

The Role of Government Expenditure and Household Expenditure in Increasing Economic Growth in North Sumatra Province

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ABSTRACT

The economic growth of North Sumatra Province in 2023 was 5.01%. This growth is still below the average Indonesian economic growth of 5.05%. This study aims to analyze the role of government spending and household spending in increasing economic growth in North Sumatra Province. Researchers used panel data regression with government expenditure and household expenditure as the main independent variables and supplemented with the human development index and the average Bank Indonesia interest rate to obtain a more accurate regression equation in explaining economic growth in North Sumatra Province. Government expenditure consists of two variables, namely local government capital expenditure and central government capital expenditure. Meanwhile, household expenditure consists of two variables, namely household expenditure on food and household expenditure on non-food. The data covers 33 districts/cities over the period 2017-2022. The results of the analysis show that local government capital expenditure, central government capital expenditure, and household expenditure on food consumption have a positive and significant effect on economic growth. While household expenditure on non-food has a negative and significant effect on economic growth. For this reason, the government should allocate additional capital expenditure budgets each year and create programs to maintain people's purchasing power.

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INTRODUCTION

The main objective of regional development is to achieve equitable economic growth in each region so that the gap between regions is not too large. The ideal condition is that there is no gap between regions. In theory, a high level of economic growth will be achieved when high population growth is accompanied by a high level of productivity. High economic growth will trigger an increase in the welfare and education levels of the community, which in turn will help the community improve the quality and image of their lives (Saragih et al., 2024).

Statistics show that the economic growth of North Sumatra Province in 2023 is 5.01% (BPS, 2024b). This growth is still better than most other provinces although it is still below Indonesia's economic growth of 5.05% in the same year.

Although economic growth in Sumatra Province has been good, economic growth in regencies/cities varies greatly. Deli Serdang Regency recorded the highest percentage growth of 5.34%. Meanwhile, the lowest growth was in South Nias Regency at 3.65%. Overall, there are still 21 districts/cities whose economic growth is still below the economic growth of North Sumatra Province.

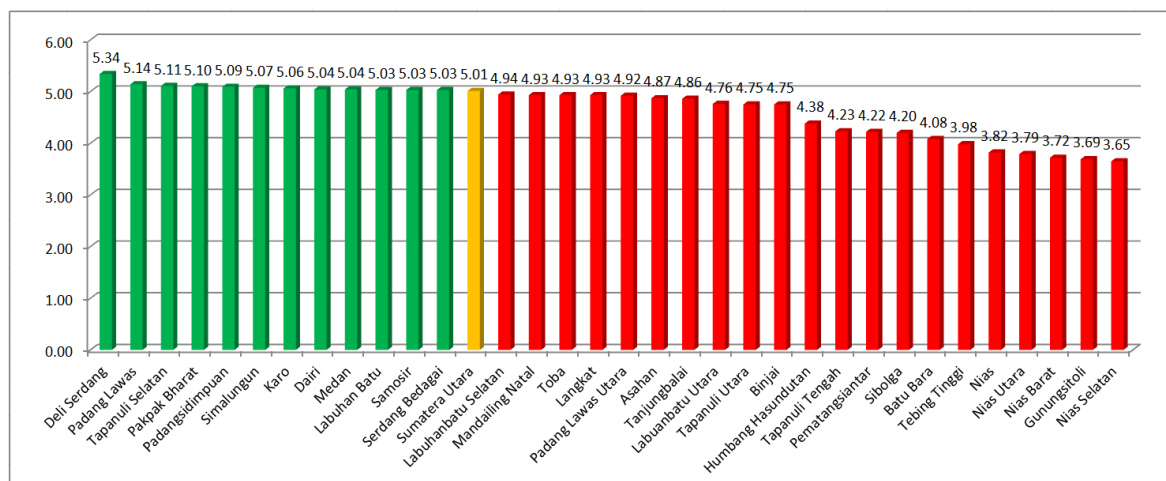


Figure 1. Percentage of Economic Growth in Districts/Cities in North Sumatra Province in 2023

Source: BPS, processed

Districts/cities in North Sumatra Province have diverse economic characteristics. This is due to different geographical conditions and ethnic backgrounds. Among the factors that influence their economic activity are government spending policies and household spending patterns.

In this study, the government expenditure factor is divided into two independent variables, namely local government capital expenditure sourced from the regional revenue and expenditure budget (APBD) and central government capital expenditure sourced from the state budget (APBN). The household expenditure factor is divided into two independent variables, namely expenditure on food and expenditure on non-food. To form a better regression model, the Human Development Index variable and the average Bank Indonesia interest rate were added. The dependent variable is the percentage of economic growth.

This study aims to see how the role of government spending and household spending in increasing economic growth in North Sumatra Province.

LITERATURE REVIEW

Economic Growth

Economic growth is one of the main indicators used to measure the development performance of a region. Economic growth is very important because it is the source of income to create welfare programs (Anita et al., 2022). Mankiw in Saragih et al., (2024) explains several important macroeconomic theories, including:

1. Business Cycle Theory

This theory explains how the factors of public consumption, investment, exports, and imports affect fluctuations in the economy as a whole (aggregates). The focus of this theory is the changes in output, inflation, and unemployment that occur in a country.

2. Economic Growth Theory

This theory explains the various factors that affect the state of the economy in the long run, which include capital, labor, and the use of technology. The focus of this theory lies on the growth of output and per capita income of the people of a country.

3. Monetary Policy Theory

This theory explains the effect of monetary policy on inflation, interest rates, and the amount of money in circulation in a country. The economy in a country is influenced by the prevailing monetary policy through changes that occur in interest rates and the amount of money in circulation in society.

4. Fiscal Policy Theory

This theory explains the effect of fiscal policy on a country's economy through changes in government spending and taxes. The economy is affected by fiscal policy through the influence it exerts on consumption and investment.

5. International Economic Theory

This theory explains how international trade affects a country's economy. The focus of this theory lies on changes that occur in exports and imports as well as currency exchange.

Based on these theories, researchers use the variables of government spending, household spending, interest rates, and the human development index as factors that influence economic growth.

Government Expenditure

Government spending is one of the factors that can encourage economic growth. Spending on government operational activities will increase the intensity of money circulation in a region so that it can have a multiplier effect in driving the community's economy. Government infrastructure projects can also absorb labor from the lower classes such as construction workers, the middle class, and even the upper classes for large infrastructure projects so that money from the government will be distributed to various levels of society.

Central government expenditure comes from the APBN and local government expenditure comes from the APBD. Article 1 paragraph 14 of Law Number 17 of 2003 concerning State Finance states that state expenditure is an obligation of the central government which is recognized as a deduction from the value of net assets and Article 1 paragraph 16 states that regional expenditure is an obligation of the regional government which is recognized as a deduction from the value of net assets. State and regional expenditures are detailed by organization, function, and type of expenditure. The details of state and regional expenditure by type of expenditure (economic nature) consist of personnel expenditure, goods expenditure, capital expenditure, interest, subsidies, grants, and social assistance, among others (UU RI, 2003).

This study uses government expenditure data in the form of capital expenditures originating from the central government and local governments. Capital expenditure is budget expenditure for the acquisition of fixed assets and other assets that benefit more than one accounting period. Capital expenditures include, among others, capital expenditures for the acquisition of land, buildings and structures, equipment, and intangible assets (PP, 2010). Therefore, capital expenditure is also used for infrastructure development that can stimulate economic activity.

Household Expenditure

Economic activity in a region cannot be separated from transactions or expenditures incurred by households. Household expenditures can be grouped into expenditures for food needs and expenditures for non-food needs. In the 2024 national socio-economic survey conducted by the Central Statistics Agency, questions related to food expenditure and consumption were asked about what was consumed by all household members during the past week, both in quantity and money. Households were also asked about the amount of money spent on goods other than food during the past month or year (BPS, 2024a)

This study uses household expenditure data in the form of expenditure on food and expenditure on non-food items. The household expenditure variable for food used is the average per capita food expenditure a month multiplied by 12 to get a year's per capita food expenditure. Likewise, household expenditure for non-food needs which is used as an independent variable in this study is the average per capita non-food expenditure a month multiplied by 12 to get per capita non-food expenditure a year. The average consumption/expenditure per capita figure is obtained from the quotient of the total consumption of all households to the total population, whether consuming or not.

Human Development Index

The Human Development Index can be used as an indicator of successful development in a country or region (Berutu et al., 2024). BPS (2024c) defines the Human Development Index (HDI) as a measure of the achievement of the main dimensions of human development, namely: longevity and healthy living, knowledge, and a decent standard of living. High indicators of community development will have an impact on the quality of life of the community. A good quality of life indicates a society that is ready and productive in working to increase economic growth.

Bank Indonesia Interest Rate

Interest rates affect the economic decision of a person or household to consume, buy a house, buy bonds, or put it in a savings account. Interest rates also influence economic decisions for entrepreneurs, whether to invest in new projects, expand capacity, or postpone it (BI, 2019). The interest rate data used in this study is the average Bank Indonesia interest rate for a year.

METHOD

This study uses panel data from 33 districts/cities in North Sumatra Province during the period 2017 to 2022. Panel data is a combination of time series data and cross-sectional data (Basuki, 2014). This research utilizes a panel data approach to capture temporal and spatial dynamics, deepening the analysis compared to cross-section or time series approaches alone (Baltagi, 2005). Therefore, the methodology used in this study is a quantitative method using panel data regression. The tests conducted after selecting the best model in panel data regression are partial test (T-test), simultaneous test (F-test), and coefficient of determination.

There are six independent variables used, namely local government capital expenditure, central government capital expenditure, household expenditure on food, household expenditure on non-food, human development index, and Bank Indonesia interest rates. The dependent variable used is economic growth. Local government capital expenditure data were obtained from the Directorate General of Fiscal Balance of the Ministry of Finance and central government capital expenditure data were obtained from the Directorate General of Treasury of the Ministry of Finance. The data on household expenditure on food, household expenditure on non-food, human development index, and economic growth were obtained from the Central Bureau of Statistics. Meanwhile, interest rate data was obtained from Bank Indonesia and Central Bureau of Statistics.

Before conducting the test, the most appropriate model selection is made between the Common Effect Model (CEM), Fixed Effect Model (FEM), or Random Effect Model (REM). The regression estimation method using panel data uses three approaches, namely:

1. CEM

It is the simplest panel data model approach because it only combines time series and cross-section data. In this model, neither the time dimension nor the individual dimension is considered, so it is assumed that the behavior of company data is the same in various periods (Basuki, 2014). The CEM model panel data regression formula is as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \beta_k X_{kit} + \varepsilon_{it} \quad \dots 1)$$

2. FEM

This model assumes that differences between individuals can be accommodated by differences in intercepts. To estimate panel data, the FEM model uses a dummy variable technique to capture intercept differences between companies, intercept differences can occur due to differences in work culture, managerial, and incentives. However, the slopes are the same between companies (Basuki, 2014).

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \beta_k X_{kit} + \varepsilon_{it} \quad \dots 2)$$

3. REM

This model will estimate panel data where disturbance variables may be interconnected over time and between individuals. In the REM model, differences in intercepts are accommodated by the error terms of each company. The advantage of using the REM model is that it eliminates heteroscedasticity (Basuki, 2014).

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \beta_k X_{kit} + \mu_{it} + \varepsilon_{it} \quad \dots 3)$$

The description of the three equations is as follows:

- i : i-th entity
- t : tth period
- α : constant
- β_k : regression coefficient X_k
- X_k : The kth independent variable
- Y : The dependent variable
- μ_{it} : Random effect for the i-th individual, which captures individual heterogeneity.
- ε_{it} : error term

To get the most appropriate model, the Chow Test, Hausman Test, and Lagrange Multiplier Test are conducted.

1. Chow Test

The Chow test is a test to determine the Fixed Effect or Random Effect model that is most appropriately used in estimating panel data (Basuki, 2014).

Ho: CEM is better than FEM if the Chi-square probability value > 0.05 .

Ha: FEM is better than CEM if the Chi-square probability value < 0.05 .

2. Hausman Test

The Hausman test is a statistical test to choose whether the Fixed Effect or Random Effect model is most appropriate to use (Basuki, 2014).

Ho: REM is better than FEM if the probability value of cross-section random > 0.05

Ha: FEM is better than REM if the cross-section random probability value < 0.05 .

3. Lagrange Multiplier Test

To determine whether the Random Effect model is better than the Common Effect (OLS) method, the Lagrange Multiplier test is used (Basuki, 2014).

Ho: CEM is better than REM if the Breusch-Pagan probability value > 0.05

Ha: REM is better than CEM if the Breusch-Pagan probability value < 0.05 .

RESULT

Chow Test

The Chow test has been conducted with the results in Table 1 as follows:

Table 1. Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.696470	(32,159)	0.0181
Cross-section Chi-square	58.159461	32	0.0031

Based on Table 1 The Cross-section Chi-square probability value of 0.0031 < 0.05 indicates that the FEM model is better applied than the CEM model.

Hausman Test

The Hausman test has been conducted with the results in Table 2 as follows:

Table 2. Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	46.110813	6	0.0000

Based on Table 2, a cross-section random probability value of 0.0000 < 0.05 indicates that the FEM model is better applied than the REM model.

Analysis Result

Based on the Chow Test and Hausman Test, the correct model choice is FEM. Testing with the Lagrange Multiplier Test is no longer needed because it will not affect the choice of model. The regression equation is:

$$PE_{it} = \alpha_i + \beta_1 BMD_{it} + \beta_2 BMP_{it} + \beta_3 RTM_{it} + \beta_4 RTBM_{it} + \beta_5 IPM_{it} + \beta_6 SB_{it} + \varepsilon_{it} \quad \dots 4)$$

With:

- i : i-th district/city
- t : year t
- α : Constant
- β_k : regression coefficient X_k
- BMD : Local Government Capital Expenditure
- BMP : Central Government Capital Expenditure
- RTM : Household Expenditure on Food
- RTBM : Household Expenditure on Non-Food
- HDI : Human Development Index
- SB : Average Bank Indonesia Interest Rate
- ε_{it} : error term

The regression results using the FEM model can be seen in Table.3 as follows:

Table 3. Fixed Effect Model (FEM) Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.088133	0.167661	-0.525659	0.5999
BMD	8.33E-14	1.40E-14	5.939969	0.0000
BMP	4.70E-14	1.45E-14	3.237373	0.0015
RTM	1.20E-08	4.23E-09	2.837700	0.0051
RTBM	-1.68E-08	2.86E-09	-5.864159	0.0000
IPM	0.079280	0.254651	0.311327	0.7560
SB	1.121497	0.200227	5.601140	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.474219	Mean dependent var	0.037277
Adjusted R-squared	0.348561	S.D. dependent var	0.020477
S.E. of regression	0.016527	Akaike info criterion	-5.193036
Sum squared resid	0.043431	Schwarz criterion	-4.545347
Log likelihood	553.1106	Hannan-Quinn criter.	-4.930873
F-statistic	3.773880	Durbin-Watson stat	2.422096
Prob(F-statistic)	0.000000		

T-Test (Partial)

Table 4. T-Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.088133	0.167661	-0.525659	0.5999
BMD	8.33E-14	1.40E-14	5.939969	0.0000
BMP	4.70E-14	1.45E-14	3.237373	0.0015
RTM	1.20E-08	4.23E-09	2.837700	0.0051
RTBM	-1.68E-08	2.86E-09	-5.864159	0.0000
IPM	0.079280	0.254651	0.311327	0.7560
SB	1.121497	0.200227	5.601140	0.0000

From Table 4. the following results are obtained:

Table 5. Effect of Independent Variables on Economic Growth

Variable	Relationship	Influence
Local Government Capital Expenditure	Positive	Significant
Central Government Capital Expenditure	Positive	Significant
Household Expenditure on Food	Positive	Significant
Household Expenditure on Non-Food	Negative	Significant
Human Development Index	Positive	Not Significant
Average Bank Indonesia Interest Rate	Positive	Significant

From Table 5 it can be concluded that from the government expenditure sector, local government capital expenditure and central government capital expenditure have a positive and significant relationship with economic growth. From the household expenditure sector, household expenditure on food needs has a positive and significant relationship with economic growth, but household expenditure on non-food needs has a negative and significant relationship with economic growth. The Human Development Index has no significant effect on economic growth. Meanwhile, the Bank Indonesia interest rate has a positive and significant relationship with economic growth.

F-Test (Simultaneous)

Table 6. F-Test Results

Cross-section fixed (dummy variables)			
R-squared	0.474219	Mean dependent var	0.037277
Adjusted R-squared	0.348561	S.D. dependent var	0.020477
S.E. of regression	0.016527	Akaike info criterion	-5.193036
Sum squared resid	0.043431	Schwarz criterion	-4.545347
Log likelihood	553.1106	Hannan-Quinn criter.	-4.930873
F-statistic	3.773880	Durbin-Watson stat	2.422096
Prob(F-statistic)	0.000000		

Based on Table 6. obtained an F-statistic probability value of 0.000000 smaller than 0.05 which shows the variables of local government capital expenditure, central government capital expenditure, household expenditure on food, household expenditure on non-food, Human Development Index, and Average Bank Indonesia Interest Rate together have a significant influence on economic growth in North Sumatra Province.

Interpretation of Results

Based on the panel data regression results with the FEM model according to Table 3, the following equation is obtained:

$$\text{PE} = -0.0881327915096 + 8.33248251822\text{e-}14 \cdot \text{BMD} + 4.69558695026\text{e-}14 \cdot \text{BMP} + 1.20148592725\text{e-}08 \cdot \text{RTM} - 1.6775981235\text{e-}08 \cdot \text{RTBM} + 0.0792798944029 \cdot \text{IPM} + 1.12149673941 \cdot \text{SB} + \varepsilon_{it} \quad \dots 5)$$

The Role of Government Spending on Economic Growth in North Sumatra Province

Government spending in this case capital expenditure sourced from the APBD and capital expenditure sourced from the APBN has a positive and significant effect on economic growth. This means that the addition of the capital expenditure budget from both the APBD and APBN can increase economic growth in North Sumatra Province. This is in line with the results of research conducted by Waryanto (2017) which concluded that capital expenditure has a significant positive effect on economic growth in Indonesia. However, different research results were concluded by Fajri (2017) which states that capital expenditure has no significant effect on the economic growth of provinces in Sumatra.

From the research results, the regression coefficient of Local Government Capital Expenditure is 8.33248251822e-14. This shows that if local government capital expenditure is increased by 100 billion rupiah in a year, it will be able to increase economic growth by 0.83% if other variables are assumed to be constant. The regression coefficient of Local Government Capital Expenditure is 4.69558695026e-14. This shows that if the central government capital expenditure is increased by 100 billion rupiah in a year, it will be able to increase economic growth by 0.47% if other variables are assumed to be constant. If combined, the capital expenditure of the central government and local governments can contribute to increasing economic growth by 1.3% in a year.

Based on these data, it can be said that the implementation of government work funded by capital expenditure in North Sumatra Province has been running well and effectively. Therefore, both central and local governments should make policies to increase the capital expenditure budget every year. This policy is part of fiscal policy. Fiscal policy is a policy carried out by the government in managing or directing the economy to better or desired conditions by changing government revenues and expenditures (Anita et al., 2022).

The capital expenditure budget should be prioritized on infrastructure development such as roads, markets, buildings and structures for public services, and other infrastructure. This is intended to invite investors both from within and outside the country to invest in North Sumatra Province. Thus, development will take place in districts/cities, thereby increasing economic growth in North Sumatra Province.

The Role of Household Expenditure on Economic Growth in North Sumatra Province

Household expenditure also has a significant effect on economic growth in North Sumatra Province. This is in line with research conducted by Sudirman & Alhudhori (2018) in Jambi Province and Haniko et al. (2022) in North Sulawesi. However, these studies have not distinguished between household consumption of food and non-food.

This study has separated household expenditure on food and non-food items. Although both have a significant effect, there are differences in the relationship between the two variables of economic growth. Household expenditure on food needs has a positive and significant relationship with economic growth. This is in line with research conducted by Winarti (2020) which concluded that in Magelang City. However, household expenditure for non-food purposes has a negative and significant relationship to economic growth.

From the research results, the regression coefficient of Household Expenditure on Food is 1.20148592725e-08. This shows that if household consumption per capita for food is increased by 1 million rupiah in a year, it will be able to increase economic growth by 1.20% if other variables are assumed to remain constant. Therefore, it can be said that household consumption has so far played a role in increasing economic growth in North Sumatra Province.

The regression coefficient of Household Expenditure on Non-Food is $-1.6775981235e-08$. This shows that if household consumption per capita for non-food items is increased by 1 million rupiahs in a year, it has an impact on a decrease in economic growth by -1.67% if other variables are assumed to remain constant. This anomaly in the effect of non-food consumption is likely to be caused by the purchase of non-food items that are carried out unevenly across all levels of society. The upper middle class tends to be able to afford relatively expensive goods while most lower middle class people tend not to buy expensive goods. The poor only spend their money on basic daily needs, namely food.

Therefore, researchers suggest that the government make policies that can maintain and increase people's purchasing power. Various programs that can be continued are the provision of social assistance, especially direct cash transfers, energy subsidies such as fuel oil, and not increasing tax rates. This is expected to increase economic growth in North Sumatra Province.

CONCLUSION

The conclusion that can be drawn from the results of this study is that government spending through local government capital expenditure and central government capital expenditure has a positive and significant role in increasing economic growth in North Sumatra Province. For this reason, researchers suggest that the government make policies to continue allocating capital expenditure and even increase the capital expenditure budget to accelerate economic growth. On the other hand, household expenditure on food also contributed positively and significantly to economic growth in North Sumatra Province. However, household expenditure on non-food contributed negatively and significantly to economic growth in North Sumatra Province. Therefore, the purchasing power of the community needs to be maintained by the government through social assistance programs, energy subsidies, and not raising tax rates, especially for the poor.

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