort and cost to obtain. Bölen (2020) [46], also reveals that the SWC indicator can be caused by the time and mental effort required to learn new technology services, as well as the costs that may be incurred hiddenly. Therefore, the greater the SWC value issued by the user, the more inhibiting the shift from COD to e-payment is so that the proposed hypothesis will be negative (Hsieh 2021). Therefore, the proposed hypothesis for the SWC variable is as follows:

H10: Switching cost (SWC) has a significant negative impact on Switching Intention from COD to e-payment (SWI).

3- Research Methodology

3-1-Data Collection

The data for this quantitative study was collected using online questionnaires. Data was collected online from a large number of respondents, particularly individuals with diverse demographic profiles. In terms of respondent sampling, purposive sampling was used, which is determining the sample by grouping respondents based on the research setting. The participants of this research are Indonesian respondents who have used COD and e-payment payment methods in C2C e-commerce transactions.

3-2-Questionnaire Development

Before distributing the final draft of the questionnaire, a readability test was first conducted to see if it was feasible and how well potential respondents would understand the questions. The readability test was conducted by distributing questionnaires to ten respondents with various demographic backgrounds. Based on the result of the test, the questionnaire was revised and the link of the questionnaire was then shared to social media such as Instagram, Facebook, and WhatsApp.

The questionnaire comprises three sections. The first section includes questions about the respondents' demographic data, including their email address and cellphone number, gender, age, domicile, most recent or current educational level, current job, and monthly income. The second section contains questions that aim to identify respondents who have used COD and e-payment services. This section also contains questions related to the last time the respondent used COD and how often they used e-payment in C2C e-commerce transactions, as well as the type of e-payment most frequently used. The third section consists of questions related to the research instruments that used 46 questions with a five-point Likert scale, ranging from strongly disagreed (1) to strongly agreed (5). Appendix I details each construct used in the questionnaire.

4- Results and Discussion

4-1-Sample Profiles

The survey was conducted from September 28 to October 28, 2021. The amount of data that was successfully obtained through the online questionnaire distribution was 800 data, consisting of 546 valid data and 254 invalid data. Data validation was carried out by filtering respondents who filled out the questionnaire completely, as well as respondents who had used COD and e-payment services. Table 1 presents the results of data collection.

Table 1. Demographic statistics

Item	Description	%	Sample
Gender	Male	61.90	338
	Female	38.10	208
Age	< 20 years old	6.78	37
	21 – 30 years old	43.59	238
	31 – 40 years old	38.46	210
	41 – 50 years old	8.79	48
	> 50 years old	2.38	13
Current Job	Student	14.47	79
	Employees	29.98	162
	Entrepreneurs	23.44	128
	Housewives	30.04	164
	Others	2.38	13

Domicile	Greater Jakarta Area	24.91	135
	Java Area	39.56	216
	Sumatra, Bangka Belitung, and Riau Islands Areas	8.97	49
	Sulawesi Area	6.23	34
	Kalimantan Area	13.92	76
	Bali, West Nusa Tenggara and East Nusa Tenggara Areas	5.49	30
	Maluku and Papua Areas	0.92	5
Last time using COD	One to seven days ago	38.64	211
	A week to a month ago	27.66	151
	A few months ago	25.84	141
	A year ago	4.76	26
	More than a year ago	3.11	17
Type of E-Payment Used	E-Wallet	82.05	448
	Bank Transfers (Internet/Mobile Banking)	49.45	270
	Pay Later Instalments	21.24	116
	Online Cards	10.26	56

Note: N = 546; missing data not shown and calculated in the table

With a total sample of 546 respondents, the requirements to conduct the SEM analysis were fulfilled. According to Hair et al., the required sample size for a more accurate SEM analysis is in the range of 200-800 samples [47]. Meanwhile, according to Kline, the recommended sample size is 10 times the number of indicators. As shown in Appendix I, the research instrument has 46 items. So, the minimum sample size for this study is 460 [48]. Therefore, the research data can be used for SEM analysis.

4-2- Measurement Model Assessment

Measurement model assessment was done by testing the validity and reliability test of the questionnaire, adopting Confirmatory Factor Analysis (CFA). The validity test was done by testing convergent validity and discriminant validity. Convergent validity test aimed to look at the value of item loadings and Average Variance Extracted (AVE). The item is valid if the item loadings value is above 0.7 and the construct is valid if the AVE value is above 0.5. Furthermore, discriminant validity exists when the square root of the AVE of each construct is greater than its correlation coefficient with the other constructs. Discriminant validity in this study was only carried out on exogenous constructs because the first level latent constructs (exogenous constructs) were considered to have explained the second level constructs (endogenous constructs) [49]. Meanwhile, the reliability test used Cronbach's Alpha (CA) and Composite Reliability (CR) as a determinant of the reliability of a measuring instrument so that the results obtained do not change. The construct is reliable if the CA and CR values are greater than 0.7 [47].

Based on the findings of this study, six items have item loading values below 0.7, which are PTR4, EBE4, TRU4, PSP1, SWC3, and SWC4. Thus, the items were removed from the model. After deleting items, the AVE values of all variables are above 0.5. In addition, all constructs were also tested reliable after their CA and CR values were above 0.7. Table 2 and Figure 3 show the final results of item loadings, AVE, CA, and CR values, and Table 3 shows the results of the discriminant validity test.

Table 2. Final item loadings

Construct	Item Code	Item Loadings
Health Consciousness (HCO)	HCO1	0.784
	HCO2	0.857
	HCO3	0.828
	HCO4	0.875
Perceived COVID-19 Risks (PTR)	PTR1	0.846
	PTR2	0.822
	PTR3	0.721
Transaction Inconvenience (TIN)	TIN1	0.810
	TIN2	0.813
	TIN3	0.746
	TIN4	0.730

Economical Benefit (EBE)	EBE1	0.864
	EBE2	0.771
	EBE3	0.881
Performance Expectancy (PEX)	PEX1	0.716
	PEX2	0.835
	PEX3	0.805
	PEX4	0.810
Effort Expectancy (EEX)	EEX1	0.851
	EEX2	0.818
	EEX3	0.851
	EEX4	0.867
Critical Mass (CMS)	CMS1	0.767
	CMS2	0.784
	CMS3	0.768
	CMS4	0.750
Trust (TRU)	TRU1	0.836
	TRU2	0.810
	TRU3	0.827
Perceived Security and Privacy (PSP)	PSP2	0.838
	PSP3	0.741
	PSP4	0.792
	PSP5	0.790
Switching Cost (SWC)	SWC1	0.795
	SWC4	0.666
Switching Intention (SWI)	SWI1	0.792
	SWI2	0.796
	SWI3	0.808
	SWI4	0.758
	SWI5	0.791

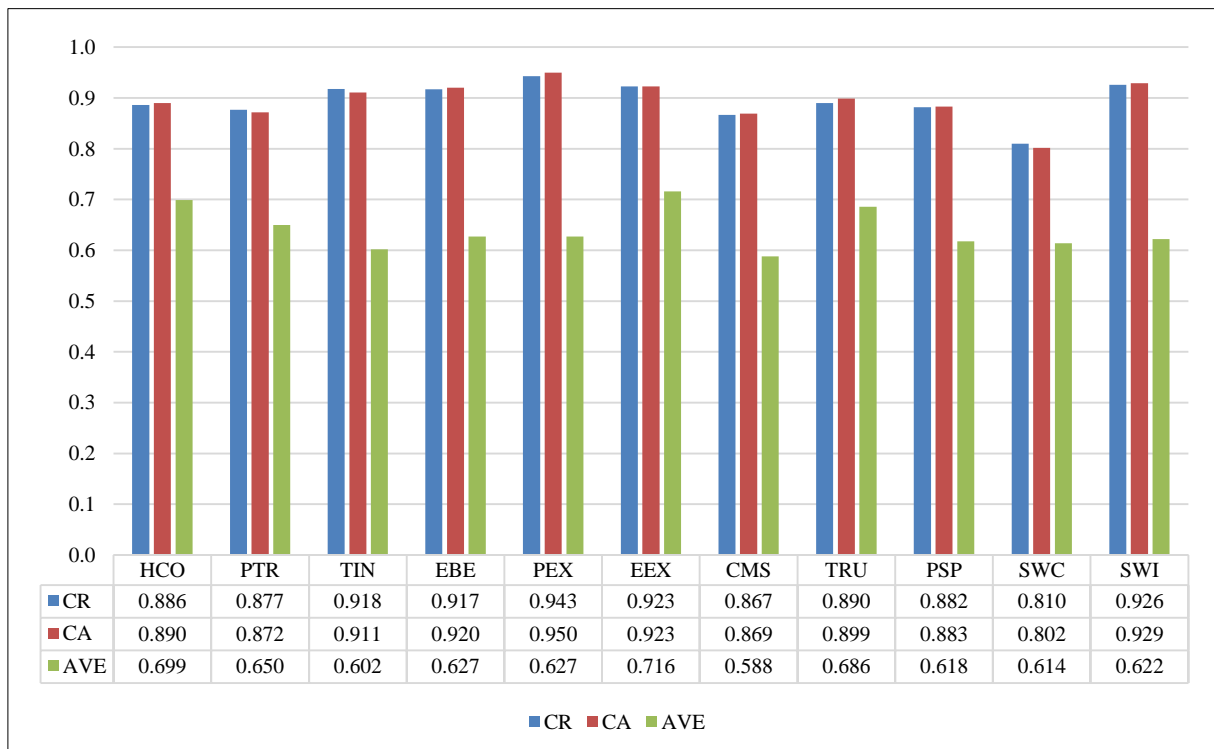


Figure 3. Composite reliability (CR), Cronbach's alpha (CA), and average variance extracted (AVE)

Table 3. Construct correlations and the square root of AVE

	HCO	EBE	SWC	TIN	CMS	EEX	PEX	PSP	PTR
HCO	0.836								
EBE	0.622	0.842							
SWC	0.250	0.164	0.783						
TIN	0.640	0.424	0.350	0.776					
CMS	0.796	0.682	0.217	0.688	0.767				
EEX	0.660	0.794	0.058	0.538	0.753	0.846			
PEX	0.707	0.825	0.095	0.573	0.765	0.842	0.792		
PSP	0.748	0.749	0.240	0.540	0.761	0.839	0.783	0.786	
PTR	0.814	0.414	0.380	0.746	0.622	0.468	0.507	0.546	0.806

Notes: Diagonal elements are the square root of AVE for each construct; Off-diagonal elements are the correlations between constructs

4-3- Structural Model and Hypothesis Testing

This section investigates the relationship between latent variables using a structural model test after measuring the latent variables correctly with the measurement model assessment [47]. The structural model test evaluated the variables to the goodness-of-fit (GoF) criterion, which indicated how well the model fits the data [47]. The GoF criterion was compared to CMIN/df, RMR, GFI, AGFI, NFI, TLI, CFI, PRATIO, and RMSEA. Figure 4 shows the results for the path model, with the final GoF results after modification of the model according to the criteria mentioned earlier.

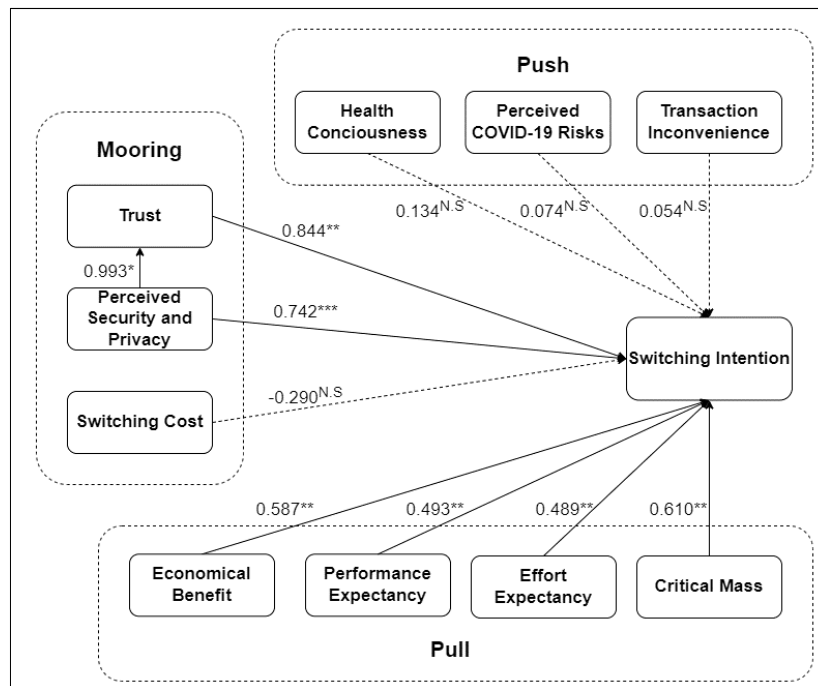


Figure 4. SEM results. Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; N.S: not significant. Fit indices: CMIN/df = 1.585; RMR = 0.028; GFI = 0.901; AGFI = 0.879; NFI = 0.935; TLI = 0.932; CFI = 0.969; PRATIO = 0.973; RMSEA = 0.840

Hypothesis testing is done by looking at the p-value which has a significance of 5% on the regression weights value [47]. The hypothesis is accepted if the p-value < 0.05 and the hypothesis is rejected if the p-value is > 0.05 . In addition, if the β value is positive, it will support the hypothesis with variables that have a positive influence, and vice versa. Based on the results of hypothesis testing (Table 4), it was found that 8 out of 11 hypotheses were supported.

4-4- Discussion

Based on the results of hypothesis testing in Table 4, all the factors in this push aspect have no significant effect on the intention to switch from COD to e-payment services. This is interesting because all the factors that discuss the context of the COVID-19 pandemic do not have a significant influence, which is health consciousness (H1) and perceived COVID-19 risks (H2). This means that the risk of the COVID-19 is not a factor that influences users to leave COD services and switch to using e-payment services. Based on the explanation from the Head of Business Development for TokoTalk, COD services were very popular in areas in Indonesia that had the highest number of COVID-19 cases

and experienced the longest period of Large-Scale Social Restrictions (PSBB), with the largest number of COD transactions in West Java [50]. The Indonesian people are now able to take care of and be responsible for their health so that it does not become a barrier for them to choose which payment service they want to use. Thus, it can be concluded that despite the health risks due to the COVID-19 pandemic, users will not switch to e-payment services and leave COD services when transacting on C2C e-commerce platforms.

Table 4. Hypothesis testing results

Hypothesis	Relationship	Estimate (β)	Result
H1	HCO \rightarrow SWI	0.134 ^{N.S}	Not Supported
H2	PTR \rightarrow SWI	0.074 ^{N.S}	Not Supported
H3	TIN \rightarrow SWI	0.054 ^{N.S}	Not Supported
H4	EBE \rightarrow SWI	0.587 ^{**}	Supported
H5	PEX \rightarrow SWI	0.493 ^{**}	Supported
H6	EEX \rightarrow SWI	0.489 ^{**}	Supported
H7	CMS \rightarrow SWI	0.610 ^{**}	Supported
H8	TRU \rightarrow SWI	0.844 ^{**}	Supported
H9a	PSP \rightarrow TRU	.,993 [*]	Supported
H9b	PSP \rightarrow SWI	0.742 ^{***}	Supported
H10	SWC \rightarrow SWI	-0.290 ^{N.S}	Not Supported

Note: R2 (Switching Intention) = 0.709; R2 (Trust) = 0.986; *p < 0.05; **p < 0.01; ***p < 0.001; N.S: not significant

In addition, the transaction inconvenience (H3) factor was also found to have a positive effect on user intentions to switch from COD to e-payment services, but the effect was not significant. This is probably because the respondents were mostly housewives. As is known, housewives dominate online shopping activities with a frequency of up to 2-3 times a month, both for household needs and other needs [51]. Based on this frequency, the transaction inconvenience is not a problem in relation to the use of COD services, which then requires users to switch to e-payment services. In addition, data from a survey conducted by JAKPAT (2021) show that 60% of their respondents chose the COD service because it is a simple payment method. Therefore, it can be concluded that for some people, transaction inconvenience is a factor that affects the intention to switch from COD services to e-payment, but is not significant.

In the pull aspect, all factors have a significant influence. The economical benefits (H4) factor is the most significant factor influencing user intention to switch from COD to e-payment services. Until now, there have been many C2C e-commerce services that provide rewards for users who use e-payment services, in the form of discounts, promos, cashback, and points. In addition, administrative costs for e-payments in several C2C e-commerce services are also cheaper than those of COD services. Therefore, it can be concluded that economic benefits can attract C2C e-commerce service users to use e-payment services, and switch from COD services. This study also shows that there is a significant positive effect of performance expectancy (H5) on user intention to switch from COD to e-payment services. There are indications related to faster transaction processes that have been proven to be able to attract C2C e-commerce service users to use e-payment services as their transaction payment method and switch from COD services. Therefore, it can be concluded that the better the ability of the e-payment service to provide usefulness for users, the more attractive it will be for the users to use the e-payment service.

The next factor found to have a significant positive effect on the intention to switch from COD to e-payment is the effort expectancy (H6) that must be incurred when using e-payment services. The ease of transacting and saving time when transacting makes this factor able to attract users to use e-payment services. Therefore, it can be concluded that the easier e-payment services are compared to COD services, the more attractive users will be to use e-payment services and switch from COD services. Finally, in the pull aspect, there is a critical mass factor (H7) which has a significant positive effect on the intention to switch from COD services to e-payment services. The influence of those close to them and the increasing number of users of e-payment services can attract people to use e-payment services and switch from COD services. The increasing number of users of e-payment services will attract more users to use e-payments and leave COD services. Therefore, it can be concluded that the critical mass factor can attract C2C e-commerce service users to use e-payment services and switch from COD services.

This study also adopts the factors that exist in the mooring aspect as factors that could be the driving or inhibiting factors of the user intention to switch from COD to e-payment services. There are three factors adopted in this aspect. Two of them are direct influencing factors and there is one indirect influencing factor. The factors that directly influence include trust and switching costs. Meanwhile, the factors that influence indirectly are perceived security and privacy, which are viewed as factors that can affect user trust in the use of e-payments. Based on the results of hypothesis testing

in Table 5, almost all factors in the mooring aspect have a significant influence on the intention to switch from COD services to e-payment, except for the switching cost factor. The trust factor (H8) was found to be a factor that significantly and positively influences the intention to switch from COD to e-payment services. This is inseparable from the lack of public trust in online shopping with electronic payment methods, which then makes COD services the best alternative in reducing various risks that can harm consumers [52]. If public trust in e-payment services of e-commerce transactions increases, people will switch from COD services to e-payment. On the other hand, if public trust in e-payment services of e-commerce transactions decreases, people will continue to use COD services. Therefore, to increase the frequency of non-cash transactions, one of which is by shifting the use of COD to e-payments in C2C e-commerce transactions, user confidence in the e-payment service also needs to be increased.

To increase user trust in the use of e-payment services, this study examines factors of perceived security and privacy as the antecedents of trust (H9a and H9b). This study found that the perceived security and privacy factor had a significant positive effect on trust, and also indirectly influenced users' intentions to switch from COD services to e-payment. Therefore, it can be concluded that to increase user confidence to switch from COD services to e-payment, there needs to be a commitment to fulfill the promise as a service that can be trusted and can do its job properly even though it is not monitored by users.

Finally, the results of the hypothesis test found that the switching cost factor (H10) was rejected. This factor had a negative but not significant effect. This could be because many C2C e-commerce platforms make it easy to start using e-payment services. For example, when a new user registers with the Shopee application, that user can automatically activate the ShopeePay service as an e-wallet that can be used for payments. In addition, the registration of a new account can also be done anywhere and anytime. This is because there are many e-payment service providers such as banks, which provide account registration and mobile banking services that can be done directly from home. Thus, the difficulty of getting an e-payment account does not become an obstacle to moving from COD to e-payment services only by preparing documents such as an identity card and some other supporting data, e-payment services can be used.

5- Conclusions

This quantitative study was conducted to analyze the influence of factors in aspects of push, pull, and mooring on user intentions to switch from COD to e-payment services in C2C e-commerce transactions. A survey was conducted to collect data from respondents who had used COD and e-payment services at least once. Overall, 546 valid data were collected, which were then analyzed using the CB-SEM method. This study proves that the factors of pull and mooring aspects influence the intention to switch from COD to e-payment services. Among the three aspects, the pull factor has the greatest influence on the intention to switch. Thus, it can be concluded that the primary reason why users switch from COD to e-payment services is that there are interesting things that make e-payment services better than COD services.

In terms of the push aspect, all existing factors do not influence the intention to switch from COD to e-payment services. These factors include health consciousness, perceived COVID-19 risks, and transaction inconvenience. Thus, it can be concluded that the users' intention to switch from COD services to e-payments is not supported by health awareness factors, the risk of COVID-19, and the inconvenience of transactions using COD services. In terms of the pull aspect, all factors significantly influence the intention to switch from COD to e-payment services. These factors include economic benefits, performance expectancy, effort expectancy, and critical mass. Thus, it can be concluded that the economic benefits and the ease and speed of transaction processing that can be carried out, as well as a large number of users and the influence of the surrounding social environment, can drive users to switch from COD services to e-payment. From the mooring aspect, almost all factors have a significant influence on the intention to switch from COD to e-payment services, except for the switching cost factor. In this case, there is a factor of trust that influences it directly and a factor of perceived security and privacy that influences it indirectly. Thus, it can be concluded that the transition of users from COD to e-payment services can be hampered by the trust factor in e-payment services.

However, this research still has some limitations. This study does not discuss the influence of the respondents' demographic relationship on the factors proposed in the research model. If this is taken into account in future research, the research will further increase knowledge regarding whether demographic factors are also a mediating factor influencing user migration from COD to e-payment services. In addition, although the population of this study is quite large in scope, the respondents of this study are dominated by housewives. These housewives are assumed to be users who are comfortable using COD services and do not care about the perceived risk of COVID-19, which makes it difficult to investigate factors that are in the push aspect as factors that encourage users to leave COD and switch to e-payment services. Therefore, further research is suggested to plan well regarding the distribution of questionnaires to be carried out.

6- Declarations

6-1-Author Contributions

B.P. conceptualized and participated in the study design, produced the initial manuscript, and read and edited it. S.A.S. coordinated data collection and conducted preliminary analyses. A.N.H. helped in designing the study, advised on methodology, coordinated and oversaw data collection and analysis, and approved the manuscript. S.S., K.P., and M.M. helped in advising on methodology and translating the manuscript. All authors have read and agreed to the published version of the manuscript.

6-2-Data Availability Statement

The data presented in this study are available on request from the corresponding author. The data are not publicly available due to IRB stipulations.

6-3-Funding and Acknowledgements

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6-4-Ethical Approval

Not applicable.

6-5-Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

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Appendix I: Research Instrument

Constructs	Items	Statement
Health Consciousness (HCO)	HCO1	I switched from COD to e-payment services because I know very well how to stay healthy.
	HCO2	I switched from COD to e-payment services because I am actively trying to prevent outbreaks and diseases.
	HCO3	I switched from COD to e-payment services because living life with the best possible health is a very important awareness for me.
	HCO4	I switched from COD to e-payment services because I will do whatever it takes to stay healthy.
Perceived COVID-19 Risks (PTR)	PTR1	I am worried that I will catch the COVID-19 virus if I use the COD service when making e-commerce payment transactions.
	PTR2	I feel that my health is in danger when I make transactions using the COD service, especially during the current COVID-19 pandemic.
	PTR3	I think the COVID-19 virus can be spread through the banknotes used during transactions using the COD service.
	PTR4	Often payment transactions using COD service do not implement health protocols to prevent the transmission of the COVID-19 virus.
Transaction Inconvenience (TIN)	TIN1	I feel inconvenienced using the COD service because I have to prepare the right amount of money to pay.
	TIN2	I feel inconvenienced using the COD service because often couriers don't provide changes.
	TIN3	I feel inconvenienced using the COD service because often the changes I receive don't match the amount I should have received.
	TIN4	I feel inconvenienced using the COD service because I have to wait at home to transact with the courier.
Economical Benefit (EBE)	EBE1	The attractive offers of bonus points and cashback influenced me to switch to e-payment services.
	EBE2	The existence of the promo influenced me to switch from COD to e-payment services.
	EBE3	I enjoy the benefits of discounts, bonus points, and cashback offered by e-payment services.
	EBE4	I think the administration fee for the e-payment service is cheaper than the COD service.
Performance Expectancy (PEX)	PEX1	E-payment services increase my productivity.
	PEX2	E-payment services help me complete transactions faster.
	PEX3	E-payment service helps save my time better.
	PEX4	The overall e-payment service is reliable.
Effort Expectancy (EEX)	EEX1	It was easy for me to learn how to use e-payment services.
	EEX2	It doesn't take time to learn how to use e-payment services.
	EEX3	It is easy for me to become skillful at using e-payment services.
	EEX4	I find e-payment services easy to use.
Critical Mass (CMS)	CMS1	Many of the people I know use e-payment services more often.
	CMS2	Many of the people I know will continue to use e-payment services.
	CMS3	The people closest to me feel that the use of e-payment services is reliable, so I will use them as well.
	CMS4	I believe the number of users of this e-payment service will increase.
Trust (TRU)	TRU1	Overall, I think the e-payment service is trustworthy.
	TRU2	I believe that e-payment services will always consider the best interests of customers.
	TRU3	I believe the e-payment services will fulfill its promise and commitment.
	TRU4	Even if not monitored, I'm sure the e-payment services can do their job properly.
Perceived Security and Privacy (PSP)	PSP1	I am not worried about the security of transactions using e-payment services.
	PSP2	I think the e-payment services have implemented good security measures to protect my transactions.
	PSP3	I think using e-payment services will not compromise my privacy.
	PSP4	I think e-payment services can protect my privacy.
	PSP5	I think the e-payment services will not use my personal information for any other purpose without my permission.
Switching Cost (SWC)	SWC1	I think switching from COD to e-payment requires a lot of time to learn the services and functions offered by e-payment.
	SWC2	I think switching from COD to e-payment requires a lot of mental costs to learn about the services and functions offered by e-payment.
	SWC3	I think switching from COD to e-payment requires a certain cost or expense.
	SWC4	I think it will be difficult to switch from COD service to e-payment because have to have an e-payment service account.
Switching Intention (SWI)	SWI1	I will switch from COD service to e-payment when doing C2C e-commerce transactions during the COVID-19 pandemic.
	SWI2	I chose to switch from COD service to e-payment when conducting C2C e-commerce transactions during the COVID-19 pandemic.
	SWI3	I would recommend others to switch from COD service to e-payment when making C2C e-commerce transactions during the COVID-19 pandemic.
	SWI4	My chances are high to completely switch from COD service to e-payment when conducting C2C e-commerce transactions in the future.
	SWI5	In the future, I intend to completely switch from COD service to e-payment when conducting C2C e-commerce transactions.