The Influence of the Agricultural and Mining Sectors on Economic Growth in East Luwu Regency

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Abstract

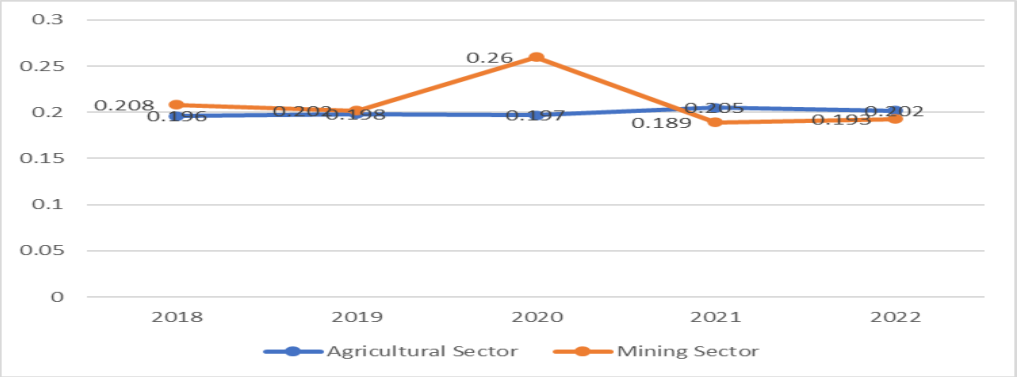
Economic growth is also associated with the process of growing production of goods and services in society's economic activities. It can be said that growth is one-dimensional development and is measured by increasing output and income. The aim of this research is to determine the influence of the agricultural and mining sectors on economic growth in East Luwu district. The data used in this research uses a seventeen year time series obtained from the Central Statistics Agency of East Luwu Regency. This research uses time series data analysis using the eviews 10 application to process multiple linear regression data. The results of the research show that the agricultural sector has a t-count value of 2.946366 with a probability value of 0.01 < 0.05, so it can be concluded that the agricultural sector variable has a significant effect on economic growth while the mining sector has a t-count of 3.029401 with a probability value of 0.0085 < 0.05 so it can be concluded that the mining sector variable has a significant effect on economic growth in East Luwu district.

Keywords: Agricultural Sector; Mining Sector; Economic Growth

1. Introduction

Economic growth is also associated with the process of growing production of goods and services in society's economic activities. It can be said that growth is one-dimensional development and is measured by increasing output and income. In this scenario, a significant Gross Domestic Product (GDP) value indicates growth in national income.

Indonesiais a developing country that continuously carries out development in a planned and uniform manner, and does not neglect efforts for equality and stability. National development aims to achieve the standard of living and welfare of everyone. Apart from that, Indonesia is also known as an agricultural country, with the majority of its population working in agriculture. Apart from that, agricultural resources in Indonesia are very diverse, each province has its own potential, so it produces agricultural products with different results. Provinces in Indonesia clearly have considerable potential as sources of regional growth, and this requires the government in each province to pay more attention to sectors that have great potential [1].



*Source:*District Central Statistics Agency. East Luwu based on constant prices 2018 – 2022

Based on the graph above, it can be seen that in 2018 the agricultural sector had a percentage value of 0.19.6%, while in the mining sector it was 0.20.8%, in 2019 the agricultural sector experienced an increase of 0.19.8%. The mining sector experienced a decrease of 0.19.8%. ,20.2%. Meanwhile, in 2020 the agricultural sector experienced a decline of 0.19.7%, while the mining sector experienced an increase of 0.26%. Meanwhile, in 2021 the agricultural sector began to increase by 0.20.5%, while the mining sector experienced a decrease of 0.18.9%. This also happened in the agricultural sector in 2022, which experienced a decrease of 0.20.2% but not in the mining sector which actually increased by 0.19.3%.

From the research results [2] in his research entitled "Analysis of the role of the agricultural sector in regional development in East Luwu Regency" stated that the agricultural sector is a basic or superior sector, this shows that the agricultural sector is capable of producing goods and according to regional needs and needs outside the East Luwu Regency area. The government's role is very important in improving the agricultural sector so that it can contribute to increasing welfare, wherever this role can be implemented and minimizing obstacles in the development of the agricultural sector in East Luwu district will have an impact on improving this sector, as an effort to improve the community's economy. On the contrary, the problem is that the area of agricultural land is getting smaller due to land conversion for housing and industry, as well as the increasing population. Apart from that, the competitiveness of agricultural products is low, such as the availability of fertilizers, seeds and pesticides. This makes it difficult to ensure food availability.

The mining sector is included as an important sector in the economy, especially in South Sulawesi Province, in plans to accelerate and expand economic development as a foreign exchange earner. East Luwu Regency is a regional Regency/City in the province of South Sulawesi. The East Luwu Regency area has enormous potential both in terms of natural resources and location for local and multinational companies in the mining sector. Regional governments also often face the problem of a lack of information about the potential and economic progress of the region itself. This causes development programs to usually be more political in nature without starting with careful observation [3].

Based on research [4] in his research entitled "Analysis of the benefits of the mining sector on the economy of East Luwu Regency" the mining and quarrying sector in East Luwu Regency is a basic sector, this sector is able to meet regional needs and even export mining

sector products to meet the needs of other regions. East Luwu, especially the mining and quarrying sector, has the highest income value when compared to sectors in other districts in South Sulawesi. Based on the results of Shitf-share analysis, the mining and quarrying area in East Luwu has slow economic growth.

Management of the agricultural category is a problem that must be faced by developed and developing countries. However, there may be significant differences in the intensity of the problem due to differences in influencing factors, such as government policies, economic growth rates and the technology used. From a macroeconomic perspective, economic growth is a sustainable and long-term increase in production output. Therefore, the contribution of the agricultural sector to increasing GRDP is quite large. Of course, increasing output from the agricultural sector will have an impact on economic growth [5]. Apart from that, East Luwu Regency has an important role in regional development in South Sulawesi Province from an economic perspective because it is supported by the Indonesian Economic Development program which places East Luwu Regency as a nickel mining center in the Sulawesi economic corridor. The mining sector plays a very important role in the economy of East Luwu Regency now and in the future. To achieve these conditions, information related to development planning is needed, with special attention given to the mining sector and other sectors. Apart from increasing its function and contribution to the economy, it must also improve relations with other industries. Based on the results of the discussion of these two sectors, the aim of this research is to determine the influence of the agricultural and mining sectors on economic growth in East Luwu Regency over the last 17 years.

2. Methodology

This research examines the influence of the agricultural sector and the mining sector on economic growth in East Luwu Regency. This research uses a quantitative analysis approach to measure the influence between variables.

Data Types and Sources

This type of research is quantitative research where quantitative research is a type of research that produces discoveries that can be obtained using statistical procedures or other means of quantification (measurement). The data collection method used in this research is secondary data taken from the Central Statistics Agency (BPS) of East Luwu Regency for 2005-2022 on the basis of constant prices.

Data analysis method

Data analysis used to determine the role of the agricultural and mining sectors on economic growth used multiple linear regression analysis using the eviews 10 analysis tool. This analysis was used to find out how much influence several independent variables had on the dependent variable (dependent) using data (time series) 17 years.

The multiple linear regression equation is:

$$Y = \alpha + b1X1 + b2X2 + e$$

Where:

Y = Economic Growth

α = Constant

b1. b2 = Regression coefficient
X1 = Agricultural sector
X2 = Mining Sector
e = Error term

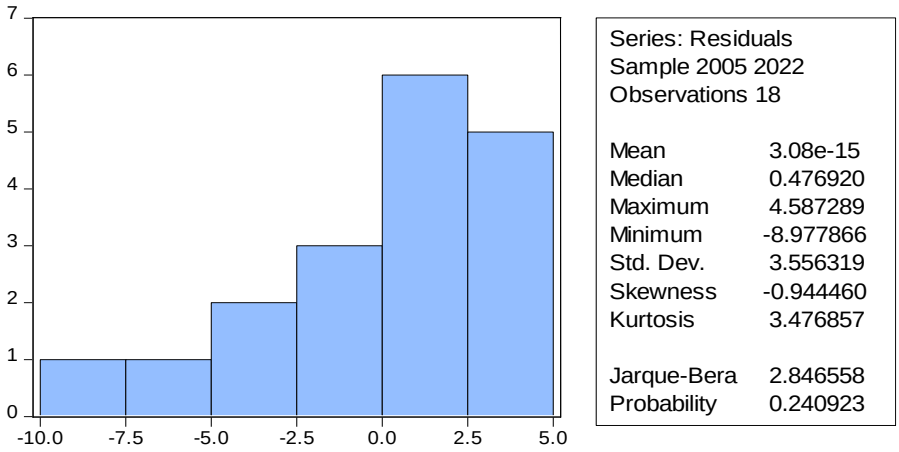
3. Result and Discussion

3.1. Result

Classic assumption test

1. Normality Test

The normality test is used to determine whether the distribution of data on a variable is normally distributed. The Jarque-Bera method looks at the probability value to determine whether the residuals are normally distributed or not.



Source: Eviews 10 output (data processed in 2023)

From the results of the normality test, it is known that the Jarque-Bera Probability value is 0.240, which is greater than 0.05, so it can be concluded that the data is normally distributed.

2. Heteroscedasticity Test

The heteroscedasticity test is used to determine whether the distribution of data on a variable does not have heteroscedasticity by looking at the Obs*R-Squared Probability value. Provided that the criteria are greater than 0.05, it can be said to have passed the heteroscedasticity test.

Table 1. Heteroscedasticity Test

F-statistic	1.418276	Prob. F(5.12)	0.2862
Obs*R-squared	6.685994	Prob. Chi-Square(5)	0.2451
Scaled explained SS	5.750088	Prob. Chi-Square(5)	0.3313

Source: Eviews 10 output (data processed in 2023)

It is known that the Obs*R-Squared Probability value is 0.245 which is greater than 0.05, so it can be concluded that the heteroscedasticity test assumptions have been met or the data does not have heteroscedasticity.

3. Multicollinearity Test

The multicollinearity test determines the relationship between independent variables in a model. To identify multicollinearity, use pairwise correlation coefficients for independent variables. According to the criteria, a variable is considered to have passed the multicollinearity test if its VIF value is more than 1 and less than 10.

Table 2. Multicollinearity Test

Variables	**Coefficient Variance**	**Uncentered VIF**	**Centered VIF**
C	15.20993	19.10032	NA
Agriculture	6.260012	42.75442	8.425012
Mining	1.450012	93.90442	8.425012

Source: Eviews 10 output (data processed in 2023)

It is known that the VIF value of the Independent variable, namely 8.42, is greater than 1 and less than 10, so it can be concluded that the multicollinearity assumption test has been fulfilled or the data does not have multicollinearity.

4. Autocorrelation Test

The autocorrelation test is used to determine whether the distribution of data on a variable does not have autocorrelation by looking at the Obs*R-Squared Probability value. Provided the criteria are greater than 0.05, it can be said to have passed the autocorrelation test.

Table 3. Autocorrelation Test

F-statistic	0.164223	Prob. F(2.13)	0.8503
Obs*R-squared	0.443564	Prob. Chi-Square(2)	0.8011

Source: Eviews 10 output (data processed in 2023)

It is known that the Obs*R-Squared Probability value of 0.801 is greater than 0.05, so it can be concluded that the autocorrelation assumption test has been fulfilled or the data does not have autocorrelation.

Hypothesis test

1. Multiple linear regression

Table 4. Multiple linear regression test results

Variables	Coefficient	Std. Error	t-Statistics	Prob
C	5.525603	1.83463	3.011835	0.0088
Agriculture	1.736105	0.589236	2.946366	0.01
Mining	8.06E-07	2.66E-07	3.029401	0.0085

Source: Eviews 10 output (data processed in 2023)

The multiple linear regression equation is as follows:

Y = 5.525 + 1.73 + 8.06

The α coefficient value is 5.525, these results show that if the value of the agricultural sector and the mining sector is 0 (zero) or constant, the economic growth rate is 5.52%. The coefficient value for the agricultural sector is 1.73 with a probability value of 0.0100 < 0.05, which means that if the agricultural sector increases by 1% it will cause economic growth in East Luwu district to increase by 1.73%.

Meanwhile, the mining sector coefficient value is 8.06 with a probability value of 0.0085 < 0.05, which means that if the mining sector increases by 1% it will cause economic growth to increase by 8.06%.

2. T test results

Table 5. Statistical t test results

Variables	Coefficient	Std. Error	t-Statistics	Prob
C	5.525603	1.83463	3.011835	0.0088
Agriculture	1.736105	0.589236	2.946366	0.0100
Mining	8.06E-07	2.66E-07	3.029401	0.0085

Source: eviews 10 output (data processed in 2023)

From the results of the t test in the table above, if the calculated prob t value is smaller than 0.05, it can be said that the independent variable has a significant effect on the dependent variable. The agricultural sector and mining sector variables each have a probability value of <0.05, which means that the two independent variables have a significant effect on economic growth in East Luwu Regency.

3. F test results

Table 6. Statistical f test results

R-squared	0.381843	Mean dependent var	5.24E-17
Adjusted R-squared	0.299422	SD dependent var	1,000000
SE of regression	0.837006	Akaike info criterion	2.63304
Sum squared resid	10.50868	Schwarz criterion	2.781435

Log likelihood	20.69736	Hannan-Quinn Criter.	2.653502
F-statistic	4.632832	Durbin-Watson stat	2.15294
Prob(F-statistic)	0.027117		

Source: eviews 10 output (data processed in 2023)

FromThe results of the f test in the table above show that the f-statistic value is 4.632 with a prob (f-statistic) value of 0.027 < 0.05, so it can be concluded that the independent variable has a significant effect simultaneously (simultaneously) on the dependent variable.

4. Test the coefficient of determination

Table 7. Coefficient of determination test results

R-squared	0.381843	Mean dependent var	5.24E-17
Adjusted R-squared	0.299422	SD dependent var	1,000000
SE of regression	0.837006	Akaike info criterion	2.63304
Sum squared resid	10.50868	Schwarz criterion	2.781435
Log likelihood	20.69736	Hannan-Quinn Criter.	2.653502
F-statistic	4.632832	Durbin-Watson stat	2.15294
Prob(F-statistic)	0.027117		

Source: eviews 10 output (data processed in 2023)

From table 4 it is known that the Adjusted R-squared value is 0.299, so it can be concluded that the contribution of the influence of the independent variables (agricultural sector and mining sector) to the dependent variable (economic growth) is simultaneously 29.9%. Meanwhile, the remaining 70.1% is influenced by other variables outside this research.

3.2. Discussion

a. The influence of the agricultural sector on economic growth in East Luwu district

Fromresults of partial hypothesis testing (H1) which has been carried out on agricultural sector variables on economic growthwith an agricultural sector coefficient value of 1.73 with a probability of 0.0100 < 0.05, it can be concluded that the agricultural sector variable has a positive and significant effect on economic growth in East Luwu district. This research is also in line with research conducted by[6]., [7] And [8] which states that the agricultural sector is one of the sectors that influences economic growth. This is indicated by the large number of people who still depend on the agricultural sector. [8] in his research entitled "the role of the agricultural sector in the economic growth of Kampar district" the results of analysis using the Klassen typology method show that the agricultural sector of Kampar district is in quadrant I, which means that the sector is developing rapidly and has a positive and significant influence on economic growth. Apart from that, the results of the location quotient analysis show that the agricultural sector has become a base sector, which means that its production can meet the

needs of the people of Kampar district and can be sold to other areas. This is also in accordance with Kuznet's theory that a country's economic growth is influenced by the growth of the sectors themselves.One of the causes of the low increase in the agricultural sector is caused byThe area of agricultural land is increasingly narrowing due to land conversion for housing and industry, as well as the increasing population.

b. The influence of the mining sector on economic growth in East Luwu district

Based on the results of the second hypothesis (H2) which has been partially carried out between the variables of the mining sector on economic growth with a mining sector coefficient value of 8.06 with a probability value of 0.0085 < 0.05, it can be concluded that the mining sector variable has a positive and significant effect on economic growth in Luwu district East. This is in line with research [8] in his research entitled "The impact of mining forgeign direct investment on economic growth in Ghana"states that direct investment in the mining sector provides benefits for economic growth. Apart from that, research has been carried out[9]entitled "The influence of the mining and quarrying sector on Indonesia's economic growth." Based on the results of research that has been carried out, it is stated that in Indonesia, economic growth is not balanced with the mining and quarrying sector, in other words, economic growth is not balanced with the mining sector in the long term.

4. Conclusion

Based on the results of the discussion regarding the influence of the agricultural sector and the mining sector on economic growth in East Luwu Regency using multiple linear regression analysis, the following conclusions can be drawn:

1. The agricultural sector has a t-value of2.946366 with a probability value of 0.01 < 0.05, it can be concluded that the agricultural sector variable has a positive and significant effect on economic growth in East Luwu district. This shows that if the agricultural sector increases its production output, it will have an impact on economic growth. Based on the results of multiple linear regression testsThe coefficient value for the agricultural sector is 1.73 with a probability value of 0.0100 < 0.05, which means that if the agricultural sector increases by 1% it will cause economic growth in East Luwu district to increase by 1.73%.
2. The mining sector has a t-count of 3.029401 with a probability value of 0.0085 <0.05 so it can be concluded that the mining sector variable has a positive and significant effect on economic growth in East Luwu district. This shows that if the mining sector increases production output it will have an impact on economic growth. Based on the results of the multiple linear regression testThe mining sector coefficient value is 8.06 with a probability value of 0.0085 <0.05, which means that if the mining sector increases by 1% it will cause economic growth to increase by 8.06%.

5. Suggestion

1. In order for the agricultural sector to improve the economy of East Luwu Regency, the government must give full attention to this sector in both the short and long term.

2. It is hoped that the government can utilize the mining sector to improve other sectors. Development in the mining sector, which is part of the primary sector, will have a major impact on the regional economy.
3. It is hoped that future researchers can develop more in-depth research regarding the influence of the agricultural and mining sectors on economic growth.

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