

## TOWARDS A CASHLESS SOCIETY IN INDONESIA: THE IMPACT ON ECONOMIC GROWTH AND INTEREST RATE

Jaka Aminata<sup>\*1</sup>, Gabrielle Elberta Sjarif<sup>2</sup>

Fakultas Ekonomika dan Bisnis, Universitas Diponegoro, Indonesia

<sup>\*)</sup>Corresponding author, E-mail: [jaka\\_aminata@live.undip.ac.id](mailto:jaka_aminata@live.undip.ac.id)

**Abstract.** This study aims to find out whether cashless payment instruments affect economic growth and interest rate, as one of the monetary policy instruments in Indonesia. Cashless payments in this study consists of credit cards, debit/ATM cards, and electronic money. This study uses secondary data obtained from Bank Indonesia Payment System Statistics and the Central Bureau of Statistics, with time-series data from 2013-2019. The analytical tool used in estimating the regression model in this study is multiple linear regression analysis with 2 (two) regression models. The results showed that debit card and electronic money transaction have a significant positive effect on economic growth, credit card transactions have a significant positive effect on interest rate and debit card transactions have a negative significant effect on interest rate. While simultaneously, the cashless payment instruments significantly affect the economic growth and interest rate in Indonesia. The use of cashless payments needs to be continuously increased and encouraged so that it can be used more widely in the community, so it can continue to increase economic growth and efficiency.

**Abstrak.** Penelitian ini bertujuan untuk mengetahui apakah *cashless payment* berpengaruh terhadap pertumbuhan ekonomi dan tingkat suku bunga di Indonesia. *Cashless payment* yang digunakan dalam penelitian ini terdiri atas kartu kredit, kartu debit/ATM, serta electronic money. Data yang digunakan merupakan data sekunder yang diperoleh dari Statistik Sistem Pembayaran Bank Indonesia dan Badan Pusat Statistik (BPS), dengan data *time-series* dari tahun 2013-2019. Alat analisis yang digunakan dalam penelitian ini yaitu analisis regresi linear berganda dengan 2 (dua) model regresi. Hasilnya menunjukkan bahwa transaksi kartu debit/ATM dan *electronic money* memiliki pengaruh yang signifikan terhadap pertumbuhan ekonomi, sedangkan transaksi kartu kredit tidak berpengaruh secara signifikan terhadap pertumbuhan ekonomi. Terhadap tingkat suku bunga, transaksi kartu kredit dan kartu debit/ATM memiliki pengaruh yang signifikan, sedangkan *electronic money*, pengaruhnya tidak signifikan terhadap tingkat suku bunga. Secara simultan, instrumen *cashless payment* berpengaruh secara signifikan terhadap pertumbuhan ekonomi dan tingkat suku bunga di Indonesia. Penggunaan *cashless payment* perlu untuk terus ditingkatkan dan digalakkan supaya bisa dipergunakan secara lebih luas di masyarakat, supaya bisa terus meningkatkan pertumbuhan ekonomi dan efisiensi.

**Keywords:** *cashless payment, cashless society, economic growth, interest rate*



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### Introduction

Technological advancement has stimulated various innovations in the development of financial and banking systems, this advancement than can gave impact on economic activity. The emergence of various technological innovations in the financial sector has changed the payment

system through adjustments due to the increasing development of technological advances. A study conducted by Puatwoe & Piabuo (2017) found that there is a positive and significant impact of financial development on economic growth.

One of the ways to develop the financial sector is by improving the payment system. A study from European Central Bank by Hasan *et al.* (2013) found that the migration to a more efficient payment system, could stimulate the overall economy, consumption and trade. Over time, the use of cash payment transaction has created many problems and weaknesses. Innovation in the payment system is a way to be able to answer problems and fix the weaknesses from the use of cash payment system. Therefore, cashless payments are created as a form of further innovation in a more efficient financial system.

Based on research, increasing use of cashless payment instruments will be able to increase economic growth (Slozko and Pelo, 2014). Research conducted by Zandi *et al.* (2013), also explains that increasing electronic payments can increase economic growth by 0.08% in developing countries. Therefore, the Central Bank of Indonesia continues to strive on increasing non-cash payment transactions through the development of Card-Based Payment Instruments and also by developing a program called *Gerakan Nasional Non Tunai* (GNNT) or national non-cash movement to continuously increase the value of non-cash payment transactions in Indonesia. This was done to reduce the circulation of cash in the community, thereby reducing the cost of printing cash and creating a more secure and efficient payment system. As a result, the increase in non-cash transactions continues to increase every year in Indonesia.

In Indonesia, from 2013 to 2019, the use of cashless payment instruments continue to increase each year. This indicates that cashless payment instruments have been accepted by the public as a way of transaction however, despite the increase in the use of cashless payments, Indonesia is still moving towards the stage of a cashless society and not already on a stage of cashless society. Why? Because from The G4S World Cash Report (2018), it was stated that 50-55% transaction in Indonesia still uses cash as the payment instrument and also from Indonesian Financial Statistics, shows that the currency in circulation is still growing from time to time. In 2019 it reaches 793,7 Billion Rupiah, it shows that the use of cash for transaction is still dominant in Indonesia.

Therefore, the use of cashless payment needs to be encouraged and improved in Indonesia in order to create a cashless society, because the presence of cashless payment instruments can increase efficiency and boost consumption of the economy and therefore could increase economic growth (Zandi *et al.*, 2013). However, the data of gross domestic product (GDP) in Indonesia is increasing from year to year, but the rate of growth has decreased in the sense that growth is slowing down. For monetary policy, innovations in cashless payment instruments can cause complications in the use of quantity targets in monetary control. However, according to Woodford (2000) and Khalaf (2018) the expansion of the use of cashless payment would reduce the role of the central bank in the issuance of cash, but will not threaten its role in the management of monetary policy.

This study aims to find out whether cashless payment instruments have significant effect on economic growth and interest rate, as one of the monetary policy instruments in Indonesia or not. Cashless payment in this study consists of credit cards, debit/ATM cards, and electronic money. The span of years in this study is from 2013-2019.

## Method

This study uses secondary data that is monthly time-series from January 2013 until December 2019. Data was obtained through Central Bank of Indonesia Statistics and the Central Bureau of Statistics (BPS). Interpolation is used to obtain monthly data from GDP, because the original GDP data is presented quarterly. This study uses multiple linear regression analysis and Eviews 7 program as the data processing tools. Multiple linear regression analysis illustrates how a single response variable (Y) depends linearly on a number of predictor variables (Bremer, 2012). There are 2 (two) models of the multiple linear regression in this study, that shows the impact of cashless payment on (1) economic growth and on (2) interest rate which are:

Equation (1):  $\text{Log PDB} = \beta_0 + \beta_1 \text{KK} + \beta_2 \text{KD} + \beta_3 \text{EM} + e \dots \dots \dots (1)$

Equation (2):  $r = \beta_0 + \beta_1 \text{KK} + \beta_2 \text{KD} + \beta_3 \text{EM} + e \dots \dots \dots (2)$

The variables in this study consists of 2 (two) independent variables, and 3 (three) dependent variables.

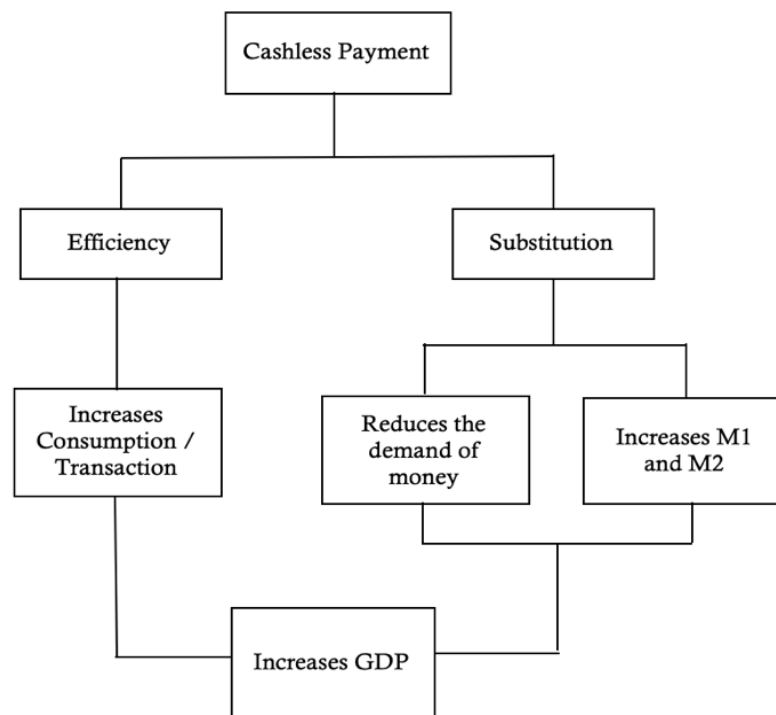
**Table 1.** List of Variables

Variable	Type of Variable	Description	Unit of Measurement	Source
GDP	Independent	Real GDP based on constant series price 2010	Billions of Rupiah	Central Bureau of Statistics (BPS)
r	Independent	BI rate	Percentage (%)	Central Bank of Indonesia
KK	Dependent	Credit card nominal transaction value	Millions of Rupiah	Central Bank of Indonesia
KD	Dependent	Debit card nominal transaction value	Millions of Rupiah	Central Bank of Indonesia
EM	Dependent	Electronic Money nominal transaction value	Millions of Rupiah	Central Bank of Indonesia

**Results and Discussions**

a. Cashless Payment and Economic Growth

The impact of cashless payment on economic growth, can be shown on the framework below.



**Figure 1.** The Impact of Cashless Payment on Economic Growth (GDP) Framework

The substitution effect, which reduces the demand for currency, may occur because the increasing growth in the value of cashless payment transactions can reduce the use of cash. A reduction in cash circulation will reduce cash printing costs and cash maintenance costs in Indonesia. This reduction of costs can be utilized by the state in other sectors and, in turn, can boost Indonesia's economic growth (Pramono et al., 2006). Therefore, the use of credit card, debit / ATM card payment instruments, as well as electronic money will be able to reduce the cost of printing money and maintaining money and ultimately stimulate economic growth.

The efficiency effect caused by cashless payment is the use of money in the community, so people will hold a certain amount of cash for the purpose of transactions and as a means of storing wealth (Boediono, 2012). The emergence of card-based and electronic non-cash payment instruments will indirectly facilitate and speed up payment transactions, so that people can easily get the goods they need, so that the production of goods increases and then increases the demand for goods, because they are demanded to be available to the community, and then the labor needed to produce goods will also increase. It is hoped that the output (GDP) obtained, will also increase (Lestari, 2017).

**Table 2.** Results of Multiple Linear Regression and Statistical Testing for Equation 1

Variable	Coefficient	t-statistic	Prob.
C	13.2454	414.3101	0.0000
KK	-4.82E-09	-1.908623	0.0599
KD	9.05E-10	10.58444	0.0000
EM	2.48E-10	3.338693	0.0013
R-squared		0.931037	
Prob(F-statistic)		0.000000	

Source: Results of Data Processing on Eviews 7

Sig. F-stat and t-stats: prob. < 0,05

From the results of the regression above, the effect of cashless payments on economic growth from the *t-statistics* testing, shows that only debit card transactions (KD) and electronic money transactions (EM) that has a positive and significant effect on economic growth, while credit card transactions doesn't have a significant effect on economic growth.

The reason why credit card transactions does not have a significant effect on economic growth, might due to the offsetting effect from the positive and negative impact of credit card payment (Wong et al, 2020). The positive impact of credit card payment is it provides immediate credit to consumers, thereby increasing their purchasing power and lead to higher aggregate demand in the economy (Zandi et al., 2013). This would increase economic growth. While the negative impact of credit card is debt accumulation among the households, which in turn increases default rate in the economy and have a bearing on the country's economic growth (Kang and Ma, 2009).

Another reason is because the variable of credit card transactions has the smallest growth among the other 2 (two) variables. In Indonesia, the use of credit cards is also still limited, so that their use is not as big as the other two cashless payment. Based on data obtained by Experian (2019), credit card users in Indonesia are only 5%. The requirements for applying for a credit card in Indonesia are still quite strict, so it is quite difficult to be able to use a credit card in Indonesia. This would result on only a least of people who can use and access credit card for doing transaction, that caused an insignificant effect from credit card transactions on economic growth.

Simultaneously, based on the *F-statistics* testing, shows that the use of cashless payment (credit, debit/ATM, and e-money) have a significant effect on economic growth. This shows that the substitution and efficient effect of cashless payment will cause an increase on economic growth. A cashless society, where payments are made by cashless payment would increase efficiency, lower transaction cost, decrease the costs associated with handling money, and increasing government

income from decreasing shadow economy (Fabris, 2019) and all of that would results on an increasing of economic growth.

b. Cashless Payment and Interest Rate

The impact of cashless payment on interest rate, can be shown on the framework below.

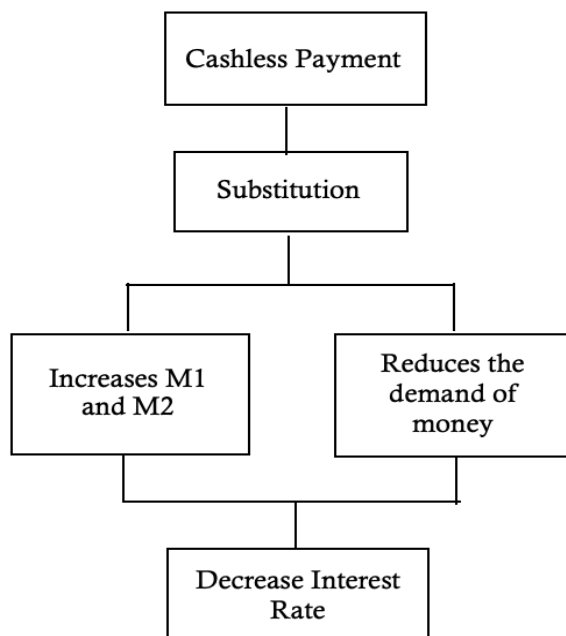


Figure 2. The Impact of Cashless Payment on Interest Rate

The basic concept of monetary policy transmission mechanism starts from policy instruments that affect operational targets, intermediate targets and final targets (Hasibuan & Pratomo, 2015). The interest rate is one of the instruments in the framework of the monetary policy mechanism, to regulate monetary control in the money market to achieve the final target. Theoretically, a decrease in demand for cash will cause a decrease in interest rates on the money market because people will choose to use non-cash payment instruments coupled with saving money at the bank concerned (Mankiw, 2009). Preferring to the use of non-cash payment instruments, there will be an increase in M1 and M2 which will cause a decrease in the BI rate (Syarifuddin, 2009). When there is an increase in the money supply (in this case M1 and M2), it will push down interest rates. When interest rates increase, the individual society will save more money in the bank (saving), this is in accordance with the classical theory of interest rates.

Based on the explanation above, the effect of an increase in the use of cashless payment instruments will cause a decrease in interest rates. This reduction in interest rates will ultimately affect the lending rate and the deposit rate, which are the intermediate targets in the transmission of monetary policy through the interest rate channel and will eventually be able to achieve the final target, namely the price level (inflation) and economic growth. Therefore, the effect of the use of cashless payments on interest rates can disturb the effectiveness of the monetary policy.

From the results of the regression below, the effect of cashless payments on interest rate from the *t-statistics* testing, shows that only credit card transactions (KK) and debit card/ATM transactions (KD) that have significant effect on interest rate. Credit card transactions have a positive and significant effect, while debit cards have a negative and significant effect. Electronic money does not have a significant effect on interest rate. This means that variable KK and EM does not fit the hypothesis.

The increasing use of credit cards will have a positive and significant effect on interest rates due to Bank Indonesia's efforts to regulate the increasing amount of money in circulation, in this case in the form of loans/credits. The increase in interest rates is carried out so that demand for

loans decreases. This will further result in less money being spent, resulting in a slowdown in the economy and lower inflation. On the other hand, however, credit interest rates rose. People who have credit cards will experience the risk of default, that is, customers do not complete bills, which will result in payment system failure. Payment system failure will certainly have an impact on

Variable	Coefficient	t-statistic	Prob.
C	5.875697	5.671202	0.0000
KK	3.57E-07	4.367350	0.0000
KD	-1.79E-08	-6.462569	0.0000
EM	1.94E-09	0.803124	0.4243
R-squared		0.475298	
Prob(F-statistic)		0.000000	

financial system instability. (Pramono *et al.*, 2006).

**Table 3.** Results of Multiple Linear Regression and Statistical Testing for Equation 2

*Source: Results of Data Processing on Eviews 7*

Sig. F-stat and t-stats: *prob.* < 0,05

For the effect of electronic money on interest rates, it can be seen that there is no significant effect. This is because electronic money is a mean of payment for direct transactions, and not for investment, so it has nothing to do with interest rates. In the interest rate channel, the change on BI rate will affect credit interest and saving/deposit interest. Electronic money instrument does not have an interest component in it, unlike debit card and credit card. This is why policies through interest rates, will not affect transactions using electronic money. In addition, Pranomono *et al.* (2006) also stated that the issuance of electronic money will not affect monetary policy using interest rates as an operational target for monetary policy, as long as the central bank has good credibility accompanied by a healthy balance sheet structure and the availability of sufficient foreign exchange reserves. to carry out monetary control operations or to have full support by the government in implementing its monetary policy.

Simultaneously, based on the F-statistics testing, shows that the use of cashless payment (credit, debit/ATM, and e-money) have a significant effect on interest rate. This shows that the use of cashless payment does affect the demand for money, so that the central bank has to control it by using interest rate channel. Woodford (2000) in his results of studies, shows that although the currency substituted by means of cashless payment, the monetary policy can still be effective. Central Bank, in this case, can still control the policies through short-term interest rates, which in Indonesia is by controlling BI rate.

## Conclusions

Along with the development of technology, payment instruments have also developed from cash to non-cash. In Indonesia, the increasing use of cashless payment is not far from the government intervention. National non-cash movement program is created to continuously increase the value of non-cash payment transactions in Indonesia. This was done to reduce the circulation of cash in the community, thereby reducing the cost of printing cash and creating a more secure and efficient payment system. As a result, the increase in non-cash transactions continues to increase every year in Indonesia. This research aims to know the effect of the increasing use of non-cash payments on economic growth and interest rates. The results of this study indicate that debit card transactions and electronic money transactions have a positive and significant effect on economic growth, while credit card transactions do not have a significant effect

on economic growth. Also, credit card transactions and debit card transactions have positive and significant effect on interest rate, while electronic money transactions do not have a significant effect on interest rate. Simultaneously, cashless payment transactions have a significant effect on economic growth and interest rates in Indonesia. Given the positive impact of an increase in the use of cashless payments, namely with an increase in GDP and a decrease in the BI interest rate, the use of cashless payments needs to be continuously increased and encouraged so that it can be used more widely in the community. Especially with the ease of making credit cards in Indonesia, so that they can have a significant impact on economic growth.

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