The Influence of Agriculture and Industry Sectorson GRPDin Serdang Bedagai Regency

Zuhari
Postgraduate Economy
State University of Medan
Medan, Indonesia
Email : zuhari@unimed.ac.id

M. Fitri Rahmadana
Postgraduate Economy
State University of Medan
Medan, Indonesia

Arwansyah
Postgraduate Economy
State University of Medan
Medan, Indonesia

***Abstract*-This study aims to determine the effect of agriculture and industry sectors on GRDP in Serdang Bedagai Regency. This study uses secondary data obtained from the Central Statistics Agency (CSA) of Serdang Bedagai Regency. The tools used to process the data are Eviews 9. The data analysis technique in this study uses OLS (Ordinary Least Square) method, classic assumption test and statistical test. The results showed that the agriculture sector partially had a positive and significant effect on GRDP, and the industrial sector had a positive and significant effect on GRDP. Simultaneously the agricultural and the industrial sectors have a positive and significant effect on GRDP in Serdang Bedagai Regency. In the estimation result the OLS method shows the value of the regression coefficient of determination (R^2) of 99.8518%. This means that each increase of each variable by 1%, it will affect the GRDP.**

Keywords: Agriculture Sector, Industrial Sector, GRDP

I. INTRODUCTION

Development requires a strong foundation, namely making appropriate, accurate and fast policies. In order for the results to be achieved as planned, correct policies are needed. Of course, decision making is not only based on descriptive analysis, but needs to be supported by quantitative analysis of the various available indicators. One of the indicators needed is regional policy making, regional policies are used to determine the level of economic growth and the state of the economy in a region (BPS, 1996).

According to M. Suparmoko (1997) there are five stages of economic development, namely: Traditional society; Prerequisites for take off society; Takes off society; Towards maturity society; Excessive consumption society. GRDP is one of the measuring tools used to describe the success rate of development (Tarigan, 2005).

Regional development in this case Serdang Bedagai Regency which is part of the national development of its economic development is driven by sectors such as agriculture and industry. Agriculture in Serdang Bedagai Regency in particular is widely spread in highland areas or hilly areas, so the location of this research will be directed at the Serdang Bedagai Regency area which has a large enough potential in the agricultural sector and contributes significantly toefforts to achieve food security in the Serdang Bedagai Regency area.

TABLEI. GROWTH RATE OF GROSS REGIONAL DOMESTIC PRODUCT BASED ON 2000 PRICES BY BUSINESS FIELD, 2000-2013 (PERCENT)

No	Lapangan Usaha	Tahun				
		2009	2010	2011	2012	2013
1.	Pertanian	4.89	5.30	4.21	4.54	5.19
2.	Pertambangan dan Penggalian	7.41	7.33	7.17	6.68	6.67
3.	Industri	4.85	5.33	5.39	5.30	5.13
4.	Listrik, Gas dan Air Minum	8.75	8.84	8.91	7.05	6.59
5.	Bangunan	8.41	8.78	8.76	10.57	7.63
6.	Perdagangan, Hotel dan Restoran	6.06	5.51	5.74	5.66	6.25
7.	Pengangkutan dan Komunikasi	7.15	6.11	5.97	5.78	6.84
8.	Keuangan, Usaha Persewaan dan Jasa Perusahaan	8.78	8.53	8.17	6.24	7.73
9.	Jasa Kemasyarakatan, Sosial dan Perorangan	8.42	8.70	11.14	8.79	7.51
	PDRB	5.92	6.14	5.98	6.00	5.97

Source:CSA Serdang Bedagai Regency, 2013

In Table I. above, a comparison between the agricultural sector and the industrial sector in Serdang Bedagai Regency can be seen. Where in 2009 - 2013 it was clear that the industrial sector GRDP increased above the agricultural sector. In 2009, the industrial sector GDP growth rate at constant prices was 4.85, while the agricultural sector was 4.89. In 2010 the industrial sector GDP growth rate was based on constant prices, namely 5.33, while agriculture was 5.30. In 2011, the industrial sector GDP growth rate was based on constant prices, namely 5.39, while agriculture was 4.21. In 2012, the industrial sector GDP growth rate was based on constant prices, namely 5.30, while agriculture was 4.54. Then in 2013 the industrial sector GDP growth rate was based on constant prices, namely 5.13, while agriculture was 5.19. It can be concluded that the industrial sector has a more superior contribution than agriculture.

The development in the industrial sector in Serdang Bedagai Regency is increasing along with the development of Serdang Bedagai Regency. The trigger, among others, is the existence of a large industrial area, which attracts residents of Serdang Bedagai Regency and its surroundings to work and

earn a living. The industrial sector in Serdang Bedagai Regency is based on 2019 BPS data, there are 169 industrial business fields.

The objectives of this study are:

1. To determine the influence of the agricultural sector on GRDP in Serdang Bedagai Regency.
2. To determine the influence of the industrial sector on GRDP in Serdang Bedagai Regency.
1. To determine the influence of the agricultural sector and the industrial sector on GRDP in Serdang Bedagai Regency.

II. THEORY FRAMEWORK

The theory of economic growth can be classified into several groups, namely classical theory, neoclassical theory, Rostow theory, and Kuznet theory. Here's the explanation:

1. Classical Theory
   a. The theory of economic growth according to Adam Smith
      Adam Smith described his opinion on how to analyze economic growth through two factors, namely the total output factor and the population growth factor. The calculation of total output is carried out with three variables, including natural resources, human resources, and capital stock. Meanwhile, the second factor, namely population growth, is used to determine the market area and the rate of economic growth.
   b. Economic Growth Theory according to David Ricardo
      David Ricardo's best-known thinking on economic growth is about the law of diminishing returns. His thinking is about how population or workforce growth is able to affect the decline in marginal productsdue to the limited amount of land. According to him, increasing labor productivity really requires technological progress and sufficient capital accumulation. Thus, economic growth can be achieved.
2. Neoclassical Theory
   Robert Solow argues that economic growth is a series of activities originating from four main factors, namely humans, capital accumulation, modern technology and output.
3. According to Rostow, economic growth is the transformation of a traditional society into a modern society, through the following stages: traditional society, prerequisites for takeoff, maturity stage, and high consumption society. Rostow defines economic growth as a process that causes changes in society, namely changes in politics, social structures, and structures of economic activity.
4. Kuznet defines economic growth as the long-term ability to provide various types of economic goods that continue to increase to society. This capacity grows on the basis of the technological, institutional and ideological advances it requires.

Economic base theory states that the main determinant of economic growth in a region is directly related to the demand for goods and services from outside the region (Arsyad, 2004). Or it can also be said that the basic sector is able to encourage regional economic growth (Tarigan, 2007).

The economic base bases the approach on the assumption that the local economy can be divided into two major sectors, namely:

1. Basic sector (non-local sector), namely sectors or economic activities that serve both the domestic market and markets outside the region itself. This means that regions indirectly have the ability to export goods and services produced by the sector to other regions.
2. Non-basic sectors, namely sectors or activities that are only able to serve the regional market itself.

Thus the economic basis theory is used to observe economic sectors and identify them into basic and non-economic base sectors. Based on this theory, the basic sector needs to be developed in order to spur economic growth in a region.

Agriculture is a culture that was first developed by humans as a response to the challenges of survival which gradually becomes difficult due to the depletion of food sources in the wild due to the rate of human growth (Nurmala, 2012).

Muhammad Teguh (2010) defines that micro-industry is a collection of companies that produce homogeneous goods, or goods that have very close interchangeability. However, in termsof income formation at a macro level, industry is defined as economic activities that create added value.

According to Tarigan (2005), Gross Regional Domestic Product (PDRB) is the amount of gross value added arising from all economic sectors in a region.

Starting from the theory that underlies this research, a model can be developed in this study, namely:

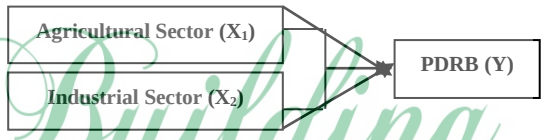


Fig.1. Conceptual Framework Scheme

The hypotheses in this study are:

1. It is suspected that the agricultural sector has a positive and significant effect on GRDP in Serdang Bedagai Regency.
2. It is suspected that the industrial sector has a positive and significant effect on GRDP in Serdang Bedagai Regency.
3. It is suspected that the agricultural sector and the industrial sector have a positive and significant effect on GRDP in Serdang Bedagai Regency.

III. METHODOLOGY

The focus of this research is the influence between the agricultural sector and the industrial sector on GRDP. In this study, 2 variables X and Y variable will be examined, namely the agricultural sector (X1), industrial sector (X2), and GRDP (Y).

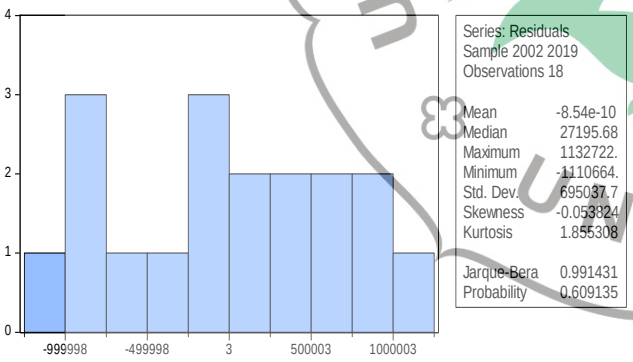
The data used for this research is secondary data taken from CSA Serdang Bedagai Regency. Annual data is collected based on data from the Agriculture Sector, Industrial Sector and GRDP for Serdang Bedagai District from 2004 to 2015.

The methods of data analysis,are:

1. OLS (Ordinary Least Square) Method.
2. Test classic assumptions namely normality, heteroscedasticity, and multicollinearity.
3. The statistical test consists of the R^2 test, the F test, and the t test.

IV. RESULTS AND DISCUSSION

To test the data normality assumption, it is carried out using the Jarque-Bera (JB) test. If the calculated probability of JB is greater than the Chi-Square value α= 0.05 then the data is normally distributed, but if it is smaller than the Chi-Square value α= 0.05 then the data is not normally distributed.



Source: Eviews Data Processing 9

Fig. 2. Normality Test Results

Based on the results of the normality test in Fig.2. above, it is found that the Jarque-Bera value is 0.991431 with a probability of 0.609135> α = 0.05. Thus it can be concluded that the data from the variables in this study were normally distributed.

The heteroscedasticity test was carried out to test whether there was a regression model where residual variance inequality occurred fromone observation to another. It is said that there are no symptoms of heteroscedasticity if the F-Statistical Probabilityvalue> α = 0.05, and vice versa if the F-StatisticalProbability value<α = 0.05 then there are heteroscedasticity symptoms.

TABLEII. HETEROSKEDASTICITY TEST RESULT

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.808064	Prob. F(2,15)	0.4642
Obs*R-squared	1.750726	Prob. Chi-Square(2)	0.4167
Scaled explained SS	0.519934	Prob. Chi-Square(2)	0.7711

Source: Eviews Data Processing 9

Based on the results of the heteroscedasticity test in Table II above, it shows that the F-Statistical Probability value is 0.4642>α = 0.05. This means that there are no symptoms of heteroscedasticity in this research model.

Multicollinearity test is used to test whether there is a relationship between independent variables in the model. To detect a relationship between variables in this study by looking at the correlation coefficient between each variable, if the correlation value between the independent variables R2 is greater than 0.9 then multicollinearity occurs in the regression model. But if the correlation coefficient between each independent variable R2 is smaller than 0.9, then there is no multicollinearity in the regression model.

TABLE III. MULTICOLLINEARITY TEST RESULTS

Variable	SP	SI
SP	1.000000	0.972076
SI	0.972076	1.000000

Source: Eviews Data Processing 9

Based on Table III above, it can be seen that there is no relationship between the independent variables with a value greater than 0.9 or each independent variable R^2<0.9. So it can be concluded that the variable data in this research model does not have multicollinearity.

From testing the hypothesis formulated in this study, an estimate was made using the Ordinary Least Square (OLS) model to determine the effect of changes in an independent variable, namely the agricultural sector and the industrial sector on the dependent variable, namely GRDP.

TABLE IV.OLS METHODESTIMATION RESULTS(*ORDINARY LEAST SQUARE*)

Dependent Variable: PDRB
Method: Least Squares
Date: 03/17/20 Time: 18:17
Sample (adjusted): 2002S1 2010S2
Included observations: 18 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-485.5819	158.3419	-3.066667	0.0078
SP	0.971101	0.264758	3.667886	0.0023
SI	3.247947	0.531053	6.116046	0.0000

R-squared	0.998518	Mean dependent var	13083.67
Adjusted R-squared	0.998321	S.D. dependent var	8334.952
S.E. of regression	341.5561	Akaike info criterion	14.65591
Sum squared resid	1749908.	Schwarz criterion	14.80431
Log likelihood	-128.9032	Hannan-Quinn criter.	14.67637
F-statistic	5054.255	Durbin-Watson stat	0.961538
Prob(F-statistic)	0.000000		

Source: Eviews Data Processing 9

Based on the estimation results as shown in Table IV, the constant value is (a) -485.5819; b1 of 0.971101; and b2 of 3.247947 in order to obtain the regression equation:

GRDP = a + b1 SP + b2 SI + e

GRDP = -485.5819 + 0.971101 SP + 3.247947 SI + e

Where the variables of the agricultural sector and the industrial sector have a significant influence on the GRDP variable in Serdang Bedagai Regency. This can be seen from the information as follows:

1. The regression coefficient value of the agricultural sector variable (SP) is positive at 0.971101, which means that every 1% increase in the agricultural sector will cause an increase in GRDP of 97.1101%. This means that the more the agricultural sector increases, the GRDP will also increase.
2. The regression coefficient value of the industrial sector variable (SI) is positive at 3.247947 which means that every 1% increase in the industrial sector will cause an increase in GRDP of 3.247947%. This means that as the industrial sector increases, the GRDP will also increase.

The following is the interpretation of the results of the partial significance test (t-test), namely:

1. Based on the results of the partial significance test (t-test) in table 4.4, the tcount value is 3.667886 with a probability value of 0.0023 <α 0.05%. Thus it can be concluded that the agricultural sector variable (SP) has a positive and significant effect on GRDP.
2. Based on the results of the partial significance test (t-test) in table 4.4, the t-count value is 6.116046 with a probability value of 0.0000 <α 0.05%. Thus it can be concluded that the industrial sector variable (SI) has a positive and significant effect on GRDP.

From the estimation results in table 4.4 it is known that the estimation results of fcount 5054.255 with a probability value of 0.000000 <α = 0.05, which means that simultaneously all the independent variables in this research model are the agricultural sector (SP) and the industrial sector (SI). has a positive and significant effect on the dependent variable, namely GRDP in Serdang Bedagai Regency.

The estimation results of the research model with the OLS model show a R^2 value of 0.998518, which means that 99.8518% of the independent variables, namely the agricultural sector (SP) and the industrial sector (SI) can explain the dependent variable, namely GRDP, while the remaining 0.1482% is explained by other variables outside the model. With R^2 of 0.998518, the estimation results meet the suitability test from the aspect of the coefficient of determination, so the estimation results are worthy of analysis.

V. CONCLUSION

Based on various tests and data analysis, from this research several conclusions can be drawn regarding the analysis of the influence of the agricultural sector and the industrial sector on GRDP in Serdang Bedagai Regency:

1. Partially (t-test) there is a variable in the agricultural sector that has a positive and significant effect on GRDP where the tcount value of 3.667886 is obtained with a probability value of 0.0023 <α 0.05%, and the industrial sector has a positive and significant effect on GRDP where it is obtained. tcount value 6.116046 with a probability value of 0.0000 <α 0.05%. While overall (F-test) it is known that all independent variables, namely the agricultural sector and the industrial sector, obtained a value of 5054.255 with a probability value of 0.000000 <α = 0.05, which means that simultaneously all independent variables have a positive and significant effect on the variable. dependent, namely GRDP in Serdang Bedagai Regency.
2. The estimation results of the OLS method show that the regression coefficient is positive in the variables of the agricultural and industrial sectors. This means that the GRDP is influenced by the variables of the agricultural sector and the industrial sector with a coefficient of determination (R^2) of 99.8518%, the remaining 0.1482% is influenced by other variables.

Based on the conclusions that have been drawn, the suggestions that can be given based on the results of this study are:

1. The Government of Serdang Bedagai Regency to give top priority to the development of superior sectors, namely the agricultural sector and the industrial sector which has a competitive advantage as a driver of economic growth in Serdang Bedagai Regency without neglecting other sectors.
2. Increasing the competitiveness of the agricultural and industrial sectors through the implementation of regional policies that encourage investment from the private sector that will drive the economy of Serdang Bedagai Regency.
3. The Government of Serdang Bedagai Regency to increase the cooperation with the private sector, especially in terms of capital and technology to increase production and added value of agricultural products.
4. The government needs to pay more attention to and endeavor to support economic growth in Serdang Bedagai Regency so that people can take opportunities to develop more productive businesses.

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