

## Development of Agricultural Subsector in Moving Regional Economy : An Empirical Study in Tanah Laut Regency, South Kalimantan Province, Indonesia

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**Abstract:** The Mining and Quarrying sectors, which dominates almost 30 percent of the Tanah Laut's economic structure, is experiencing a slowdown in economic growth and has resulted in an increase in the percentage of poor people in Tanah Laut District over the past five years. Agricultural Sector which occupies second position in Tanah Laut Regency economy is expected to be the driving force of the economy and reduce the poverty rate. Agricultural-based economic development is one way to drive the economy in Tanah Laut Regency. This study aims to identify and analyze the agricultural subsector that can be superior in driving the economy of Tanah Laut Regency.

Research location in Tanah Laut Regency with research time from November 2017 until May 2018. The data used in this research is secondary data during 2001-2016 obtained from BPS-Statistics Indonesia. Analyzer used is area potential analysis by calculating Location Quotient index and Shift Share Index.

The results showed that the sub-sectors having comparative advantages from Location Quotient analysis were livestock sub-sector, agriculture and hunting service sub-sector, forestry sub-sector and logging and fishery sub-sector. While the sub-sectors that have competitive advantage from Shift Share analysis are fishery sub-sector, food crop sub-sector, livestock sub-sector and agriculture service sub-sector. The leading sub-sectors are the sub-sectors that have comparative and competitive advantages such as livestock sub-sector, agriculture service sub-sector and fishery sub-sector.

**Keywords:** economic growth, leading subsector, agricultural sector

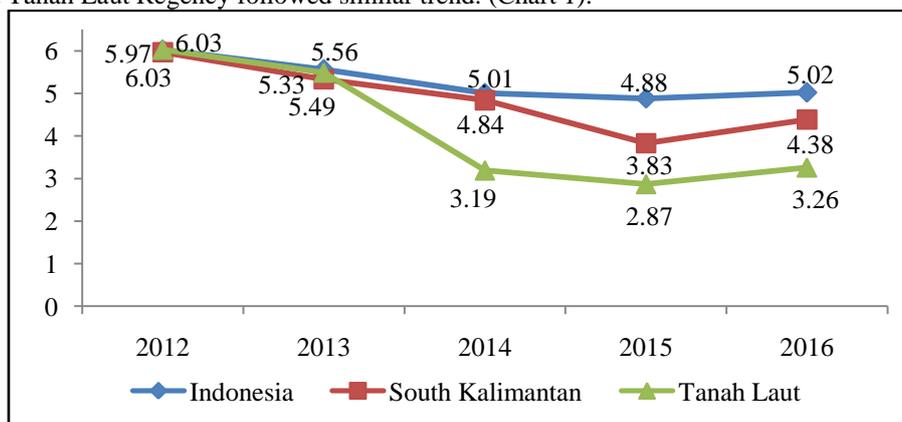
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### I. Introduction

The objectives of economic development policies are to improve living standard, inequality reduction, and increase employment while still taking into account the resources sustainability aspects for the next generation. The success of fiscal policies reflects from economic growth which can be measured by Gross Regional Domestic Product (GRDP).

Data of BPS-Statistics Indonesia (2016) shows that economic growth of Indonesia during 2012-2016 was quite volatile. Economic growth was recorded at 4.88 percent in 2015 from 6.03 percent in 2012, and less than the earlier data of 5.02 percent in 2016. Likewise, economic growth during 2012-2016 in South Kalimantan Province and Tanah Laut Regency followed similar trend. (Chart 1).



Source : BPS-Statistics Indonesia, 2017

Chart 1. Economic growth in Tanah Laut Regency compared by South Kalimantan Province and Indonesia during 2012-2016

Deceleration of economic growth was driven by the decrease in Mining and Quarrying Sectors. GDRP Share of mining and quarrying sector in Tanah Laut Regency was quite large, at 25-30 percent (BPS-Statistics of Tanah Laut Regency, 2016). Global crisis caused the slowing down of demand for coal, as reflected in failing coal prices and declining volumes of coal trades (both of export and import). This condition impacted the coal producer country.

Poverty rate was the result of sluggish economic growth in Tanah Laut Regency. During 2013-2016, poverty rate in Tanah Laut regency was increasing, recorded at 4,33 percent (2013); 4,38 percent (2014); 4,58 percent (2015); and 4,65 percent in 2016 (BPS-Statistics Indonesia, 2016).

Furthermore, this condition of economic growth caused employment percentage on agricultural sector, recorded 46,27 percent (2012); 47,36 percent (2013); 48,12 percent (2014); and 48,29 percent in 2015. The increments came in cause of desisting of mining sectors and employment expansion of agriculture to services (BPS-Statistics of South Kalimantan Province, 2015).

Considering those conditions, the agricultural sector in Tanah Laut needs to be continuously developed because the percentage of poor people working in the agricultural sector is greater than those working in other sectors. By 2016, there are about 47.19 percent of the population working in the agricultural sector and 26.34 percent working in non-agricultural sector. The remaining 26.47 percent constitutes the non-working population (BPS-Statistics Indonesia, 2016).

The contribution of the agricultural sector in Tanah Laut supported by the large absorption of labor should be reducing poverty rate and drives the regional economy. The purpose of this research is to identify and analyze the agriculture sub-sector that can be superior in driving the economy of Tanah Laut.

## II. Research Methods

### Framework

The slowdown in economic growth caused by slowing economic growth in the mining and quarrying sectors. This causes an increase in the percentage of the poor. Agricultural Sector which occupies the second position in the regional economy needs to be further improved its performance by spurring the leading subsector of agriculture.

### Location and Time of Study

Research location in Tanah Laut Regency from November 2017 to May 2018.

### Method of collecting data

The data used in this research is secondary data, that is GRDP in Tanah Laut Regency of 2012-2016.

### Data analysis method

Data Analysis Method used is the analysis of potential areas by calculating Location Quotient index and Shift Share Index as follows:

### Location Quotient Analysis (LQ)

Use of this analysis to look at both the base and non-base subsectors, further to identify the comparative advantages of the agricultural sub-sector in Tanah Laut Regency. With the approach used is a comparison between the value of GRDP sub-sector of agriculture regency with the total value of GRDP at the province level formulated mathematically as follows:

$$LQ_{ij} = \frac{X_{ij}/X_i}{X_j/X}$$

LQ<sub>ij</sub> = the location coefficient index for the j-th region in the i-th region

X<sub>ij</sub> = GRDP value of the j sub-sub-sector in Tanah Laut Regency

X<sub>i</sub> = total GRDP in Tanah Laut Regency

X<sub>j</sub> = total GRDP in the j sub-sector in South Kalimantan

X = total GRDP in South Kalimantan

With the conclusion if the sub-sector with LQ value is greater than one (LQ > 1) so it is a base sector and has a comparative advantage, whereas if the value is equal to or less than one (LQ < 1) means that sub-sector is not included in the base sector or not competitive.

**Shift-Share Analysis (SSA)**

Shift share analysis (SSA) is one of many analytical techniques for understanding the shifting of activity structures in a given location compared to a (with a wider coverage area in two time points (Rustiadi et al, 2005). Mathematically it can be written as follows :

$$SSA = NS_i + P_{r,i} + D_{r,i}$$

$$NS_i = E_{r,i,t-n} \left( \frac{E_{N,t}}{E_{N,t-n}} \right) - E_{r,i,t-n}$$

$$P_{r,i,t} = \left( \frac{\Delta E_{N,i,t}}{E_{N,i,t-n}} - \frac{\Delta E_{N,t}}{E_{N,t-n}} \right) \times E_{r,i,t-n}$$

$$D_{r,i,t} = \left( \frac{\Delta E_{r,i,t}}{E_{r,i,t-n}} - \frac{\Delta E_{N,i,t}}{E_{N,i,t-n}} \right) \times E_{r,i,t-n}$$

$NS_i$  = National share component (Million Rupiah)

$P_{r,i,t}$  = proportional shift component (Million Rupiah)

$D_{r,i,t}$  = differential shift component (Million Rupiah)

$\Delta$  = the change in the final year is reduced by the initial year

$EN$  = Total GRDP South Kalimantan

$Er$  = Total GRDP Tanah Laut

$i$  = sector / sub-sector

$t$  = year (2016)

$t-n$  = year early (2012))

Analysis methods using the previous LQ still can not show a clear picture about the economic growth of a region if not accompanied by Shift Share analysis method. By using Shift Share method, it will be able to describe the shifting of activity structure of a sub sector in Tanah Laut compared with same sub sector in South Kalimantan Province.

The purpose of this analysis is to determine the performance or productivity of the economy of Tanah Laut Regency compared with South Kalimantan Province. This analysis uses GRDP data at two different points that is in 2012 and 2016. Two points this year was chosen because starting in 2012 there is a slowdown in economic growth in the mining and quarrying sector and there is a change in economic structure where the contribution of mining sector is getting smaller until 2016 and the contribution of agriculture sector that began to grow in the same period.

Shift Share analysis method consists of three components that have a relationship with each other, that is :

- The National Share (N) component describes the comparison of economic growth of the Tanah Laut Regency with broader regional economic growth or reference areas (South Kalimantan Province).
- The Proportional Shift (P) component shows the change in performance of an economic sector (field of business) in Tanah Laut Regency to the same sector in the reference area (South Kalimantan Province). Proportional shift (proportional shift) is also called the influence of industry mix (industry mix).
- The Differential Shift (D) component determines the extent of the industry's competitiveness capability in Tanah Laut Regency with the reference regional economy (South Kalimantan Province). Differential Shift is also called a competitive advantage.

By using this technique of analysis it can be known the main factors that affect the economic growth of a region that can come from within and outside the area concerned. External factors can be derived from the development of national and international economic activities. While factors derived from within the region derived from the economic structure as well as the special potential possessed by the area.

The economic growth of a region can be sustained by the sector / subsector base if the advantages and disadvantages that occur in the fulfillment process cause the mechanism of inter-regional import export. Or in other words, the sector / sub-sector will produce goods and services to meet the needs of domestic markets and markets outside the region. The ability to encourage economic growth of a willayah is highly dependent on the superiority or competitiveness of economic sectors / sub-sectors in the region.

In addition, to determine the strength or weakness of a sector in the region in supporting the national economy, this study also uses the Enders category (Suyana Utama in Nur, 2012) which classifies the growth of the following sectors:

- A sector is given a rank of 1 if the components of industry mix and regional share are both positive then the sector is called very strong.
- A sector is ranked 2 if the positive industry mix component exceeds the negative regional share is called the strong sector.

- A sector is given a rank of 3 if the component of positive regional share exceeds the negative industry mix is called rather strong sector.
- A sector is given a rank of 4 if the industry mix negative component exceeds the positive regional share is called the rather weak sector.
- A sector is given a rank of 5 if the component of negative regional share exceeds the positive industry mix is called weak sector.
- A sector is given a rank of 6 if the components of industrial mix and regional share are both negative so called sector is very weak.

### III. Results and Discussion

#### Base Sector and Regional Comparative Advantage

Analysis of LQ (Location Quotient) is an analysis used to measure a sector is a base sector or non base sector. The base sector will indicate that a region has a comparative advantage over other regions because it has climate advantages and land suitability, socio-economic, institutional, natural resources, human resources and marketing.

**Table 1. Result of Analysis of LQ of Agriculture sub-sector based on GRDP Tanah Laut in 2016**

Subsector of Agriculture (1)	Result of LQ (2)
1. Agriculture, farming, Hunting & Agricultural Services	0,877
a. Food Crops	0,928
b. Horticultural Crops	0,491
c. Plantation crops	0,986
d. Livestock	<b>1,356</b>
e. Agricultural service & Hunting animals	<b>1,027</b>
2. Forestry & Logging	<b>3,005</b>
3. Fisheries	<b>1,105</b>

Source: Data processed, 2017

From the results of LQ analysis in the table above, it is known that the sub-sectors that have comparative advantages are livestock sub-sector, agriculture service and hunting animals sub-sector, forestry sub-sector and logging and fishery sub-sector. This is because the four subsectors have LQ values more than one ( $LQ > 1$ ). While the other three sub-sectors, that is the food crop sub-sector, horticultural crops sub-sector and plantation sub-sector are not included as the base sector but included in the service subsector.

#### Regional Competitive Advantages

By using Shift Share method it will be able to describe the shifting of activity structure of a sub sector in Tanah Laut Regency compared with same sub sector in South Kalimantan Province. The purpose of this analysis is to determine the performance or productivity of the economy in Tanah Laut Regency compared with South Kalimantan Province. This analysis uses GRDP data at two different points that is in 2012 and 2016. Two points this year was chosen because starting in 2012 there is a slowdown in economic growth in the mining sector and there is a change in economic structure where the contribution of mining sector is getting smaller until 2016 and the contribution of agriculture sector that began to grow in the same period.

Based on Enders category, only fishery sub-sector is included in rank 2 is a strong category. While the food crops sub-sector, livestock sub-sector and agriculture service and hunting animals sub-sector are included in rank 3 which is the sub-sector category is rather strong. While the other three sub-sectors are horticultural sub-sector, estate sub-sector and forestry sub-sector are included in very weak sub-category and included in rank 6.

**Table 2. Result of Analysis Shift Share Subsector of Agriculture based on GRDP Tanah Laut in 2016**

Subsector of Agriculture (1)	$NS_i$ (2)	$P_{r,i}$ (3)	$D_{r,i}$ (4)	SSA (5)	Enders Category (6)
1. Agriculture, farming, Hunting & Agricultural Services	190.212,82	-59.051,56	-74.963,03	56.198,23	6
a. Food Crops	73.647,84	-19.099,12	13.436,20	67.984,92	3
b. Horticultural Crops	1.268,19	-394,34	-68,32	805,53	6
c. Plantation crops	82.222,91	-36.889,09	-135.658,63	-90.324,82	6
d. Livestock	28.876,02	-827,69	21.026,44	49.074,77	3
e. Agricultural & Hunting Services	4.197,86	-217,64	3.137,52	7.117,73	3
2. Forestry & Logging	34.445,18	-39.407,92	-2.132,26	-7.095,00	6
3. Fisheries	69.195,02	5.325,33	-26.149,60	48.370,74	2

Source: Data processed, 2017

### Identification and Analysis of Featured Sub-Sectors

The leading subsector is a sub-sector that can be further developed and aims to improve the economic growth of a region. A subsector is said to be superior if the subsector has advantages either comparatively or competitively (Erawati in Nur, 2012). From the result of LQ analysis and Shift Share before, got result as shown in table below.

**Table 3. Result Analysis of LQ and Shift Share Subsector of Agriculture based on GRDP Tanah Laut in 2016**

Subsector of Agriculture	Result of LQ Analysis	Shift Share Analysis Results
(1)	(2)	(3)
1. Agriculture, farming, Hunting & Agricultural Services	Non Base	Very weak
a. Food Crops	Non Base	Rather strong
b. Horticultural Crops	Non Base	Very weak
c. Plantation crops	Non Base	Very weak
d. Livestock	<b>Base</b>	<b>Rather strong</b>
e. Agricultural & Hunting Services	<b>Base</b>	<b>Rather strong</b>
2. Forestry & Logging	Base	Very weak
3. Fisheries	<b>Base</b>	<b>Strong</b>

Source: Data processed, 2017

From the table above, there are three subsectors that passed the test on LQ and Shift Share analysis, that is livestock sub-sector, agriculture service and hunting animals sub-sector and fishery sub-sector. It is this superior sub-sector that will be boosted in the short term (1-5 years) to improve the welfare of farmers and ultimately reduce poverty. While the sub-sectors are not superior does not mean will be ignored. In the short term (1-5 years) will be identified causes of problems that occur in the sub-sector and will be sought solution. So that in the medium and long term (over 5 years), the sub-sector can spur its performance and become the leading subsector in Tanah Laut.

The food crop sub-sector has a large contribution in GRDP but its economic growth is unstable. In addition to the effects of weather and climate, the nature of the community, which is largely subsistence farmers, causes rice production only for household consumption. The same thing also happened in the horticulture subsector. Society considers only business in the food crops and horticulture sub-sectors and selects other business fields that are more quick yielding (such as traders, laborers, etc.).

Plantation subsector at the beginning of 2012 is a contributor in PDRB shows a declining performance, from 28.98 percent in 2012 decreased to 22.70 percent in 2016. The decline in prices of rubber and palm oil seems to be one cause of the decline in production.

The forestry sub-sector though passed the test in the LQ analysis and became the basic subsector, but in the Shift Share analysis it turned out to be in a very weak sub-sector. This is because during the last 5 years, the production of forestry commodity subsector has decreased. This condition is evident from the downward trend of economic growth in the forest sub-sector in Tanah Laut from 0.86 percent successively slowed from 2012 to 2016.

Non-eminant subsectors may thrive and contribute to regional development if supported by adequate infrastructure. Therefore policies in the economic development of Tanah Laut Regency should consider infrastructure and capacity, land carrying capacity, human resources, market opportunities and other natural factors.

## IV. Conclusions and recommendations

### Conclusion

From the result of area potential analysis, that is LQ analysis and Shift Share analysis, got result that fishery sub-sector, livestock, agricultural services and hunting are leading sub-sector. While the subsectors of food crops, horticulture, plantations and forestry are not included in the leading subsector.

### Recommendation

Recommendations that can be proposed to local governments include:

1. Improved performance of the leading sub-sectors in the fisheries, livestock, agricultural and hunting services sub-sectors, carried out by the following steps:
  - a. Provision of subsidies. The subsidy can be subsidized by input prices and output prices.
  - b. Assistance in the provision of ships and fishing gear which are leased exclusively to fishermen who do not have large ships and adequate fishing gear. This is because the poor live mostly in coastal areas with jobs as fishermen.

- c. Promotion of the insurance program also needs to be reviewed and implemented. With the insurance it can protect the production and can reduce the losses of farmers.
- d. The government can also collaborate with the industrial sector, so that output from agriculture can be an input to the industrial sector. The same is done in the subsector of farming and agricultural services and hunting.
2. Increased performance of non-pre-eminent subsector (food crops, horticulture, plantation and forestry sub-sector) so that in the medium and long term (above 5 years), the sub-sector can become the main subsector in Tanah Laut Regency, which can be done by:
  - a. Application of “resi gudang” system.
  - b. Implementation of agricultural insurance.
  - c. There is a need for easy access to sales by collaborating with the manufacturing sector. As far as possible the processing industry companies in Tanah Laut prioritize domestic inputs.
3. There needs to be ongoing training and coaching for farmers to add skills and insight into the use of agricultural tools, modern agricultural technology and the latest farming methods. In addition, there is a need for easy access of farmers to get the help of agricultural credit with low interest and ease of guarantee / collateral. For the wide varieties of farmed land, farmers are given insights on how to cultivate intercropping or planting twice a year using superior seeds. It aims to increase agricultural production capacity.

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### Note

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