

Analysis of the Competitive Leading Sector in Agricultural Sub Sectors and the Effect on GRDP in Serdang Bedagai Regency

Pratama Hartadi¹, Muhammad Yusuf¹ and Muhammad Fitri Rahmadana¹

¹*Department of Economy, Postgraduate Faculty, State University of Medan*

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Abstract: The Agriculture, Forestry and Fisheries sector is the largest contribution sector to GRDP in Serdang Bedagai Regency with 39.14 percent average contribution in 2011-2016 (year of conservation). The aims of this research : (1) to determine the leading sub-sectors in the agriculture, forestry and fisheries sector in Serdang Bedagai Regency, (2) to determine the leading of agricultural sub sector effect on GRDP in Serdang Bedagai Regency. The data in this study were obtained from The Central Bureau of Statistics (BPS) of North Sumatera Province and Serdang Bedagai Regency. This research used a type of descriptive research with a quantitative approach. The analysis used in this research are descriptive analysis, location quotient (LQ), and simple linear regression. The results of this research that the agriculture, livestock and fisheries sector is the leading sector base in Serdang Bedagai Regency. Agriculture, livestock and service; and the fisheries sub sector is a leading sub sector of the agriculture, livestock and fisheries sector in Serdang Bedagai Regency. The fisheries sub sector is the most leading agricultural sub sector in Serdang Bedagai Regency. Furthermore, the LQ variable in the agriculture, livestock and fisheries sub sector has a positive and significant influence on economic growth in Serdang Bedagai Regency.

1 INTRODUCTION

Indonesia is a developing country with the agricultural sector as a source of livelihood for the majority of its population. Most of the land use in the Indonesian territory is used as agricultural land and almost 50 percent of the total workforce still depends on their life necessities in the agricultural sector. This situation requires government policies in the agricultural sector to be adjusted to the conditions and developments that occur in the field in overcoming various problems related to the welfare of the nation, Tambunan in Yamin (2005).

The agricultural sector has an important role in Indonesian economy, because the agricultural sector serves as the basis or foundation of economic development. The agricultural sector is one of the leading sectors in the economy and has a role as a buffer for national development, so the government programs in agricultural development are directed at increasing income and living standards such as expanding employment, business opportunities and markets for various products produced. Furthermore,

with the existence of more advanced and efficient agricultural development, it is expected to be able to increase the diversity of yields, improve the quality and degree of production processing can support regional development.

The agricultural sector as one of the economic sectors is a very potential sector in contributing to the growth and the national economy development, both in terms of income and employment. The agricultural sector has an increasingly important role in the formation of PDRB, including in Serdang Bedagai Regency. Serdang Bedagai Regency has high potential agricultural land, especially for the development of lowland rice crops. Agricultural development in Serdang Bedagai Regency has an important and strategic role in national and regional development. The role of the agricultural sector is not only for food security, but also contribute to employment opportunities significantly, sources of income and the regional economy.

Serdang Bedagai Regency is one of the regencies in North Sumatra province based on the Law of the Republic of Indonesia Number 36 of 2003 concerning the establishment of Samosir Regency

and Serdang Bedagai District in North Sumatra Province, the result from the division of Deli Serdang Regency. Below is a table of North Sumatra

Gross Regional Domestic Product (GRDP) and Serdang Bedagai Regency on the basis of 2010 Constant Prices from 2012-2015.

Table 1: North Sumatra Gross Regional Domestic Product (GRDP) and Serdang Bedagai Regency on the basis of Constant Prices in 2010 (Billion Rupiah), 2011-2016

Year	North Sumatera	Percent	Serdang Bedagai	Percent
2011	353,147.6	-	12,780.10	-
2012	375,924.1	6.45	13,558.80	6.09
2013	398,727.1	6.07	14,345.76	5.80
2014	419,573.3	5.23	15,080.38	5.12
2015	440,955.9	5.10	15,841.95	5.05
2016	463,775.5	5.18	16,656.17	5.14

Source : BPS of North Sumatera Province

Provincial and Serdang Bedagai GRDP data have a positive trend from year to year. According to the business field, GRDP of Serdang Bedagai Regency is divided into 17 categories and most of the categories are divided into subcategories. The division into subcategories is adjusted to the Indonesian Standard Business Classification (KLBI) in 2009. The business field structure of some communities Serdang Bedagai Regency can be seen from the magnitude of the role of each business field

in the formation of Serdang Bedagai Regency GRDP in 2014 produced by the Agriculture, Forestry and Fisheries business, Processing Industry, Large Trade and Retail, Car and Motorcycle Repair, Construction, Business Field of Government Administration, Defense and Compulsory Social Security, provision of Accommodation and Drinking Food, Real Estate and Educational Services. While the role of Other Business Fields is below one percent respectively

Table 2: Role of GRDP by Industry (percent), 2010–2014

Business field	2010	2011	2012	2013*	2014**	
A	Agriculture, Forestry and Fisheries	44,08	43,64	43,23	43,1	41,42
B	Mining and Excavation	0,82	0,87	0,89	0,92	0,9
C	Management Industry	19,78	19,91	19,66	19	19,47
D	Procurement of Electricity and Gas	0,11	0,1	0,09	0,09	0,07
E	Water Supply, Waste, Waste and Recycling Management	0,01	0,01	0,01	0,01	0,01
F	Construction	8,13	8,36	9,01	9,33	9,62
G	Large and Retail Trade; Car and Motorcycle Repair	13,95	13,96	13,81	13,84	14,38
H	Transportation and Warehousing	0,81	0,81	0,81	0,9	0,94
I	Supply of Accommodation, Food and Drinks	3	2,9	2,93	2,91	2,99
J	Information and Communication	0,63	0,58	0,56	0,54	0,53
K	Financial and Insurance Services	0,45	0,47	0,49	0,51	0,52
L	Real Estate	2,26	2,38	2,3	2,54	2,62
M,N	Company Services	0,46	0,46	0,48	0,5	0,52
O	Pem Administration, Land, Mandatory Social Security	2,9	2,96	3,07	3,12	3,24

P	Educational Services	1,41	1,37	1,36	1,36	1,39
Q	Health Services and Social Activities	0,78	0,79	0,82	0,83	0,86
R,S,T,U	Other services	0,42	0,44	0,45	0,49	0,51
Gross Regional Domestic Product		100	100	100	100	100

Source : BPS of North Sumatera Province

Description: *) Temporary Figures **) Very Temporary Figures

To develop the potential for economic growth which seen from the development of PDRB, economic development is needed which refers to the leading sector, besides having an impact on accelerating economic growth, it will also affect fundamental changes in the structure of the regional

economy. The benefits of knowing the leading sector is able to provide an indication for nationally and regionally economy. The leading sector is guaranteed to have greater potential to grow faster than other sectors in a region.

Table 3: Contribution of Agriculture, Forestry and Fisheries Categories to GRDP in Serdang Bedagai Regency (Percent), 2010-2014

Business field	2010	2011	2012	2013*	2014**
1	2	3	4	5	6
Agriculture, Livestock, Hunting and Agricultural Services	38,21	37,81	37,37	37,1	35,22
Forestry and Logging	0,25	0,24	0,23	0,22	22
Fisheries	5,62	5,58	5,62	5,78	5,99
Agriculture, Forestry, and Fisheries	44,08	43,64	43,23	43,1	41,42

Source : BPS of North Sumatera Province

Description: *) Temporary Figures **) Very Temporary Figures

In 2014 the categories of Agriculture, Forestry and Fisheries contributed to the GRDP on the current prices basis of 41.42 percent. The role of

business sector decreased from 44.08 percent in 2010 to 43.64 percent in 2011, 43.23 percent in 2012 and 43.10 in 2013

Table 4: Series 2010 GRDP on the basis of Constant Prices according to the Business Field in Serdang Bedagai Regency (Billion Rupiah)

Sector	2011	2012	2013	2014	2015*	2016**
Agriculture, Forestry, and Fisheries	5052.94	5311.48	5627.86	5910.10	6189.10	6439.70
1 Agriculture, Livestock and Services	4372.17	4603.86	4893.99	5145.21	5384.70	5592.13
2 Forestry and Logging	30.73	30.71	30.87	31.07	31.32	31.57
3 Fisheries	650.04	676.91	702.99	733.81	773.09	815.99
Total	12,780.10	13,558.80	14,345.76	15,080.38	15,841.95	16,656.17

Source : BPS of North Sumatera Province

Description: 2015* Temporary Figures 2016** Very Temporary Figures

According to North in Sjafrizal (2008) states that "Economic growth of a region is basically determined by the amount of competitive advantage possessed by the region concerned". If a certain area

can encourage the growth of economic sectors that have competitive advantages as a basis for export activities, then the economic growth of the region will increase rapidly. This is the basis for Serdang Bedagai Regency in increasing regional economic

growth so it can grow export activities and compete with other regions.

2 THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Economic development is an effort to increase per capita income and increase productivity per capita by adding capital equipment and adding skills or efforts to add capital equipment and add skills so that each other brings greater per capita income and higher per capita productivity (According to Djojohadikusumo in Martono, 2000)

According to Todaro in Sirojuzilam (2008), economic development is a multidimensional process, which involves major changes, both to changes in economic structure, social change, reducing or eliminating poverty, reducing inequality and unemployment in the context of economic growth.

Economic development shows the changes in output structure and input allocation to various sectors of the economy in addition to increasing output. Generally development always accompanied by growth, but growth does not necessarily accompanied by development (Irawan and Suparmoko, 1992).

Basically, the theory of regional economic development discuss two things: 1) methods in analyzing the development of an area and 2) theory relating to the factors that determine the economic growth of a region. Arsyad in a journal written by Suwandi (2016) states that "Formulates the study of regional development as follows : regional development equal to natural resources, labor, investment, entrepreneurship, communication, industry composition, technology, area, export markets, the international economic situation, the capacity of local government, spending central government and aid development) the development that is undertaken should be able to explore all the potential in each region to be processed so that will be very useful in real terms".

There are two main concepts in regional economic development, namely balance (equilibrium) and regional production factor mobility. It means the economic system will reach its natural development point if capital can flow without restrictions. Therefore, capital will flow from high wage regions to low wage regions. The economic growth rate of a region is determined by the amount of exports both selling products / services outside the region to other regions within

the country and abroad. Basically all activities both product producers and service providers that bring money from outside the region because their activities are basic activities. Employment and income in the base sector are functions of exogenous requests (not dependent on internal strength / local demand) (Tarigan, 2002).

Regional economic growth analyzes an area as an open economic system that deals with other regions through the flow of production factors and commodity exchange. Economic growth can be valued as a result of government policies, especially in economics. Economic growth is the growth rate formed from various economic sectors indirectly describing the growth rate that occurs and as an important indicator for regions to evaluate the success of development (Sirojuzilam, 2008).

According to Adam Smith, economic growth is divided into 5 stages start from the hunting period, raising livestock, planting time, trading period and industrial period. According to this theory, society will move from traditional society to modern society.

According to the theory of comparative advantage, David Ricardo states that a country must focus its economic activities on industries that are superior and most internationally competitive, and conduct trade activities with other countries to obtain goods that are not produced nationally.

Gross Regional Domestic Product (PDRB) according to the Central Bureau of Statistics (2013) is an indicator to show the economic growth rate of a region in a sector, so that it can be seen the causes of economic growth in a region.

The role of the agricultural sector in economic development is very important because some members of society in poor countries depend their lives on the sector. If the planners seriously pay attention to the welfare of their people, then the only way is by improving the welfare of most members of their community living in the agricultural sector. This method can be achieved by increasing the production of food crops and their trading plants and, or by increasing the prices they receive for the products they produce (Arsyad, 1992).

According to (Todaro, 2003), traditionally the role of agriculture in economic development is considered passive and only as a support. Based on the historical experience of western countries, economic development seems to require a rapid structural transformation of economy, which originally prioritizes agricultural activities into more complex societies where there are more modern industrial and service fields. Thus, the main role of agriculture is to provide sufficient labor and food at low prices to develop dynamic industries as an

important sector in all economic development strategies.

In the future, development of Serdang Bedagai Regency will be carried out by considering leading sectors or bases which will be used as priority scale. For this reason, it is necessary to conduct more comprehensive study of potential sectors in Serdang Bedagai Regency that have advantages both in terms of agriculture and its contribution to the aggregate economic growth in Serdang Bedagai Regency.

3 RESEARCH METHOD

This research was conducted in Serdang Bedagai Regency which become one of regencies in North Sumatera. This research is aimed to the leading commodities in agricultural sector in Serdang Bedagai Regency and the effect on economic growth of Serdang Bedagai Regency. The data in this research were obtained from The Central Bureau of Statistics (BPS) of North Sumatera Province and Serdang Bedagai Regency.

Based on the results of calculation of Location Quotient (LQ), it can be seen the activities concentration in an area as follows:

1. If the value of $LQ > 1$, it means the growth rate of sector I in the research area is greater with the

same growth rate sector in the economy of reference area. Thus sector I is a leading sector in the study area as well as an economic base sector for further development.

2. If the value of $LQ < 1$, it means the growth rate of sector I in the research area is smaller with the same growth rate sector in the economy of reference area. Thus sector I is not a leading sector in the study area and is not an economic base sector and is not prospective to be developed further.
3. If the value of $LQ = 1$, it means the growth rate of sector I in the research area is the same as growth rate sector in the economy of reference area.

Then from the LQ values obtained, it is analyzed and can be seen whether the base commodities in agricultural sub sector affect the growth of the GRDP of Serdang Bedagai Regency.

4 RESULT AND DISCUSSION

The GRDP of North Sumatera Province Agriculture, Forestry and Fisheries Sector 2011 to 2016 (observation year) is as follows:

Table 5: Series 2010 of GRDP Based on Constant Prices According to the Business Field of North Sumatera Province (Billion Rupiah), from 2011 to 2016 (Observation Year)

Year	Agriculture, Forestry, and Fisheries Sector	%	Sub Sector : Agriculture, Livestock, and Services		Sub Sector : Forestry and Logging		Sub Sector : Fisheries		Total of GRDP	%
			Data	%	Data	%	Data	%		
2011	90592.55	-	79385.54	-	3531.06	-	7675.95	-	353147.6	-
2012	95405.42	5.31	83663.65	5.39	3663.51	3.75	8078.25	5.24	375924.1	6.45
2013	99894.57	4.71	87560.02	4.66	3823.99	4.38	8510.56	5.35	398727.1	6.07
2014	104262.8	4.37	91363.87	4.34	3926.11	2.67	8972.85	5.43	419573.3	5.23
2015	110066	5.57	96506.08	5.63	4078.86	3.89	9481.06	5.66	440955.9	5.10
2016	115179.7	4.65	101220.1	4.88	3934.32	-3.54	10025.28	5.74	463775.5	5.18

Source: BPS North Sumatera Data, 2018 (processed).

Based on the table above, it is known that all sectors, sub sectors and GRDP in North Sumatera Province had a positive trend by the increasing from year to year. It shows the economic development of the community, especially in agriculture, forestry

and fisheries sectors as a whole in North Sumatera Province.

Serdang Bedagai Regency GRDP data on Agriculture Sector from 2011 to 2016 (observation year) is as follows:

Table 6: Series 2010 of GRDP on the basis of Constant Prices according to the Business Field of Serdang Bedagai Regency (Billion Rupiah) from 2011 to 2016 (Observation Year)

Year	Agriculture, Forestry, and Fisheries Sector	%	Sub Sector : Agriculture, Livestock, and Services		Sub Sector : Forestry and Logging		Sub Sector : Fisheries		Total of GRDP	%
			Data	%	Data	%	Data	%		
2011	5052.94	-	4372.17	-	30.73	-	650.04	-	12,780.10	-
2012	5311.48	5.12	4603.86	5.30	30.71	-0.07	676.91	4.13	13,558.80	6.09
2013	5627.86	5.96	4893.99	6.30	30.87	0.52	702.99	3.85	14,345.76	5.80
2014	5910.1	5.02	5145.21	5.13	31.07	0.65	733.81	4.38	15,080.38	5.12
2015	6189.1	4.72	5384.7	4.65	31.32	0.80	773.09	5.35	15,841.95	5.05
2016	6439.7	4.05	5592.13	3.85	31.57	0.80	815.99	5.55	16,656.17	5.14

Source: BPS North Sumatra Data, 2018 (processed).

Based on the table above, it is known that all sectors, sub sectors and GRDP in North Sumatra Province also had a positive trend by the increasing from year to year. It shows the economic development of the community, especially in agriculture, forestry and fisheries sectors as a whole in North Sumatra Province. But the question is

whether the agricultural sector is a leading base sector in Serdang Bedagai Regency which needs to be analyzed by Location Quotient (LQ).

The results of LQ formulation in agriculture, forestry and fisheries sectors and sub sectors of Serdang Bedagai Regency are as follows

Table 7: Sector LQ and Agriculture, Forestry and Fisheries Sub Sector of Serdang Bedagai Regency, from 2011 to 2016 (Observation Year)

Year	Agriculture, Forestry, and Fisheries Sector	Sub Sector		
		Agriculture, Livestock, and Services	Forestry and Logging	Fisheries
2011	1.717	1.704	0.242	2.531
2012	1.712	1.705	0.235	2.519
2013	1.712	1.709	0.228	2.525
2014	1.707	1.703	0.224	2.53
2015	1.712	1.709	0.217	2.53
2016	1.704	1.689	0.227	2.583

Source: Data processed, 2018

Based on the table above, it is explained that agriculture, forestry and fisheries sector in Serdang Bedagai Regency is a base sector or leading sector with a consistent value of $LQ > 1$ from 2011 to 2017. It explains that agriculture, forestry and fisheries sectors have a large contribution to the economic growth in Serdang Bedagai Regency. The increasing of LQ value in agricultural sector is inseparable because the economy of Serdang Bedagai Regency has extensive and fertile natural resources and also the people can utilize the existing natural wealth.

The agriculture, forestry and fisheries sectors indicate that Serdang Bedagai Regency is able to fulfill its own needs in the fields of agriculture, forestry and fisheries. It is even possible to export economic activity out of areas and able to produce goods and services that can be sold outside the region to increase the revenue in Serdang Regency Begadai. This is inseparable from the topographical conditions of the Serdang Regency Begadai with a variety of land forms and capable of producing various agricultural, forestry and fisheries commodities.

However, if examined in detail from the state of LQ in agriculture, forestry and fisheries sector in Serdang Bedagai Regency, the conclusions can be made on the advantages as follow:

a. The agriculture, livestock and services sub-sector has $LQ > 1$ which is consistent with the observation year (2011 to 2016). It explains that the agriculture, forestry and fisheries sector, the agriculture, livestock and services sub sector is a base or leading sub sector in Serdang Bedagai Regency.

b. The agriculture, livestock and services sub-sector has $LQ < 1$ which is consistent with the observation year (2011 to 2016). It explains that the agriculture, forestry and fisheries sector, the agriculture, livestock and services sub sector is not a

base leading sub sector in Serdang Bedagai Regency.

c. The fisheries sub-sector has $LQ > 1$ even the $LQ \text{ value} > 2$ which is consistent with the observation year (2011 to 2016). It explains that the agriculture, forestry and fisheries sector, the agriculture, livestock and services sub sector is a base or leading sub sector in Serdang Bedagai Regency. It that the fisheries sub-sector is the most superior in Serdang Bedagai Regency.

Furthermore, the results of LQ analysis of each of subs ectors and associated with economic growth in Serdang Bedagai Regency in a simple regression analysis by the following result:

Table 8: The Results from Model Function Estimation fo Agriculture, Forestry and Fisheries Sub Sector Against Economic Growth in Serdang Bedagai Regency

Free Variable	Coefficient	Sdr Error	T-tes	Prob.	Description
C	1,645	0,288	5,721	0	Significant
Agricultural Sub Sector	0,697	0,163	4,286	0,001	Signifikan
R Square	0,535				
Adjusted R Square	0,505				

Source: Data processed, 2018

Based on the table above, it is known that the leading sub sectors of agriculture, forestry and fisheries have a positive and significant influence on economic growth in Serdang Regency by using formula below:

$$\text{Log(PDRB)} = 1,645 + 0,697 (\text{Agricultural Sub Sector}) + e$$

The explanation based on above formula are as follow:

- a. $\text{Log (GRDP)} = 1,645$, means that if the LQ sub-sector of agriculture, forestry and fisheries has 0 value, then the magnitude of economic growth is 1,645.
- b. $\text{Agricultural Sub-Sector} = 0.697$, means that if the LQ in agriculture, forestry and fisheries sub-sector increases by 1%, then economic growth increases by 0.697 percent.

Furthermore, in the research model, the value of R squared is 0.535. It shows that the agriculture, forestry and fisheries sub sector variables are able to explain the model of economic growth by 53.5 percent in Serdang Bedagai Regency. And the remaining is 46.5 percent influenced by other variables which not examined in this study.

In an effort to increase the level of economic growth in Serdang Bedagai, the government through the Regional Planning Agency can make efforts to

increase the LQ value of the Agriculture, Forestry and Fisheries Sector. This is deemed necessary because the increasing LQ value of the Agriculture, Forestry and Fisheries Sector can increase the economic growth of Serdang Bedagai Regency.

5 CONCLUSIONS

Based on the results and discussion of research can be concluded as follows:

1. The agriculture, livestock and fisheries sector is the leading sector basis in Serdang Bedagai Regency.
2. Agriculture, livestock and service; and the fisheries sub sector is a leading sub sector of the agriculture, livestock and fisheries sector in Serdang Bedagai Regency.

LQ variable in the agriculture, livestock and fisheries sub sector has a positive and significant influence on economic growth in Serdang Bedagai Regency.

REFERENCES

- Arsyad, Lincoln. (2001). Pengantar Perencanaan dan Pembangunan Ekonomi Daerah. BPFE UGM. Yogyakarta.
- . Ekonomi Pembangunan. Yogyakarta: Bagian Penerbitan STIE YKPN
- Irawan, Prasetya, dan M. Suparmoko. (1992). Ekonomika Pembangunan. BPFE UGM, Yogyakarta.
- Sirojuzilam, (2008), “Disparitas Ekonomi dan Perencanaan Regional, Ketimpangan Ekonomi Wilayah Barat dan Wilayah Timur Provinsi Sumatera Utara”, Pustaka Bangsa Press.
- Sjafirzal. (2008). Ekonomi Regional : Teori dan Aplikasi. Jakarta : Niaga Swadaya.
- Suparmoko. (2002). Ekonomi Publik untuk Keuangan dan Pembangunan Daerah. Edisi Pertama. Yogyakarta: Andi
- Suwandi. (2016). Structure and Economic Development Pattern in Jayapura through other Cities and Towns in Papua. European Journal of Social Sciences. Vol. 52, No. 1, Hal. 5-13. ISSN : 1450-2267.
- Todaro, Michael P. (2003). Pembangunan Ekonomi di Dunia Ketiga. Erlangga. Jakarta.

