

## Econometric Approach to Estimating Money Supply for the SDGs in ASEAN+4 Countries

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### Abstract

*The focus of this study is to analyse the impact of debit card transactions, credit card transactions and income per capita on the money supply in ASEAN countries, including the influence of the Sustainable Development Goals (SDGs). The study uses panel data from ASEAN countries during the period 2004–2023, employing the Least Squares Dummy Variable method. The study found that debit and credit card usage increased the money supply in ASEAN countries. However, there is a negative impact on income per capita through money supply, as income per capita is only a source of income. The implications of these findings are very important for central banks in optimising their monetary policies through digital card payment instruments.*

**Keywords:** Money Supply, Card-Based Payment Instruments, Monetary Stability

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## INTRODUCTION

The money supply serves as the primary instrument for regulating the circulation of money in various countries (Mishkin, 2016). This directly affects overall economic stability and growth. Essentially, monetary stability is an absolute requirement for sustainable economic growth. One crucial element in maintaining this stability is through controlling the volume of money in the economic system (Golpe et al., 2023).

The ASEAN region is known as one of the areas with strong economic growth dynamics and deepening financial integration (Yang et al., 2025). Four ASEAN member countries, namely Singapore, Malaysia, Thailand, and Indonesia, show diversity in their economic characteristics, but remain interrelated. In the current era, a surge in banking transactions—whether through lending or various other payment activities—can drive an increase in the volume of money circulating in the market. Conversely, if banking activity declines, it may trigger a contraction in the amount of money in circulation (Fernández, 2024).

On the other hand, per capita income itself reflects how prosperous a society is and how strong their overall purchasing power is. If per capita income rises, people will demand more goods and services, which will ultimately increase the amount of money circulating in the economy in order to handle the increasing number of transactions (Caron et al., 2020).

This gap creates innovative challenges in monetary policy formulation. Central banks must respond to shifts in public preferences regarding payment instruments that affect money supply and monetary stability (Son et al., 2023). Several previous studies have revealed that excessive money supply has the potential to trigger inflation, while too little money supply can limit economic activity (Bajrami et al., 2025). Various elements can affect the money supply, such as banking sector operations and per capita income levels (Kulu & Bondzie, 2024). Thus, the Central Bank and the banking sector have a central role in implementing monetary policy transmission and the process of money creation through credit mechanisms (Dia & VanHoose, 2025).

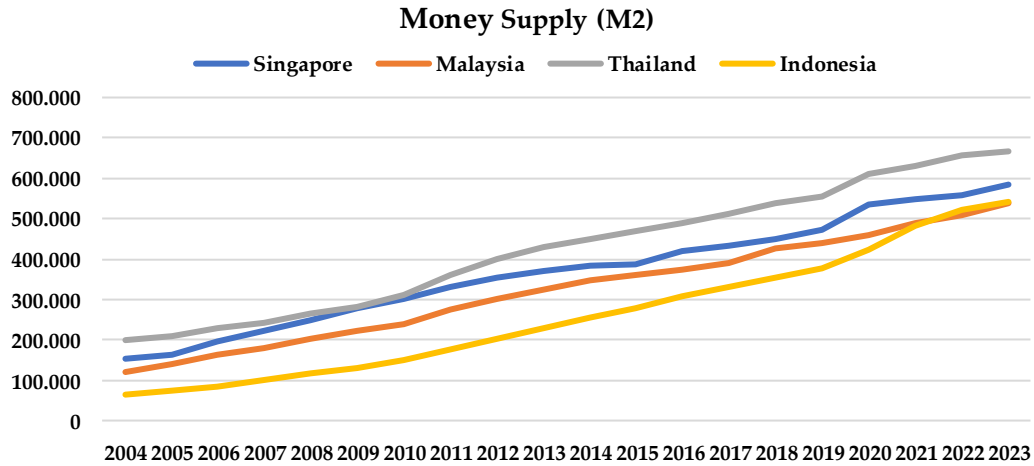


Figure 1 Money Supply Movement in ASEAN Countries

Source: World Bank, 2025

The growth trend of the money supply in the four countries demonstrates a steady and continuous increase over the years. This observation is consistent with the findings of (Suoyai et al., 2018), who emphasized that variations in the money supply serve as a key factor influencing numerous economic indicators. At the same time, such expansion requires careful supervision, as unchecked growth may pose risks to a nation’s economic stability (Mishkin, 2016). Therefore, sustained monitoring by monetary authorities in each country is crucial to ensure long-term economic stability.

This study focuses on analyzing the impact of debit and credit card transactions in relation to per capita income in ASEAN countries, driven by the region’s rapid economic growth and high banking transaction values (Ho & Saadaoui, 2022). Furthermore, this research contributes to understanding the dynamics of money supply in the digital era and its implications for central banks in formulating effective monetary policies.

## RESEARCH METHODS

This study employs a quantitative approach by applying a panel regression model, specifically the Least Square Dummy Variable (LSDV) technique, to strengthen the analysis of relationships among the examined variables (Rahim et al., 2023). The research utilizes secondary panel data derived from official institutional reports. The data sources include publications from the Monetary Authority of Singapore, Bank Negara Malaysia, the Bank of Thailand, Bank Indonesia, and the World Bank, covering the period from 2004 to 2023.

This study also conducts stress testing or sensitivity analysis to assess how debit card transactions, credit card transactions, and per capita income respond to changes in inflation, interest rates, and exchange rates. Although not part of the main model, this additional procedure serves as a robustness check to evaluate the stability and sensitivity of the relationships among the variables (Brooks, 2019; Gujarati & Porter, 2009).

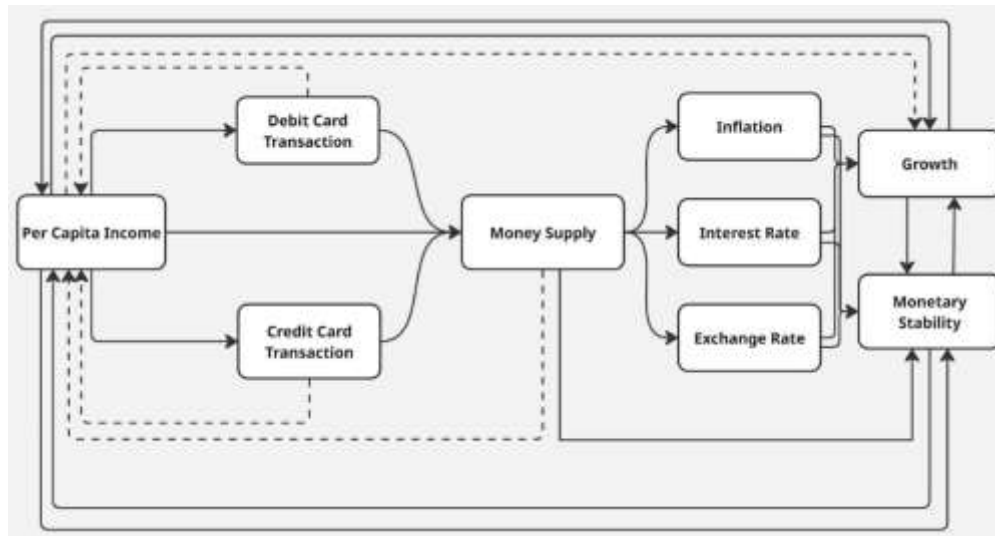


Figure 2. Conceptual Framework  
Source: Author's Elaboration, 2025

The research procedure employed a non-probability sampling technique—specifically purposive sampling—selecting ASEAN countries as samples based on the level of card payment system adoption, per capita income, and the availability of supporting data.

Panel data analysis in this study was carried out using the Least Square Dummy Variable (LSDV) technique, where dummy variables were generated for each cross-sectional unit (except one, which serves as the reference) to capture the unique heterogeneity or fixed effects of each sample (Bara' Tiku et al., 2025). The regression model estimation was conducted using the Ordinary Least Squares (OLS) method, incorporating dummy variables as indicators for each country. This approach allows the coefficients of the dummy variables to estimate variations in the intercepts across cross-sectional units and different time periods (Rahim et al., 2023).

$$MS\_ASEAN4_{it} = \beta_0 + \beta_1 DCT_{it} + \beta_2 CCT_{it} + \beta_3 PRGDP_{it} + DSgp_{it} + DMly_{it} + DThd_{it} + DIdn_{it} + e_{it} \quad (1)$$

Description:

MS\_ASEAN4 : Money Supply – Four ASEAN Countries

$\beta_0$  : Constant term

$\beta_1 \beta_2 \beta_3$  : Estimated parameters

DCT : Debit Card Transactions

CCT : Credit Card Transactions

PRGDP : Per Capita Income

D\_Sgp : Dummy variable for Singapore

D\_Mly : Dummy variable for Malaysia

D\_Thd : Dummy variable for Thailand

D\_Idn : Control variable for Indonesia

i : Cross-sectional unit

t : Time period

e : Error Term

Within this model framework, hypothesis testing aims to determine the magnitude and significance of the relationships between the independent and dependent variables. The analysis employs a partial t-test to evaluate the effect of each explanatory variable individually, while the simultaneous F-test is applied to assess the joint influence of all independent variables on the dependent variable as a whole.

To evaluate whether each independent variable individually influences the dependent variable, the comparison is made between the t-statistic and the t-table values at the significance levels of 1%, 5%, and 10%. If the calculated t-statistic is smaller than the critical t-table value, the null hypothesis ( $H_0$ ) is accepted and the alternative hypothesis ( $H_1$ ) is rejected, indicating that the independent variable does not exert a significant effect on the dependent variable. Conversely, if the t-statistic exceeds the t-table value, the null hypothesis ( $H_0$ ) is rejected in favor of the alternative hypothesis ( $H_1$ ), signifying that the independent variable has a statistically significant influence on the dependent variable. The t-statistic is computed using the following formula:

$$t = \frac{\beta_i}{se(\beta_i)} \quad (2)$$

Description:

$\beta_i$  = Regression Coefficient  
 $se(\beta_i)$  = Standard Error of the Coefficient

The F-test, similar to the t-test, is an integral component of hypothesis testing used to evaluate the joint influence of all independent variables on the dependent variable simultaneously. The null hypothesis ( $H_0$ ) is accepted and the alternative hypothesis ( $H_1$ ) is rejected when the computed F-statistic is smaller than the critical F-value, indicating that the independent variables, as a group, do not exert a statistically significant effect on the dependent variable. Conversely, if the F-statistic exceeds the critical F-value, the null hypothesis ( $H_0$ ) is rejected in favor of the alternative hypothesis ( $H_1$ ), suggesting that the independent variables collectively have a significant impact on the dependent variable. The F-statistic is computed using the following formula:

$$F = \frac{R^2(k-1)}{(1-R^2)(n-k)} \quad (3)$$

Description:

$R^2$  = Coefficient of determination  
 $k$  = Number of independent variables  
 $n$  = Total number of observations

The coefficient of determination is employed in this model to evaluate the extent to which the independent variables explain the variability of the dependent variable. This statistical measure reflects the explanatory power of the model, indicating how effectively the independent variables account for fluctuations in the dependent variable.

A higher adjusted R<sup>2</sup> value signifies a stronger explanatory capacity, meaning that the independent variables collectively provide a better representation of the relationship between the independent and dependent constructs within the regression framework. In other words, as the adjusted R<sup>2</sup> increases, the model demonstrates a greater ability to capture the underlying variation in the dependent variable. The adjusted coefficient of determination is calculated using the following formula:

$$\text{Adjusted } R^2 = 1 - (1 - R^2) \frac{n - 1}{n - k} \quad (4)$$

Description:

R<sup>2</sup> = Coefficient of Determination

k = Number of Independent Variables

n = Number of Observations

## RESULTS AND DISCUSSION

The results of the study reveal a high level of money circulation alongside a significant shift toward the adoption of non-cash payment systems in modern economies, particularly in Singapore, Malaysia, Thailand, and Indonesia. On the other hand, both the average per capita income and the overall money supply operate on a much larger scale, as the money supply reflects the total liquidity circulating within an economy. Meanwhile, per capita income merely represents the average earnings of individuals within a specific period and does not directly indicate the amount of money available in the economic system. These findings are further validated through the regression analysis employed in this study.

**Table 1. Descriptive Statistics**

	MS	DCT	CCT	PRGDP
Mean	344975.3	11221678	26356158	18395.17
Median	350179.5	6935450	22057154	7267.000
Maximum	667231.0	36454510	69471043	88429.00
Minimum	63311.00	41649.00	3891658	1281.000
Std. Dev.	153163.3	10429321	15805894	23067.84
Skewness	0.111438	0.818238	0.794697	1.552438
Kurtosis	2.099304	2.524725	2.892507	4.087354
Probabilty	0.238145	0.007908	0.014559	0.000000
Observations	80	80	80	80

Source: 2025 processed original data

Table 1 indicates that the Money Supply variable ranges from a minimum of 63,311.00 to a maximum of 667,231.00, with a mean of 344,975.3 and a standard deviation of 153,163.3. The Debit Card Transactions variable has a minimum of 41,649.00 and a maximum of 36,454,510, with an average of 11,221,678 and a standard deviation of 10,429,321. Meanwhile, the Credit Card Transactions variable ranges from 3,891,658 to 69,471,043, with a mean of 26,356,158 and a standard deviation of 15,805,894. The Real GDP per Capita variable shows a minimum of

1,281.00 and a maximum of 88,429.00, with an average of 18,395.17 and a standard deviation of 23,067.84, based on a total of 80 observations.

Based on the descriptive statistics presented in Table 1, the analysis of money supply considers the overall volume of financial transactions generated through both debit and credit card usage. This measurement process is conducted in a stepwise and partial manner, taking into account external factors that may influence the dynamics of the circulating money within the economy.

**Table 2. Inflation Pressure Response**

<b>Independent Variable</b>	<b>ES</b>	<b>VIF</b>	<b>t<sub>table</sub></b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>T<sub>statistic</sub></b>	<b>Prob.</b>
Debit Card	+	1,926755	1,665	-8,70E08	3,37E08	2,578379	0,0119
Credit Card	+	1,318802	1,665	2,13E10 <sup>ns</sup>	2,20E08	0,009659	0,9923
Per capita Income	+	1,959041	1,665	5,04E06 <sup>ns</sup>	2,94E05	0,171693	0,8642
Dummy Singapore				-2,91908	1,392894	2,095701	0,0396
Dummy Malaysia				-4,22481	0,632358	6,681050	0,0000
Dummy Thailand				-5,53190	0,851725	6,494938	0,0000
<b>Constant</b>							7,537291
<b>F-statistic</b>							6,708432
<b>Adjusted R-Square</b>							0,305126
<b>Durbin-Watson Stat</b>							1,876415
<b>Prob. F<sub>statistic</sub></b>							0,000011
<b>F<sub>Table</sub></b>							2,72
<b>Prob. Chi-Square(2)</b>							0,80
<b>Observation</b>							80

Source: 2025 processed original data

- \*\*\* = Indicates significance at the 1% level (0.01) or 99% confidence level
- \*\* = Indicates significance at the 5% level (0.05) or 95% confidence level
- \* = Indicates significance at the 10% level (0.10) or 90% confidence level
- ns = Not significant
- ES = Expected sign

Based on the results of the inflation pressure test, it was found that inflation significantly affects the money supply through debit card usage (p-value = 0.0119), whereas credit card usage does not show a significant impact (p-value = 0.9923). Meanwhile, per capita income does not exert a significant effect in this context. Interestingly, these conditions are consistent across all ASEAN countries included in the study, suggesting that financial flows do not have a direct impact on per capita income, particularly within the framework of money circulation in Indonesia.

Furthermore, the results related to interest rate pressure, as presented in Table 3, indicate that, in partial terms, financial flows via debit cards (p-value = 0.0589) and credit cards (p-value = 0.2391) do not exert a positive influence on changes in the money supply. Notably, the study finds that per capita income in Indonesia experienced a significant increase (p-value = 0.0119), supported by cross-border financial activities within ASEAN in this study. These findings suggest the presence of other factors that exert a stronger influence on changes in the money supply, beyond transactions conducted using debit or credit cards.

**Table 3. Interest Rate Pressure Response**

<b>Independent Variable</b>	<b>ES</b>	<b>VIF</b>	<b>t<sub>table</sub></b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>T<sub>statistic</sub></b>	<b>Prob.</b>
Debit Card	+	1,926755	1,665	-9,54E08	4,97E08	1,919663	0,0589
Credit Card	+	1,318802	1,665	-3,86E08	3,25E08	1,187041	0,2391
Per capita Income	+	1,959041	1,665	0,000112 <sup>a</sup>	4,33E05	2,580869	0,0119
Dummy Singapore				-7,48360	2,052212	3,646605	0,0005
Dummy Malaysia				-4,18758	0,931826	4,493959	0,0000
Dummy Thailand				-3,70649	1,254989	2,953408	0,0042
<b>Constant</b>							<b>6,887103</b>
<b>F-statistic</b>							<b>6,708432</b>
<b>Adjusted R-Square</b>							<b>0,305126</b>
<b>Durbin-Watson Stat</b>							<b>1,876415</b>
<b>Prob. F<sub>statistic</sub></b>							<b>0,000011</b>
<b>F<sub>Table</sub></b>							<b>2,72</b>

<b>Prob. Chi-Square(2)</b>	<b>0,80</b>
<b>Observation</b>	<b>80</b>

Source: 2025 processed original data

- \*\*\* = Indicates significance at the 1% level (0.01) or 99% confidence level
- \*\* = Indicates significance at the 5% level (0.05) or 95% confidence level
- \* = Indicates significance at the 10% level (0.10) or 90% confidence level
- ns = Not significant
- ES = Expected sign

Furthermore, the results of the exchange rate pressure test, as presented in Table 4, indicate that, in partial terms, transactions conducted via debit cards (p-value = 0.5303) and credit cards (p-value = 0.3387) do not exert a significant effect on the money supply through the exchange rate mechanism.

**Table 4. Exchange Rate Pressure Response**

<b>Independent Variable</b>	<b>ES</b>	<b>VIF</b>	<b>t<sub>table</sub></b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>T<sub>statistic</sub></b>	<b>Prob.</b>
Debit Card	+	1,9267 55	1,66 5	-0,00153	0,0024 31	- 0,6305 86	0,5303
Credit Card	+	1,3188 02	1,66 5	0,001556 <sup>t</sup>	0,0016 16	0,9633 03	0,3387
Per capita Income	+	1,9590 41	1,66 5	-4,72440	2,1229 30	- 2,2254 15	0,0292
Dummy Singapore				330672,7 <sup>a</sup>	100408 ,4	3,2932 79	0,0015
Dummy Malaysia				8292,663 <sup>t</sup>	45559, 74	0,1820 17	0,8561
Dummy Thailand				-35658,5	61308, 78	- 0,5816 22	0,5627
<b>Constant</b>							13980, 65
<b>F-statistic</b>							3,1648 20
<b>Adjusted R-Square</b>							0,1443 39
<b>Durbin-Watson Stat</b>							1,5887 10
<b>Prob. F<sub>statistic</sub></b>							0,0082 82
<b>F<sub>Table</sub></b>							2,72
<b>Prob. Chi-Square(2)</b>							0,21

<b>Observation</b>	80
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Source: 2025 processed original data

- \*\*\* = Indicates significance at the 1% level (0.01) or 99% confidence level
- \*\* = Indicates significance at the 5% level (0.05) or 95% confidence level
- \* = Indicates significance at the 10% level (0.10) or 90% confidence level
- ns = Not significant
- ES = Expected sign

The study's findings reveal a strong contraction resulting from financial pressures originating from ASEAN countries. Specifically, Malaysia and Thailand do not exhibit a significant impact on financial activities in Indonesia, whereas Singapore demonstrates a positive relationship through both credit and debit card usage on financial transactions in Indonesia.

Within this model, a series of classical assumption tests were conducted to ensure the validity of the estimation results. One such test is the multicollinearity test, which aims to detect strong correlations among the independent variables in the regression model. Multicollinearity is assessed using the Variance Inflation Factor (VIF), with the model considered free from multicollinearity issues if VIF values are below 10. Additionally, an autocorrelation test was performed to verify that the error terms (residuals) across periods are not correlated. If the model is free from autocorrelation, the regression results can be regarded as reliable and of high quality.

**Table 5. Least Square Dummy Variable (LSDV) Estimation Results**

<b>Independent Variable</b>	<b>ES</b>	<b>VIF</b>	<b>t<sub>table</sub></b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>T<sub>statistic</sub></b>	<b>Prob.</b>
Debit Card	+	1,9267 55	1,66 5	0,008654 <sup>+</sup>	0,0009 26	9,3504 09	0,0000
Credit Card	+	1,3188 02	1,66 5	0,006917 <sup>+</sup>	0,0006 05	11,442 59	0,0000
Per capita Income	+	1,9590 41	1,66 5	-2,55465	0,8050 82	- 3,1731 59	0,0022
Dummy Singapore				32536,62 <sup>I</sup>	38200, 16	0,8517 40	0,3971
Dummy Malaysia				68169,09 <sup>+</sup>	17342, 45	3,9307 65	0,0002
Dummy Thailand				105779,0 <sup>+</sup>	23358, 59	4,5284 83	0,0000
<b>Constant</b>							<b>60923, 88</b>
<b>F-statistic</b>							<b>228,60 76</b>
<b>Adjusted R-Square</b>							<b>0,8963 01</b>
<b>Durbin-Watson Stat</b>							<b>0,7631 32</b>
<b>Prob. F<sub>statistic</sub></b>							<b>0,0000 00</b>
<b>F<sub>Table</sub></b>							<b>2,72</b>

<b>Prob. Chi-Square(2)</b>	<b>0,55</b>
<b>Observation</b>	<b>80</b>

Source: 2025 processed original data

- \*\*\* = Indicates significance at the 1% level (0.01) or 99% confidence level
- \*\* = Indicates significance at the 5% level (0.05) or 95% confidence level
- \* = Indicates significance at the 10% level (0.10) or 90% confidence level
- ns = Not significant
- ES = Expected sign

$$\begin{aligned}
 \text{MSASEAN4}_{it} = & 60923.88 + 0,008654\text{DCT}_{it} + 0,006917\text{CCT}_{it} + \quad (5) \\
 & -2,554653\text{PRGDP}_{it} + 32536,62\text{Sgp}_{it} + 68169,09\text{Mly}_{it} + 105779,0\text{Thd}_{it} \\
 & + e_{it}
 \end{aligned}$$

Based on the estimation results presented in Table 5, the constant term is 60.92388, with an individual coefficient for Singapore of 32.53662. This implies that, when all independent variables in the model are held constant, the money supply would increase by 28.38726. Given a probability value of  $0.3971 > 0.01$  ( $\alpha = 1\%$ ), the Singapore dummy variable does not have a significant effect on the money supply.

The partial coefficient analysis shows that, in Malaysia, the coefficient is 68.16909, indicating that when all independent variables are constant, the money supply decreases by -7,244.21. With a probability of  $0.0002 < 0.01$ , the Malaysia dummy variable has a statistically significant effect on the money supply. In Thailand, the coefficient is 105.779, and when the independent variables are held constant, the money supply decreases by -150,634.12. The probability value of  $0.0000 < 0.01$  also confirms that the Thailand dummy variable significantly affects the money supply.

Furthermore, the F-statistic probability is 0.00, which is smaller than 0.01 ( $\alpha = 1\%$ ), supporting the simultaneous F-test. These results lead to the rejection of the null hypothesis ( $H_0$ ) and the acceptance of the alternative hypothesis ( $H_1$ ), indicating that the money supply in ASEAN countries is significantly and simultaneously influenced by debit card transactions, credit card transactions, and real GDP per capita. In addition to the simultaneous F-test, a partial t-test was conducted to evaluate the individual influence of each variable on the money supply.

Debit card transactions have a probability of  $0.0000 < 0.01$  and a coefficient of 0.008654, indicating a positive and significant effect on the money supply. Similarly, credit card transactions also show a positive and significant impact, with a probability of 0.0000 and a coefficient of 0.006917. Real GDP per capita, however, has a probability of  $0.0022 < 0.01$  and a negative coefficient of -2.554653, indicating a significant negative effect on the money supply in ASEAN countries.

The coefficient of determination ( $R^2$ ) serves as an indicator of the model's accuracy, measuring the extent to which the independent variables explain variations in the dependent variable. Based on the adjusted  $R^2$  value in Table 5, the model exhibits a high level of explanatory power, with an adjusted  $R^2$  of 0.89 or 89%. This indicates that the independent variables in the model account for 89% of the variation in the money supply across Singapore, Malaysia, Thailand, and Indonesia, while the remaining 11% is influenced by other factors outside the model.

This study demonstrates that debit card transactions have a significant impact on money supply across four ASEAN countries. These findings are consistent with the research by (Astuty, 2023), which also reported that debit card usage influences money supply. During the period from 2004 to 2023, the average number of debit card transactions (DCT) was 11,221,678, while the average money supply amounted to 344,975.3. These results reflect a high level of efficiency and smooth circulation of money within the contemporary digital economy. The comparison highlights the modernization of payment systems and a notable improvement in financial inclusion, evidenced by the substantial shift toward debit card usage throughout the ASEAN region.

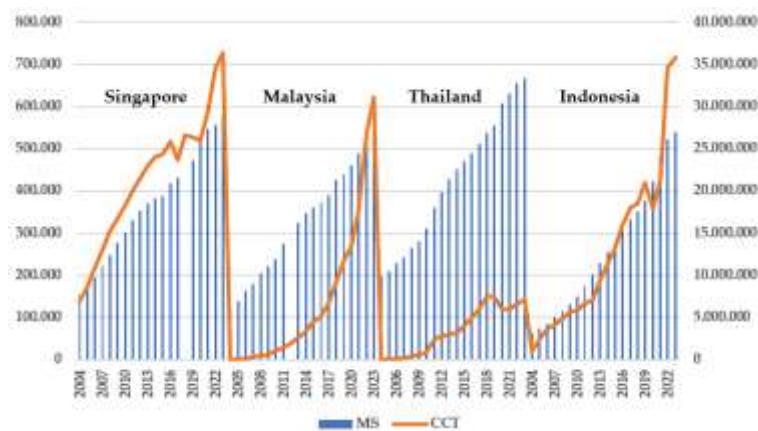


Figure 3. Trends of Debit Card Transactions and Money Supply Across Four ASEAN Countries, 2004–2023

In addition to debit card transactions, this study also finds that credit card transactions significantly affect the money supply across four ASEAN countries. These findings contrast with those of (Astuty, 2023) but are consistent with (Putra et al., 2021), who reported that credit card usage influences the money supply. During the period from 2004 to 2023, the average number of credit card transactions (CCT) was 26,356,158, compared to an average money supply of 344,975.3, indicating a considerably larger scale than debit card transactions. This suggests that a substantial portion of economic activity conducted via credit cards is driven by purchasing power generated through debt mechanisms, rather than solely by increased circulation of cash. Nevertheless, it demonstrates that credit systems have the capacity to expand economic transaction volumes beyond the limits of directly circulating money.

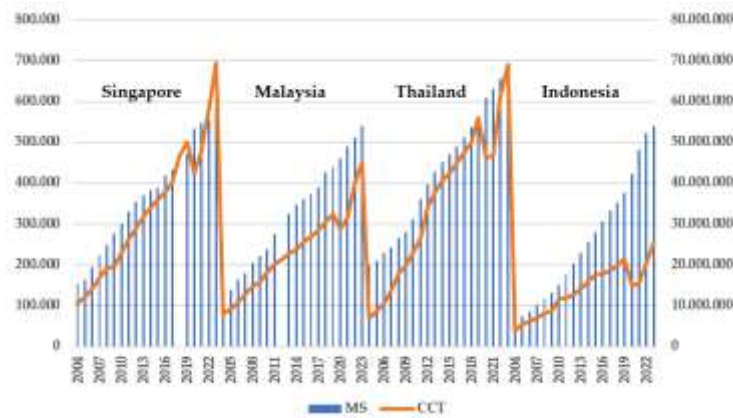


Figure 4. Trends of Credit Card Transactions and Money Supply Across Four ASEAN Countries, 2004–2023

Credit card transactions play a significant role in stimulating economic activity, yet it remains essential for central banks and policymakers to monitor the growth of both debit and credit card transaction volumes, as improper management could pose risks to financial stability.

The per capita income variable in this study is found to have a significant impact on the money supply across four ASEAN countries. This finding aligns with (Widayati et al., 2023), who also reported that per capita income influences the money supply. During the period from 2004 to 2023, the average per capita income (PRGDP) was 18,395.17, while the average money supply amounted to 344,975.3, reflecting a relatively high level of economic welfare and purchasing power within the population.

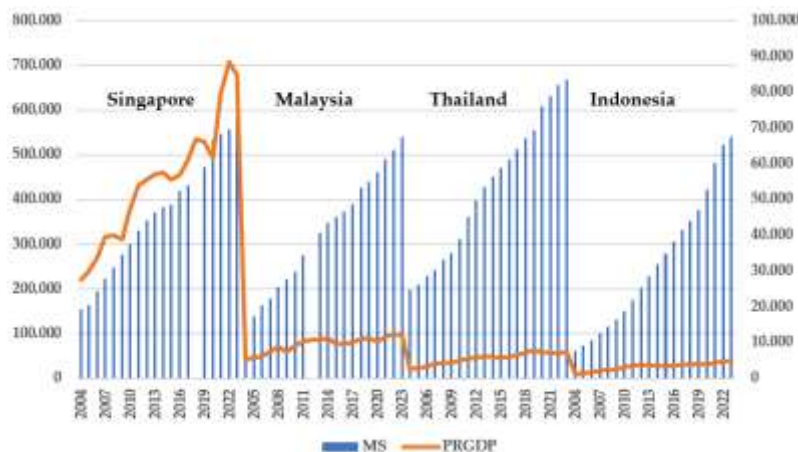


Figure 5. Trends in Per Capita GDP and Money Supply Across Four ASEAN Countries, 2004–2023

However, despite its significant influence, the relationship between per capita income and money supply is negative. In other words, increases in per capita income are associated with a reduction in the amount of circulating money. This phenomenon suggests that as individuals' incomes rise, their propensity to save or invest also increases, thereby reducing the circulation of cash within the economy.

Per capita income continues to play a crucial role in shaping and affecting the money supply, as a portion of income is either deposited in banks or used in economic transactions that contribute to the total money in circulation. Furthermore, central banks rely on both indicators—

per capita income and money supply—as essential references when formulating future economic policies.

## CONCLUSION

Debit and credit card transactions have a positive impact on the money supply, whereas per capita income exerts a negative effect on the money supply across four ASEAN countries. Card-based payment instruments, particularly credit cards, play a central role in facilitating economic activities within the region. These findings carry significant implications for central banks in designing and implementing monetary policies, as well as for achieving the Sustainable Development Goals (SDGs), particularly SDG 8 and SDG 9, which focus on economic growth, innovation, and infrastructure.

The insights aim to support the modernization of monetary policy frameworks, monitoring of credit growth, and optimization of interest rate and reserve requirement policies to promote financial inclusion, technological adoption, and risk management in the advancement of current fintech developments.

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