

The Impact of the Money Supply, Exchange Rate and Fuel Prices on the Inflation Rate

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Abstract. *The economic stability of a country is a criterion for long-term economic development. However, economic stability is a long-standing issue, particularly in developing countries. Almost all countries, both developed and developing, are struggling with economic growth and stability. The purpose of this research is to explain and re-examine the relationship between the money supply, the rupiah exchange rate, and fuel prices and the inflation rate. In this study, secondary data was used, and data was collected using time series data from 2012 to 2021. Multiple linear regression analysis, multiple coefficients of determination (R²), partial hypothesis test (t test), and simultaneous hypothesis test (F test) were used in this study and were tested using SPSS Version 22.0. The three dependent variables, namely the money supply, the rupiah exchange rate, and the price of gasoline, are said to have a positive influence on the inflation rate, either partially or concurrently, based on the test results.*

Keywords : *exchange rate, fuel price, inflation rate, money supply*

INTRODUCTION

Sustainable economic development is dependent on the stability of a nation's economy. The problem of economic stability, however, is also a well-known one, particularly for developing nations. Nearly all nations, industrialized and developing alike, struggle with economic growth and stability. The stability of pricing levels, national income levels, and the expansion of work opportunities are all indicators of economic stability (Gunawan, 1991). Inflation is one of the concerns that each nation is particularly concerned about. Indonesia has always struggled with this issue as a developing nation whose economy is highly reliant on the monetary system and the global economy. One of the economic issues that has drawn significant attention from economists is inflation. Sukirno (1998) defined inflation as the process of raising prices across the board in an economy. The phenomena of extremely high inflation has been experienced and gone through in Indonesia. In Indonesia, there were instances of hyperinflation from the 1960s until the 1990s. The phenomenon of hyperinflation occurs when prices for commodities and needs reach extremely high levels and are above 100 percent. A deficit in the government's budget necessitated the use of money creation to support the high inflation in Indonesia in 1966, where the inflation rate at the time was 136 percent.

The majority of inflation research and studies are conducted on a national level. Regional or local studies, however, have not been conducted frequently. In actuality, regional inflation gives rise to national inflation. Research on regional inflation must take into account the fact that each region has unique characteristics and necessitates a varied approach to inflation control. Bali Province is one of the provinces that has had issues with inflation. Economic activity and ongoing economic growth in Bali Province will be impacted by the province's unpredictable inflation rate. In general, the value of the inflation rate in the province of Bali changes. This occurs because there is a huge amount of money in circulation, a decline in people's purchasing power, and an increase in the costs of products and services that will motivate people to engage in production activities in order to stimulate the economy to boost production activities.

The amount of money in circulation in a nation has a big impact on inflation. Since there is so much money floating around, investment will continue to rise relative to savings and prices will rise, which could eventually lead to a decline in people's purchasing power. From 2012 through 2021, Bali Province's money supply has grown yearly. The money supply peaked in 2021 at IDR 2,269,106.16 billion after reaching its lowest point in 2015 at IDR 1,055,439.82 billion. One of the other factors influencing inflation is the rupiah exchange rate. According to Effendie (2017), a country's currency exchange rate against foreign currency or another country's currency is the value that occurs in the

foreign exchange market through the mechanism of balancing the demand and supply of foreign currency measured or calculated against the currency of that country. The exchange rate of rupiah per US Dollar in Bali Province has increased year after year, with the lowest rate of rupiah per US Dollar in 2018 being IDR 12,491 and the highest rate of rupiah per US Dollar in 2021 being IDR 14,269.

Fuel price inflation is affecting a critical sector of production and transportation. Fuel price increases, according to Puspasari (2016), will have an effect on the distribution process. The distribution process necessitates the use of fuel; as fuel prices rise, the time it takes for goods to reach consumers rises by a factor of two. Every year from 2015 to 2021, the price of Pertamina fuel in Bali Province fluctuated. The lowest Pertamina fuel price was IDR 8,050 in 2017, the highest Pertamina fuel price was IDR 11,000 in 2019, and the first fuel price in 2020-2021 grew steadily at IDR 9,000.

Research by Langi, et al. (2014), Ningsih and Kristiyanti (2018), Muttalib (2019), and Panjaitan (2021) are just a few studies that link the money supply, the rupiah exchange rate, and fuel prices to the inflation rate. These studies revealed that the money supply, interest rate, and exchange rate all partially and simultaneously had a real impact on inflation. Additionally, studies by Darman (2016), Dawood and Anjalia (2017), Ardana (2019), and Amhimmid et al. (2021) revealed that the rate of inflation was significantly impacted by both the amount of money withdrawn and fuel prices at the same time. While research by Puspasari and Malang (2016) found that the price of gasoline partially has a major effect on inflation, the price of diesel does not have a significant impact on inflation, according to the study's findings. Inflation rates play a significant effect in economic activity, particularly in the province of Bali. It is fascinating to do research and review the amount of money in circulation, the rupiah exchange rate, and gasoline prices in relation to the rate of inflation since there are still discrepancies in the results of previous study.

Inflation

The general and ongoing tendency of prices to rise is a succinct description of inflation. Unless the increase extends to or results in a significant increase in other prices, a rise in the price of one or two items alone does not constitute inflation. The seasonality, buildup to special occasions, or one-time occurrence that has no lasting impact on inflation are to blame for the price increase (Boediono, 2008). According to Jamli (1996), there are four categories of inflation based on their type: inflation that is severe or not, inflation that is intense, inflation that has an origin, and inflation that has reasons.

Money Supply

The total amount of money in the economy at a given time, typically within a year, that is in the hands of the general public is known as the money supply. It should be emphasized that the definition of the amount of money in circulation includes all currency that has been officially issued by the Central Bank and Commercial Banks as well as money that is circulating in the hands of the general population (Pracoyo, 2005). M1 (currency and deposits) is the narrow definition of the money supply, and M2 (M1 plus quasi-money, which is utilized as a medium of trade) is the broad definition. According to this classification, different types of money are divided into categories, including idle money, base money, narrow money, and broad money (Pracoyo, 2005).

Exchange Rate

The ratio of the value of one country's currency to the currency of another foreign country is known as the exchange rate of a currency or rate (Thobarry, 2009). The comparison of the value or price of currencies between the two different currencies is another definition of exchange rate, along with the exchange between two different currencies. Normal fluctuations in the currency rate might take the shape of depreciation or appreciation. According to Madura (2010), the categories into which system exchange rates typically fall include fixed exchange rates, freely floating exchange rates, controlled float exchange rates, and pegged exchange rates.

Fuel Prices

Any substance that can be used to create energy is a fuel. Thermal energy that can be released and controlled typically exists in fuel. Humans consume most fuels in a combustion process (redox reaction), where the fuel reacts with oxygen in the air and produces heat as a byproduct. Fuel costs and inflation have a direct or positive relationship that is present. According to Hamid (2000),

claiming that the rise in fuel prices will result in widespread rage and social unrest. Gasoline costs will increase if fuel subsidies are eliminated. The cost of products and services will rise if the price of fuel does.

METHODS

This study was conducted in the province of Bali, which is one of those that experiences annual increases in the money supply, the value of the rupiah, and the volatility of pertamax fuel prices. Time series data were used in this study's data gathering and secondary sources. Data gathered over a period of time called a time series can show how an activity has changed over time. The variables in issue are the money supply, rupiah exchange rate, pertamax gasoline prices, and inflation rate in Bali Province. The time series data used in this study are data from 2012-2021 acquired from Badan Pusat Statistik Bali Province and PT. Pertamina Bali Province. This study was conducted in Bali Province, given that Bali This study used a quantitative strategy for data analysis that included multiple linear regression analysis, multiple coefficients of determination (R²), partial hypothesis testing (t test), and simultaneous hypothesis testing (Test F). The spss software, version 22.0, was utilized to assist in the data processing method in this investigation. The following are the numerous linear regression formulas: $Y=b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + e_i$

RESULTS

Table 1
Multiple Linear Regression Test

Model	Unstandardized Coefficients		Standardized Coefficients
	B	Std. Error	Beta
(Constant)	11.594	2.803	
Money Supply (X1)	2.540	0.000	0.760
Exchange Rate (X2)	0.001	0.000	0.467
Fuel Prices (X3)	0.001	0.000	0.730

Source: Data Processed

According to Table 1's findings, the money supply variable's regression coefficient is 2.54, the exchange rate's regression coefficient is 0.001, and the fuel price's regression coefficient is 0.001. All three variables have a positive trend. This suggests that: (1) if the amount of money in circulation (X1) increases by IDR 1 billion annually, then Bali Province's annual inflation rate will rise by an average of 2,540 percent annually, assuming that changes in the value of the rupiah (X2) and changes in the cost of pertamax fuel (X3) are constant; (2) Assuming that changes in the money supply (X1) and changes in the price of pertamax fuel (X3) remain constant, the inflation rate in Bali Province will rise by an average of 0.001 percent per year if the rupiah exchange rate (X2) rises by one rupiah annually; (3) Assuming that changes in the money supply (X1) and changes in the value of the rupiah (X2) are constant, the inflation rate in Bali Province will rise by an average of 0.001 percent each year if the price of pertamax gasoline (X3) increases annually by one rupiah.

Table 2
t Test (Partial)

Variable	B (Coefficient)	Beta	t Calculate	Sig. t
Money Supply (X1)	2.540	0.760	4.333	0.005
Exchange Rate (X2)	0.001	0.467	2.626	0.039
Fuel Prices (X3)	0.001	0.730	5.442	0.002

Source: Data Processed

Since the t count is more than the table t (4.333 > 1.943) and the significance is less than 0.05 (0.005 < 0.05), it can be inferred from the testing of the parameters in Table 2 on the money supply that it has a positive and partial impact on the inflation rate. According to the results of the exchange rate's parameter testing, the estimated t is higher than the table t (2.626 > 1.943) and the significance

is lower than 0.05 ($0.039 < 0.05$), indicating that the value of the rupiah has a positive and substantial impact on the inflation rate to some extent. Furthermore, parameter testing of fuel prices reveals that the significance is less than 0.05 ($0.002 < 0.05$) and the t counts exceed the t table ($5.442 > 1.943$), which may be read to suggest that the price of pertamax gasoline has a positive and actual effect on the rate of inflation to some extent.

Table 3
F Test (Simultaneous)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	27.810	3	9.270	17.267	0.002 ^b
Residual	3.221	6	0.537		
Total	31.032	9			

Source: Data Processed

According to the findings in Table 3, the estimated F is higher than the table's F ($17.267 > 4.76$), and the significance is less than 0.05 ($0.002 < 0.05$). Therefore, based on the findings of the research above, it can be said that the money supply, rupiah exchange rate, and fuel prices pertamax all significantly affect the inflation rate at the same time. Based on the calculation results, the value of R^2 of 0.896 indicates that variations (ups and downs) in the money supply, rupiah exchange rate, and pertamax fuel prices explain 89.6 percent of the variation (ups and downs) in the inflation rate in Bali Province, while the remaining 10.4 percent is explained by other variables not included in this model.

Table 4
Determination Analysis Test (R^2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,947 ^a	0,896	0.844	0.73272

Source: Data Processed

The Impact of the Money Supply on the Inflation Rate

The computed t value was more than the table t value ($4.333 > 1.943$), and the significance was lower than 0.05 ($0.005 < 0.05$), according to the test results, which showed that the money supply had a positive and partial impact on the inflation rate in Bali Province. This finding supports earlier studies by Langi, et al. (2014) and Ardana (2019), which demonstrated that the money supply has a positive and limited impact on the rate of inflation in Indonesia.

The Impact of the Rupiah Exchange Rate on the Inflation Rate

The calculated t value was more than the table t value ($2.626 > 1.943$) and the significance was lower than 0.05 ($0.039 < 0.05$), according to the test results, indicating that the rupiah exchange rate had a positive and partial impact on the inflation rate in Bali Province. This finding supports earlier studies by Ningsih and Kristiyanti (2018) and Panjaitan (2021), which found that the exchange rate had a real, positive, and partially measurable impact on inflation in Indonesia.

The Impact of Fuel Prices on Inflation Rate

Because the calculated t value was higher than the table t value ($5.442 > 1.943$) and the significance was lower than 0.05 ($0.002 < 0.05$), the test results indicated that gasoline costs had a positive and partial impact on the inflation rate in Bali Province. This finding supports the findings of earlier studies by Puspasari and Malang (2016) and Dawood and Anjalina (2017), which found that gasoline costs have a meaningful and favorable impact on inflation.

The Impact of the Money Supply, Rupiah Exchange Rate and Fuel Prices on the Inflation Rate

Because F arithmetic is greater than F table ($17.267 > 4.76$) and significance is lower than 0.05 ($0.002 < 0.05$), the test results show that the money supply, rupiah exchange rate, and Pertamina fuel prices simultaneously have a significant effect on the inflation rate in Bali Province. The fourth hypothesis, which claims that the money supply, exchange rate, and fuel prices simultaneously have a

significant effect on the inflation rate in the province of Bali, is therefore supported study by Darman (2016), Dawood and Anjalina (2017), Muttalib (2019) and Amhimmid, et al (2021).

CONCLUSION

According to study talks, theoretical research, and empirical investigations, the money supply, the value of the rupiah, and gasoline prices all have the potential to have a positive and significant partial influence on the inflation rate. In the same way, the money supply, rupiah exchange rate, and fuel prices all significantly influence the rate of inflation.

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