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Author : Hairani, and Syech Suhaimi
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The Influence of the Agricultural Sector and the Industrial Sector on Economic Growth in Deli Serdang Regency

Hairani, Syech Suhaimi

Development Economics Study Program, Faculty of Economics and Business, Universitas Sumatera Utara
Prof. T.M. Hanafiah Street, Medan 20155, Indonesia

hairanihairani459@students.usu.ac.id, Syech.suhaimi@usu.ac.id

Abstract

This study aims to test and analyze the influence of the agricultural sector and the industrial sector on economic growth in Deli Serdang Regency. The type of research used in this study is quantitative descriptive while the data source used in this study is secondary data from the Central Statistics Agency (BPS). The objects of this study are the agricultural sector and the industrial sector in Deli Serdang Regency. This study uses panel data with cross section 2 and time series for 30 years, starting from 1994 to 2023. The analysis method used is multiple linear regression. The results of this study indicate that the agricultural sector has a positive but not significant effect on economic growth in Deli Serdang Regency. the industrial sector has a positive effect on economic growth in Deli Serdang Regency. The agricultural sector and the industrial sector together (simultaneously) have a positive effect on economic growth in Deli Serdang Regency.

Keywords: Economic Growth; Agricultural Sector and Industrial Sector

1. Introduction

Economic growth is one of the important indicators in assessing the success of a country's development. In Indonesia, which is an agricultural country and has great potential in the agricultural sector and the industrial sector. Both sectors play an important role in contributing to national economic growth. The agricultural sector with its abundant natural resources has become the backbone of the Indonesian economy, while the industrial sector has shown significant growth and contributed to job creation. [1] economic growth is the development of economic activities that occur from time to time and cause real national income to increase. [2] The economic growth rate shows the percentage increase in real national income in a particular year when compared to the real national income of the previous year. The agricultural sector has played a role in the national economy through the formation of GDP, foreign exchange earnings, provision of food and industry, poverty alleviation, job creation, and increasing community income. The agricultural sector has a large multiplier effect in the future through the input-output-outcome linkages between industry, consumption, and investment. The role of the agricultural sector in economic development is very important, because most Indonesians depend on this sector for their livelihoods. The agricultural sector is still part of the potential development resources to be used as a strategic sector for current and future development planning, both at the national and regional levels.

Table 1.1 PDRB growth in Deli Serdang Regency

OBJECT	CONTRIBUTION					GROWTH				
	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
AGRICULTURAL SECTOR	11,87	12,18	12,25	12,30	11,94	4,38	0,74	2,84	5,10	2,29
INDUSTRIAL SECTOR	30,76	30,72	30,89	29,80	28,86	3,82	(1,92)	2,82	1,01	2,00

Source: *Badan Pusat Statistik, 2024*

It can be seen that for Indonesia the contribution of the agricultural sector in 2023 is 11.82 percent, the industrial sector is 20.39 percent. Meanwhile, for Indonesia the growth rate of the agricultural sector in 2023 is 1.30 percent, the industrial sector is 4.64 percent. The contribution of the agricultural sector in North Sumatra in 2023 is 25.45 percent, the industrial sector is 17.15

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percent. Meanwhile, for North Sumatra the growth rate of the agricultural sector in 2023 is 3.02 percent, the industrial sector is 3.44 percent. For Deli Serdang the contribution of the agricultural sector in 2023 is 11.94 percent, the industrial sector is 28.86 percent. And for Deli Serdang the growth rate of the agricultural sector in 2023 is 2.29 percent, while in the industrial sector it is 2.00 percent.

The industrial sector is considered as the leading sector in relation to the success of a development, namely that with the existence of industrial development it is expected to spur and encourage the development of other sectors, such as the service sector and the agricultural sector. The rapid growth of industry will spur the growth of the agricultural sector in order to provide raw materials for industrial activities. The service sector also develops with industrialization, for example the establishment of financial institutions, marketing or advertising institutions. Based on the background description above, it can be concluded that there is a very close relationship between the variables of the agricultural sector and the industrial sector on economic growth. This means that economic growth will increase if there are changes in the agricultural sector and the industrial sector, so that economic growth will occur. So the researcher is interested in conducting a study entitled "The Influence of the Agricultural Sector and the Industrial Sector on Economic Growth in Deli Serdang Regency".

2. Literature Review

2.1 Adam Smith's theory

According to [3] Smith divides the history of human civilization into four stages, namely: first, the hunting stage, second, the herding stage, third, the agricultural stage, fourth, the trade stage.

2.2 Agricultural Sector

"Sustainable Superior Industrial Agriculture, Based on Local Resources to Increase Food Independence, Added Value, Exports and Farmer Welfare. The agricultural sector is very important because it provides various products needed by the entire population of Indonesia. This sector is also very much needed as one of the main components in the government's programs and strategies to eradicate poverty. However, the main factor in the agricultural production system, namely agricultural land, has not received special attention from the government. Rice fields that are relied on as producers of the main food ingredients tend to decrease in their raw area due to the conversion of land to non-agricultural areas. Likewise, dry land agriculture has continued to decline in recent decades due to erosion, landslides, pollution, fires, and so on [4].

2.3 Industrial Sector

That industrialization was a catalyst for economic growth for many countries in the twentieth century is undeniable. Industrialization has become a highly emphasized development strategy, as many other countries even see industrialization as a basic means to overcome their economic backwardness. While the exact relationship between industrialization and economic development has been a controversial issue in the economic literature, few economists doubt the capacity of industry for rapid growth and in turning the tables of economic progress sharply [5].

3. Research Method

The type of research used is quantitative research. Research quantitative aims to show the development of research hypotheses by using research tools to collect data. Based on the type of data used in this research, namely secondary data. the data used is the data on the growth rate of gross regional domestic product at constant prices in 2010 according to the business sector in Deli Serdang Regency. the data used in this study was obtained from the Central Statistics Agency.

The data analysis technique used is the multiple linear regression . multiple linear regression aims to analyze the effect of independent variables on the dependent variable, both partially and simultaneously. The general multiple linear regression model used in this study is:

$$Y = \boldsymbol{\alpha} + \boldsymbol{b1X1} + \boldsymbol{b2X2} + e$$

4. Results and Discussion

4.1 Normality Test

Descriptive statistics are a description of the data that can be seen from the average value, standard deviation, maximum, and minimum on each of the variables studied. The dependent variable in this study is the Islamic Stock Index and the independent variables are Inflation, Growth Economy and Interest. The results are as follows:

Table 4.1. *Normality Test*

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		30
Normal Parameters[a,b]	Mean	0,00E+00
	Std. Deviation	153.834.609
Most Extreme Differences	Absolute	.172
	Positive	.172
	Negative	-.161
Kolmogorov-Smirnov Z		.943
Asymp. Sig. (2-tailed)		.336

a. Test distribution is Normal.

b. Calculated from data.

Source: spss

From the table above, it can be seen that the Kolmogorov-Simirnov z value is 0.943 and is greater than 0.05 (0.943>0.05). So it can be concluded that the data is normally distributed.

4.2 Multicollinearity Test

Multicollinearity test is conducted to see whether there is a high correlation between independent variables in a multiple linear regression model. The prerequisite that must be met in this regression model is the absence of multicollinearity. Multicollinearity testing using SPSS is shown in the coefficient table, namely the Tolerance column and the VIF variance inflated factory column. as shown in the image below.

Table 4.2 Multicollinearity Test

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
AGRICULTURAL SECTOR	.723	1.383
INDUSTRIAL SECTOR	.723	1.383

Source: SPSS

Based on the calculation results using the SPSS 20 program in the table above, the tolerance value is 0.723>0.10 and the VIF value is 1.383<10.0, so it can be concluded that there is no multicollinearity between the agricultural sector variables (X1) and the industrial sector (X2).

4.3 Autocorrelation Test

Table 4.3 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.929[a]	.863	.853	159.430	1.554

Source: SPSS

The criteria for determining whether or not there is an autocorrelation symptom is done by looking at Durbin Watson, if the DW number is between -2 and +2, it means there is no autocorrelation problem. Based on table, the DW value produced by the regression model is 1.554. This means that DW (1.554) is between -2 and +2 (-2<DW<2), so it can be concluded that there is no autocorrelation problem.

4.4 Heteroscedasticity Test

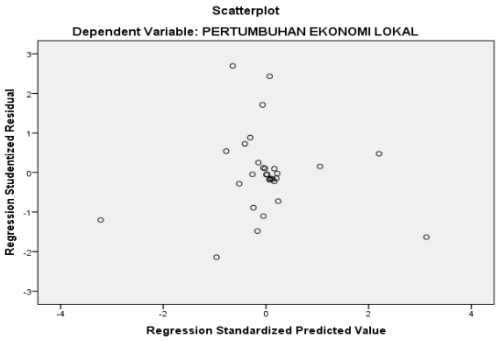

Figure4.1 Heteroscedasticity Test

Source: SPSS

Based on the scatterplot graph, it can be seen that the data distribution is around the zero point and spreads randomly or does not form a clear pattern. Thus, it can be concluded that there is no heteroscedasticity in the regression pattern so that the regression model is suitable for use.

4.5 Multiple Linear Estimation Results

Table 4.4 Multiple Linear Estimation Results

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2.576	.597		4.315	.000		
AGRICULTURAL SECTOR	.073	.119	.051	.614	.544	.723	1.383
INDUSTRIAL SECTOR	.618	.057	.901	10.776	.000	.723	1.383

Source: SPSS

Based on the results of the SPSS program calculations in the table above, the multiple linear regression coefficient for X1 = 0.073 X2 = 0.618 is obtained while the regression constant is 2.576 so that the multiple linear regression equation is:

$Y = a + \boldsymbol{b1X1} + \boldsymbol{b2X2}$

Y = 2.576 + 0.073 X1 + 0.618 X2

Description:

Y = economic growth

X1 = agricultural sector

X2 = industrial sector

From this equation, it is known that the influence of the agricultural sector on economic growth based on the regression coefficient obtained is 0.073. This means that if the agricultural sector increases by one percent (1%) then the economic growth of Deli Serdang Regency will increase by 0.073 percent on condition that other independent variables remain constant.

The influence of the industrial sector on economic growth is calculated based on the regression coefficient obtained, which is 0.618. This means that if the influence of the industrial sector increases by one percent (1%), then economic growth in Deli Serdang Regency will increase by 0.618 percent on condition that other independent variables have a fixed value. The constant (a) is 2.576, meaning that if the independent variables, namely the agricultural sector and the industrial sector, do not exist or are equal to zero, then the constant economic growth is 2.576.

4.6 t-test (Partial Test)

Table 4.5 t-test (Partial Test)

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.576	.597		4.315	.000
AGRICULTURAL SECTOR	.073	.119	.051	.614	.544
INDUSTRIAL SECTOR	.618	.057	.901	10.776	.000

Source: SPSS

From the table above, it can be seen that the t-test results for the agricultural sector variable (X1) show a $thitung$ value of 0.614 and a significance value of 0.544. Thus, $thitung<ttabel$ (0.614<2.052) and the sig value (0.54>0.05). This means that Ho is accepted and Ha is rejected, where the agricultural sector variable (X1) has a positive but insignificant effect on economic growth in Deli Serdang Regency. Meanwhile, the t-test results for the Industrial sector variable (X2) show a $thitung$ of 10.776 and a significance value of 0.000. Thus, $thitung>ttabel$ (10.776> 2.052) and a sig value (0.000<0.05). This means that Ho is rejected and Ha is accepted, where the industrial sector variable (X2) has a positive effect on economic growth in Deli Serdang Regency.

4.7 f-test (Simultaneous Test)

Table 4.6 f-test (Simultaneous Test)

ANOVA[a]					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	434.054	2	217.027	85.383	.000[b]
Residual	68.629	27	2.542		
Total	502.683	29			

Source: SPSS

From the table above, it can be seen that the results of the F test show that $Fhitung$ is 85.383 and the sig value is 0.000. Thus $Fhitung>Ftabel$ (85.383>3.34) and the sig value (0.000<0.05). This shows that the Agricultural Sector and the Industrial Sector have a significant influence simultaneously on Economic Growth in Deli Serdang Regency.

*4.8 Coefficient of Determination (**R2**)*

Table 4.7 Coefficient of Determination

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.929[a]	.863	.853	159.430

Source: SPSS

Based on table 4.10 of the test results above, the coefficient of determination value produced is 0.853 (85%), meaning that the economic growth variable can be explained by the agricultural sector and the industrial sector by 85%, while the remainder (100%-85%= 15%) is explained by other variables outside the model.

4.9 discussion

1. The influence of the agricultural sector on economic growth

Based on the results of the study conducted using the SPSS program. The hypothesis of this variable is that the agricultural sector has a positive effect on economic growth in Deli Serdang Regency. Judging from the partial significance test (t-test), the results of the t-test for the agricultural sector variable (X1) show a value of $thitung$ of 0.614 and a significance value of 0.544.

Thus $thitung<ttabel$ (0.614<2.052) and the sig value (0.54>0.05). This means that Ho is accepted and Ha is rejected, where the agricultural sector variable (X1) has a positive but not significant effect on economic growth in Deli Serdang Regency.

However, the results of this study contradict the theory [6]where the agricultural sector is a strategic sector that plays an important role in the national economy and the survival of the community. Where if the contribution of the agricultural sector increases more or less, it can affect other sectors, namely as a provider of input (goods and services) between other sectors which can ultimately affect economic growth. The results of this study are in line with previous research [7] The results of the study concluded that the agricultural sector had a positive but not significant effect on the economic growth of Nagekeo Regency. The processing industry sector has a positive and not significant effect on the economic growth of Nagekeo Regency. Based on the results of the simultaneous test (f test), it shows that the agricultural and processing industry sectors have an effect on the economic growth of Nagekeo Rege.

2. The influence of the industrial sector on economic growth

The hypothesis of this variable is that the industrial sector has a positive effect on economic growth in Deli Serdang Regency. Based on the results of previous calculations, the t-test results for the Industrial sector variable (X2) showed a $thitung$ of 10.776 and a significance value of 0.000. Thus, $thitung>ttabel$ (10.776> 2.052) and a sig value (0.000<0.05). This means that Ho is rejected and Ha is accepted, where the industrial sector variable (X2) has a positive effect on economic growth in Deli Serdang Regency. The results of this study are in line with the research conducted [8]The results obtained are that the industrial sector has a positive and significant effect on economic growth.

Industry has a role as a leading sector, meaning that with the development of industry, it will spur and raise the development of other sectors such as the agricultural and service sectors. Rapid growth of the industrial sector will stimulate the growth of the agricultural sector to provide raw materials for an industry. With the existence of this industry, it is also possible for the development of the service sector. This study also has the same results as the theoretical basis [9] the rapid growth of one or more industries encourages the expansion of other industries related to the industry that grew first. In the production sector, the driving mechanism for development is created as a result of the relationship between various industries in providing goods used as raw materials for other industries. Thus, it can be said that industry plays an important role in the economic development of a region because through industrial development, it will spur and raise the development of other sectors, it is hoped that it can create job opportunities that can absorb more workers and in turn increase the income of the community as a whole, because the economic growth of a region is marked by an increase in the per capita income of its people.

So, Hirchman's theory applies to the conditions that occur in Deli Serdang Regency, because the industrial sector has a positive influence on economic growth in Deli Serdang Regency.

3. The influence of the agricultural sector and industrial sector on local economic growth in Deli Serdang Regency.

Based on the results of the previous tests, the F test results showed that $Fhitung$ was 85.383 and the sig value was 0.000. Thus $Fhitung>Ftabel$ (85.383>3.34) and the sig value (0.000<0.05). This means that Ho is rejected and Ha is accepted. So it can be concluded that the agricultural sector and the industrial sector together (simultaneously) have an effect on economic growth in Deli Serdang Regency.

5. Conclusions

Based on the results of research on the influence of the agricultural sector and the industrial sector on economic growth in Deli Serdang Regency using the classical assumption test and hypothesis test. Thus, based on the results of the analysis test, the agricultural sector is proven to have a positive but insignificant influence on economic growth in Deli Serdang Regency. On the other hand, the industrial sector has a significant influence on economic growth in Deli Serdang Regency. Simultaneously, the agricultural sector and industrial sector variables have a significant influence on economic growth in Deli Serdang Regency. Based on the results and discussion of the research conducted, it can be concluded:

1. The agricultural sector has a positive but insignificant effect on economic growth in Deli Serdang Regency. Where the value of $thitung<ttabel$ then Ho is accepted and Ha is rejected. So the agricultural sector has a positive but insignificant effect on economic growth in Deli Serdang Regency.
2. The industrial sector has a positive effect on economic growth in Deli Serdang Regency. Where the value of $thitung>ttabel$ then Ho is rejected and Ha is accepted. So the industrial sector has a positive effect on economic growth in Deli Serdang Regency.
3. The Agricultural Sector and the Industrial Sector have a positive effect on economic growth in Deli Serdang Regency. Where the value of $Fhitung>Ftabel$ this shows that the Agricultural Sector and the Industrial Sector have a significant influence simultaneously on Economic Growth in Deli Serdang Regency

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