The Effect of Monetary Indicators and Digitalization on Government Spending in Indonesia with The Ordinary Least Squares (OLS) Approach

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Abstract
This study aims to analyze the influence of inflation and the use of e-money on government spending in Indonesia in the context of fiscal digital transformation. In the era of digitalization and macroeconomic dynamics, understanding the role of monetary indicators and digital financial instruments is important in supporting the effectiveness of state fiscal policies. This study uses a quantitative approach with the Ordinary Least Squares (OLS) linear regression method based on quarterly time series data for the 2020–2024 period obtained from the Central Statistics Agency (BPS), Bank Indonesia (BI), and the Ministry of Finance of the Republic of Indonesia. The variables used consisted of inflation (X_1), e-money (X_2), and government spending (Y). The results of the analysis show that partially or simultaneously, inflation and e-money do not have a significant effect on government spending at a significant level of 5%. The R-squared value of 0.087077 indicates that the variation in government spending can only be explained by 8.7% by independent variables in this model, while the rest is influenced by other factors outside the model. Classical assumption tests show that the model is free of normally distributed multicollinearity, heteroscedasticity, autocorrelation, and residual. These findings indicate the need for further exploration of other variables that are more relevant in explaining the dynamics of government spending in the digital era. This research is expected to make an empirical contribution to the development of fiscal policies that are more adaptive to technological changes and macroeconomic conditions.

Keywords: Inflation, Electronic Money, Government Bill, OLS.

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Introduction

Government spending has an important role in maintaining national economic stability. Government spending is able to create welfare distribution and encourage growth in the context of the Indonesian economy. State spending serves as a vital instrument to support development. reducing poverty and accelerating the digital transformation of the public sector. However, the effectiveness of government spending realization is often influenced by various external factors including monetary conditions and the application of information technology (digitalization). One of the factors that can affect government spending patterns on monetary indicators such as inflation. The increase in spending will be seen to be largely to protect people from health threats, the threat of deteriorating social conditions through various social assistance, and also in terms of the threat of economic weakening from commodity shocks (Rangkuty et al., 2024).

Increased inflation can expand physical space through an increase in nominal tax revenues, while high inflation can take care of the economic value and government spending. Therefore, understanding how these indicators affect government spending is important in the formulation of effective fiscal policies, in addition to monetary indicators, the progress of digitalization is an important variable in supporting the effectiveness of government spending digitalization which includes electronic payments (using e-money) has been proven to be able to increase the efficiency and transparency of the use of the public budget to be spent on activities that are able to boosting the economy by accelerating bureaucratic processes and minimizing the chance of budget irregularities so that the realization of expenditure becomes more optimal.

The study of monetary indicators such as inflation, according to Kalbuadi, K. (2021), has an influence on macroeconomic variables including government spending. Inflation affects government spending through the mechanism of adjusting the price of goods and services purchased by the government. When inflation increases, the government usually has to increase the spending budget to maintain purchasing power and the smooth running of public programs.

An indicator study of financial digitalization through e-money according to Supriyanto (2024),has a positive impact on the management of government spending. Digital transformation in the state financial system, such as the use of e-money and digital financial information systems, increases transparency, accuracy, and efficiency in the process of budgeting, reporting, and realizing state spending. Digitalization has facilitated FinTech innovators to introduce new technologies and innovative methods to the financial market to open up new opportunities and improve access to finance and respond to funding gaps in the economy for SMEs and start-ups(Budi Rusdianto et al., 2024).

Previous research from Kalbuadi, K. (2021), using the *Ordinary Last Squares* (OLS) approach, showed that together variables such as inflation and E-money have a significant influence. This is strengthened by research from Nadia Efria Putri, Y. (2024), that macroeconomic variables including inflation indirectly affect government spending partially.

Based on the theoretical foundation and findings of previous research, the author hypothesizes that there is a significant negative relationship between e-money and inflation in the long term in Indonesia. The increase in e-money transactions is thought to help lower the inflation rate, which in turn creates a more stable fiscal space for the government to spend the budget effectively. Financial digitalization through e-money is also believed to strengthen government spending management through increased transparency and efficiency, along with the implementation of digital-based financial information systems in central and regional governments.

Based on the background and previous findings, this study aims to analyze the influence of inflation and e-money transactions on government spending in Indonesia using the *Ordinary Least Squares* (OLS) approach. This research is expected to make an empirical contribution in

understanding how monetary indicators and financial digitalization affect the effectiveness of state fiscal management.

Literature Review

Inflation is a general and continuous increase in prices in an economy over a certain period of time. In the context of physical management, inflation has important implications for government spending because price changes affect the purchasing power of the state budget. Classical macroeconomic theory explains that when inflation is high, the purchasing power of money decreases, so the government must adjust the allocation of expenditure so that output and public services remain optimal. (Mankiw, 2018). According to Kalbuadi, K. (2021), inflation has a significant impact on government spending, especially through changes in the prices of goods and services needed in the implementation of work programs, thus understanding the dynamics of inflation is the key in making a review and the effectiveness of state training. Inflation is a general and continuous tendency to increase prices. However, a price increase of just one or two items is not called inflation, unless the increase is widespread or causes a rise in the price of most other goods (Nasution et al., 2022).

Electronic money *(e-money)* is a digital payment instrument that is stored electronically that can be used to make non-cash transactions. Financial digitalization, including through the implementation of *e-money*, is part of the transformation of the public financial system towards transparency, accountability, and efficiency. Supriyanto (2024), explained that the use of organizational financial information systems such as *e-money* and state defense spam applications helps speed up the process of budgeting and disbursing government funds, this technology allows budget management to be more responsive and accurate while minimizing the risk of irregularities Therefore, *e-money* not only has an impact on technical efficiency but also on the quality of state financial governance

Government spending is an important component of aggregate spending that has a strategic role in stimulating economic growth, reducing inequality, and providing public goods. In a Keynesian framework, government spending serves as a tool to drive aggregate demand, especially during economic downturns. This expenditure includes routine expenditure and capital expenditure allocated through the State Revenue and Expenditure Budget (APBN). Factors such as inflation rates, fiscal conditions, and digital infrastructure in the country's financial system greatly influence the pattern and effectiveness of government spending. Therefore, studies linking inflation and e-money to government spending have high relevance in the context of fiscal policy reform in the digital age.

Various studies have been conducted to examine the influence of macroeconomic indicators on government spending. Kalbuadi (2021), through the *Ordinary Least Squares* (OLS) approach, found that inflation has a significant influence on fiscal variables, including state spending. Meanwhile, Supriyanto (2024) emphasized that digital transformation through the implementation of e-money is able to increase transparency and efficiency in public financial management. Another study by Nadia Efria Putri, Y. (2024) also states that inflation has an indirect effect on government spending. However, there is still a gap in research on how inflation and digitalization simultaneously affect government spending policies. This study aims to fill this gap by analyzing the influence of inflation and *e-money* on government spending partially or simultaneously using the OLS regression model.

2.1 Theoretical Framework

This theoretical framework forms a chain of relations between monetary conditions, in this case inflation and digital financial technology (e-money) with the amount of government spending as the main indicator. Monetary and digital financial technology is seen as able to improve transaction efficiency and financial inclusion, thereby contributing to more efficient government spending.

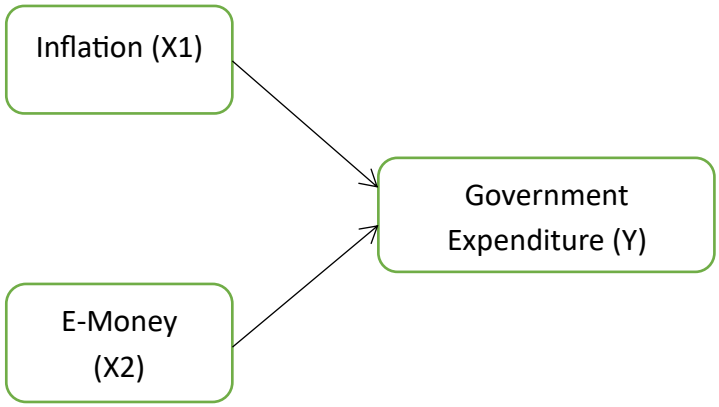

Figure 1. Thinking Frame

Figure 1, illustrates that each independent variable (X1 and X2) has a direct influence on government spending, which is represented through the H1 to H3 hypothesis. With a theoretical and empirical approach, the framework directs analysis on how monetary indicators such as inflation and the integration of digital financial technologies such as E-money can affect government spending. This model is the basis for statistical hypothesis testing, to evaluate the significance of the relationship between variables.

2.2 Research Hypothesis

A hypothesis is a temporary expression related to research problems as from the concept and focus of data collection in the scope of research (Munawar et al., 2023). The hypothesis is divided into a null hypothesis (H_0) with no relationship between variables, and an alternative hypothesis (H_1) that states the existence of a relationship between variables. Based on the literature review, the hypotheses proposed are:

H1: The increase in inflation has a negative and significant effect on government spending.
H2: The use of E-money has a positive and significant effect on government spending.
H3: Together, inflation and E-money have a significant effect on the government's budget.

Research Methods

This study uses a quantitative approach with descriptive and explanatory research types. The quantitative approach was chosen because it allows researchers to objectively measure the relationships between variables based on numerical data and statistical processing. In accordance with the view of Sugiyono (2018), the quantitative method is used as a scientific method that relies on positivistic logic, where phenomena can be measured, observed, and analyzed to produce valid conclusions. This study aims to explain the influence of monetary indicators and financial digitalization on government spending in Indonesia by using a linear regression model *Ordinary Least Squares* (OLS).

The data used in this study is secondary data in the form of *Time series*quarter from 2020-2024 obtained from the Central Statistics Agency (BPS) and Bank Indonesia (BI). The data period used covers 2020 to 2024, thus providing adequate historical coverage of the data to capture medium-term trends. There are three main variables in this study, namely: inflation (X_1) as a monetary indicator, e-money (X_2) as an indicator of financial digitalization, and government spending (Y) as a dependent variable. Inflation data is taken from Indonesia's annual inflation rate published by BPS which is processed into quarterly data based on data interpolation techniques, while e-money transaction data is obtained from Bank Indonesia's payment system statistical reports. The government spending data is measured based on the

realization of the annual budget in the State Revenue and Expenditure Budget (APBN) official publication of the Ministry of Finance of the Republic of Indonesia.

The analysis technique used was simple and multiple linear regression with *the Ordinary Least Squares* (OLS) approach. The OLS model was chosen because it is able to estimate the linear relationships between variables. The OLS Model analysis technique used in this study is simple linear regression or *Ordinary Least Squares* (OLS). Statistical significance testing is carried out through the t-test and the F test, where the t-test is used to test the partial influence of each independent variable on the dependent variable, while the F test is used to test the influence of the independent variables together. In order to ensure the validity of the model, tests were carried out on classical assumptions which included the Autocorrelation test (LM Test), the residual normality test (Jarque Bera), the heteroscedasticity test (White Test), and the multicollinearity test (VIF Test). All data processing is carried out using the latest version *of the EViews* statistical software, which supports OLS estimation and model diagnostic tests.

The regression equation model used in the study with *the Ordinary Least Square (OLS)* approach is as follows*:*

$G = f(Inf)$

$G = f(EM)$

$G = f(INF;\ EM)$

Commonalities together ..... (1.1)

$$G = \propto_0 + \propto_1 INF + \propto_2 EM + e$$

Where:

G = Government Expenditure

INF = Inflation

EM = E-money

$\propto_0$ = Intercept (constant)

$\propto_1, \propto_2$ = Regression coefficient for each independent variable

E = Error term

This model was used to test three main hypotheses, namely the partial influence of inflation on government spending (H1), the partial effect of *e-money* on government spending (H2), and the simultaneous effect of inflation and e-money on government spending (H3). Through this approach, it is hoped that the research can provide an empirical picture of how monetary indicators and financial digitalization play a role in influencing the direction of the Indonesian government's spending policy in the era of digital transformation.

This research approach uses an academic context in accordance with scientific studies and research, namely with a quantitative approach, according to the work of Sugiyono (2018), the research method is a scientific way to obtain data with a specific purpose that refers to the positivistic principle, which relies on concrete data in the form of numbers. The data is processed with statistical methods to conduct tests related to the research problem, with the aim of producing valid conclusions. This positivistic approach is applied to a specific sample or population in the study. So that the research method is a systematic concept to increase a number of knowledg.

Results and Discussion

4.1 Regression Model Analysis Results

Partial and simultaneous analysis testing used *the Ordinary Least Squares* (OLS) method to estimate the influence of government budget instrument variables. in Indonesia. Based on the results of the estimation, the partial influence of each independent variable on government expenditure (G) can be analyzed using the t-test presented in table 1 below.

Table 1. Partial Test Results (t-test)

Variable	Coefficient	Std. Error	t-count (Manual)	T-Statistics	t-table (α = 0.05; df=17)	Prob	Conclusion
C	20736.08	3704.906	-	5.596924	-	0.0000	
INF	-737.6759	0.002790	-1.241	-0.796650	2.110	0.4366	H_0 Accepted
EM	0.002790	0.002381	1.964	1.171627	2.110	0.2575	H_0Accepted

Source: Data processed with Eviews 2025

Based on the results of the Ordinary *Least Squares* (OLS) model estimation in Table 1 above, it is known that the constant (C) is worth 20,736.08 with a probability value of 0.0000 which shows significance at the 95% confidence level. Meanwhile, the inflation variable (INF) has a negative coefficient of -737.6759 with a t-calculated value of -0.796650, which is smaller than the t-table (2.110) and a probability value of 0.4366 (> 0.05). This indicates that partially, the inflation variable does not have a significant effect on the dependent variable, so the zero (H_0) hypothesis is accepted.

The e-money (EM) variable shows a positive coefficient of 0.002790 with a t-calculated value of 1.171627 and a probability of 0.2575 (> 0.05). Similar to the INF variable, this result shows that the EM variable also has no significant effect on the dependent variable, so H_0 is also accepted for this variable. Thus, neither INF nor EM exerted a significant influence on the dependent variables in this model partially at a significance level of 5%.

Table 2. Test together (F)

Component	Value
R-squared	0.087077
F-count (manual)	0.810750
F-stats (EViews)	0.810750
F-table (α = 0.05)	3.59
Prob (F-statistic)	0.490990
Decision	H_0 rejected

Source: Data processed with Eviews 2025

Based on the results of the joint test shown in Table 2, an F-calculated value of 0.810750 was obtained, which is the same as the F-statistical value (EViews). This value is known to be smaller than the F-table value at a significance level of 5% (α = 0.05) of 3.59. In addition, a Prob value (F-statistic) of 0.490990 greater than 0.05 corroborates these findings, suggesting that statistically the model is not statistically significant at a 95% confidence level. Thus, it can be concluded that by testing together, the independent variables in this study did not have a significant influence on the dependent variables. This is also supported by an R-squared value of 0.087077, which means that only about 8.7% of the variation of the dependent variables can be explained by independent variables in the model, while the rest is explained by other factors outside the model. Based on these results, the decision taken was to reject the alternative hypothesis (Ha) and accept the null hypothesis (H0), which states that the independent variables tested together have no significant effect on the dependent variables.

4.2 Regression Equation and Coefficient Interpretation

Based on the results of the multiple regression model estimation, the regression equation is obtained as follows:

$$\mathbf{G = 20736,08 - 737,6759INF + 0.00279EM + \varepsilon}$$

The model's interpretation shows that a constant of 20,736.08 represents the base value of the dependent variable GG when the independent variables INF and EM are zero. However, the value of this constant is mathematical and does not reflect real conditions. Partially, the Inflation variable (INF) had a negative effect on GG with a coefficient of -737.6759, but this effect was not statistically significant at the 95% confidence level (p = 0.4366). This indicates that the change in inflation in this model has not been proven to significantly affect the GG variable. The E-Money (EM) variable had a positive influence on GG with a coefficient **of** 0.00279, but it was also insignificant (p = 0.2575). Meanwhile, simultaneous testing of the model through the F-test yielded an F-statistic value = 0.810750 with a probability of 0.460990, which is well above the significance level of 5%. This means that together the INF and EM variables have no significant effect on GG. An R2R2 value of 0.087077 indicates that the GG variation can only be explained by INF and EM of 8.7%, while the remaining 91.3% is explained by other variables outside the model. Thus, this model has a low ability to explain data variations.

4.3 Classic Assumption Test

The classical assumption test is a test to ensure the validity of a study and the consistency of the regression model used in the research. The types of tests carried out are the Multicollinearity test, normality test, heteroscedasticity test and Autocorrelation test.

Table 3. Results of Multicollinearity (Variance Inflation Factors)

Variable	CoefficientVariance	Uncentered VIF	Centered VIF
C	13726327	10.25561	-
INF	857424.3	5.951607	1.078661
EM	5.680000	18.767185	1.078661

Source: Data processed with Eviews 2025

Multicollinearity testing was performed to find out if there is a high linear relationship between independent variables in the regression model. Based on Table 2, the Centered VIF value for the INF and EM variables is 1.078661, respectively. This value is well below the general tolerance limit of 10, so it can be concluded that there is no symptom of multicollinearity between independent variables in the model. Although the value of Uncentered VIF looks quite high, the main assessment in detecting multicollinearity is based on Centered VIF. Thus, the regression model can be said to be free from the problem of multicollinearity, so that parameter estimation can be trusted.

Table 4. Jarque-Bera Normality Results

Variable	Value
Mean	-4.45e-12
Median	-675.5335
Maximum	8585.209
Minimum	-7725.749
Std. Dev.	4893.944
Skewness	0.335555
Kurtosis	2.131687

Variable	Value
Jarque-Bera	1.052315
Probability	0.590871
Observation	20

Source: Data processed with Eviews 2025

The normality test is performed to determine whether the residual data in the regression model is normally distributed, which is one of the basic assumptions in OLS regression. Based on Table 3, the statistical value of Jarque-Bera is 1.052315 with a probability value of 0.590871 (> 0.05). This shows that the residual data do not differ significantly from the normal distribution, so it can be concluded that the residual in the model is normally distributed. A skewness value of 0.335555 indicates that the data is skewed to the right but within reasonable limits (close to zero), and a kurtosis of 2.131687 is also close to the ideal value of 3, indicating the absence of extreme outliers. With a total of 20 observations, these results show that the assumption of normality is fulfilled and the regression model is reliable for further statistical testing.

Table 5. Heteroscedasticity Results (White Test)

Heteroskedasticity: Test WhiteNull Hypothesis: Homoskedasticity			
F-statistic	0.440472	Prob. F (5,14)	0.8131
Obs*R-squared	2.718567	Prob. Chi-Square (5)	0.7433
Scaled explained SS	1.111409	Prob. Chi-Square (5)	0.9531

Source: Data processed with Eviews 2025

Based on the results of White's heteroscedasticity test presented in Table 4, an F-statistic value of 0.440472 with a probability (Prob. F (5.14)) is 0.8131. This probability value is much greater than the significance level of 0.05, so there is not enough evidence to reject the null (H0) hypothesis that the regression model does not experience heteroscedasticity or in other words the data is homoskedastic. In addition, the test results also showed an Obs*R-squared value of 2.718567 with a Chi-Square (5) probability of 0.7433. Similarly, the Scaled explained SS value of 1.111409 has a Chi-Square (5) probability of 0.9531. All of these probabilities exceed the 5% significance level, which further strengthens the conclusion that there is no heteroscedasticity problem in this regression model.

Table 6. Autocorrelation Results (LM Test)

Breusch-Godfrey Serial Corellation LM TestNull Hypothesis: No serial correlation at up to 2 lags			
F-statistic	1.295702	Prob. F (2,15)	0.3026
Obs*R-squared	2.946217	Prob. Chi-Square (2)	0.2292

Source: Data processed with Eviews 2025

The results of the autocorrelation test using the Breusch-Godfrey Serial Correlation LM Test shown in Table 5 show an F-statistic value of 1.295702 with a probability (Prob. F(2.15)) is 0.3026. This probability value is greater than the significance level of 5%, so there is not enough evidence to reject the zero (H0) hypothesis that there is no autocorrelation until the 2nd lag. Furthermore, the value of Obs*R-squared was recorded as 2.946217 with a probability of

Chi-Square (2) of 0.2292. The probability, which also exceeds 0.05, further confirms that the residual regression model does not contain autocorrelation problems.

Discussion

The results of the regression model estimation showed that partially the inflation variable (INF) had a negative coefficient of -737.6759 with a p-value of 0.4366 (>0.05), while e-money (EM) had a positive coefficient of 0.00279 with a p-value of 0.2575 (>0.05). This indicates that the two variables have no significant effect on government spending (G) at a 95% confidence level. Simultaneous testing through the F test also yielded an F-statistic of 0.810750 with a probability of 0.490990 (>0.05), indicating that INF and EM together had no significant effect on G. The R-squared value of only 0.087077 showed that the variation in government spending in this model was largely influenced by other factors outside the variables studied. The classical assumption test confirmed that the model did not experience problems with multicollinearity (VIF < 10), normally distributed residual (p JB = 0.590871 > 0.05), heteroscedasticity free (p White > 0.05), and no autocorrelation (p LM = 0.3026 > 0.05). This ensures that the estimated model coefficient is BLUE (Best Linear Unbiased Estimator). These findings suggest that although digital payment instruments and inflation are a concern in economic dynamics, they have not been shown to significantly affect government spending in the period and model tested. Further studies are needed by expanding variables, data periods, or panel approaches in order to capture the determinants of government spending more comprehensively.

Conclusion

Based on the results of research that has been conducted on the influence of inflation and the use of e-money on government spending, the following conclusions can be drawn:

1. The first hypothesis (H1) was rejected, because based on the results of the statistical test, it was obtained that inflation did not have a partial significant effect on government spending.
2. The second hypothesis (H2) is rejected, because the use of e-money also does not have a partial significant effect on government spending.
3. The third hypothesis (H3) is rejected, because simultaneously (together), inflation and the use of e-money have no significant effect on government spending.

Thus, the findings of this study indicate that in the period and context of the data studied, inflation fluctuations and the development of e-money use have not been the main determinants that affect government spending policy.

Suggestion

Based on the results of this study, the researcher provides several suggestions, both for policy and for future research:

1. Local and central governments can focus more on other variables that are more dominant in influencing government spending, such as real economic growth, tax revenues, central-to-regional transfers, and national priority spending needs.
2. Although inflation and e-money were not proven to be significant in the study, fiscal authorities still need to pay attention to price stability and facilitate the development of transaction digitalization, in order to keep the financial ecosystem healthy which in turn can strengthen the fiscal foundation going forward.
3. It is recommended to use longer time periods or higher data frequencies (e.g. monthly data) to retest the relationship between these variables, so that it can better capture short-term and long-term dynamics.

4. It is also necessary to add other control variables, such as interest rates, unemployment rates, or consumer confidence indexes, so that the model can explain the variation in government spending more comprehensively.

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