

Analysis of agriculture based sector in regional development of Gowa Regency

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Abstract. Agriculture sector as one of the potential economic sectors in contributing to national economic growth and development, both in terms of income and labor absorption. Analysis of the determination of the base sector is needed as the basis for the formulation of economic development policy patterns in Gowa Regency in the future, so that economic development policies can be directed to move those sectors. This research aims to analyze the agricultural sector and other sectors that become the basis in the regional economy in Gowa Regency. This study used secondary data in the form of Gross Regional Domestic Product (GDP) data and gdp growth rate of Gowa Regency and South Sulawesi Province in 2012-2016 and analyzed using Location Quotient, Shift Share and Klassen Typology methods. The results concluded that the Agriculture, Forestry, and Fisheries Sector is one of the economic sectors that is the base in Gowa Regency, but is a 'developed but depressed (stagnant sector) sector' due to the slowing growth rate every year.

1. Introduction

Economic growth is an indicator of an economic development process carried out at the national and regional (regional) levels. Increasing population requires development policy makers, especially in the region, to move all sectors of the economy to the maximum produce the goods and services needed by the community in the form of increasing aggregate output or Gross Regional Domestic Product (GDP) every year. In order to improve the effectiveness and efficiency of achieving development goals, the implementation of economic development needs to be directed at sectors capable of providing a large multiplier effect on other sectors and the economy as a whole [1].

Agriculture sector as one of the economic sectors including the sector that has the potential to contribute to national economic growth and development, both in terms of income and labor absorption. The role of the agricultural sector in Indonesia's development is unquestioned. In addition, business in the agricultural sector will always run as long as people still need food to maintain life and humans still need agricultural products as raw materials in their industry. In Indonesia, agricultural development is directed to increase agricultural production to meet the needs of food and domestic industry, increase exports and income of farmers, expand employment opportunities, and encourage equality. However, the role of the agricultural sector does not necessarily contribute to the largest Gross Regional Domestic Product (GDP) for some regions but for some regions agriculture contributes the most to GDP [2].



Based on the gdp growth rate and the contribution of the Gowa Regency GDP in 2018, the Agriculture, Forestry, and Fisheries sectors still dominate the economic structure of some gowa regency communities throughout 2012 to 2016. However, the contribution of the field of business has a trend that tends to decrease. This downward trend is accompanied by the trend of donations of Mining and Quarrying businesses, as well as Real Estate that tends to increase. Meanwhile, other business field trends tend to be constant. The biggest cause of inequality in South Sulawesi Province is inter-sectoral inequality occurring within the regency/city. The development of economic activity in South Sulawesi Province has not reached its maximum and the development of each sector tends to be less evenly distributed [3,4].

In accordance with this, the Agriculture, Forestry, and Fisheries sector is important to continue to be developed in an effort to improve the economic development of the region by continuing to pay attention to the potential of natural resources and human resources owned by a region. Gowa regency which is a very strategic area to analyze the role and change of the role of a sector in the economy.

Analysis of the determination of the base sector is needed as the basis for the formulation of economic development policy patterns in Gowa Regency in the future, so that economic development policies can be directed to move those sectors. The priority of economic development in Gowa regency must be based on the base sector, not only based on natural resources owned so that the output produced will have high competitiveness, because it is supported by the specific potential of the region. Therefore, based on the background and problems, this research aims to analyze the basic sectors in the regional economy in Gowa Regency.

2. Research methods

This research was conducted in Gowa Regency, which is one of the regencies in South Sulawesi Province. Gowa regency is a strategic area because it is directly bordered by seven regencies / cities in South Sulawesi. The data used in this study are secondary data in the form of Gross Regional Domestic Product (GDP) data and gdp growth rate of Gowa Regency and South Sulawesi Province in 2012-2016. Other data include data on natural conditions, population conditions, economic conditions and agricultural conditions of Gowa Regency. The data came from the Badan Pusat Statistik (BPS) of South Sulawesi Province, BPS Gowa Regency and the Agriculture Office of Gowa Regency. Analysis of base sectors in the economy of Gowa Regency using three data analysis methods, namely Location Quotient (LQ), Shift Share and Klassen Typology. Location Quotient (LQ) method is a comparison between the relative share of sector i income (labor) at the regional level to the total income (labor) of the region and the relative share of sector i income (labor) at the national level to the national income (labor force). According to [5] hal can be mathematically stated as follows[5]:

$$LQ = \frac{v_i/v_t}{V_i/V_t} \times 100 \quad (1)$$

Information :

- v_i = sector i revenues at the district level
- v_t = district total revenue
- V_i = sector i revenues at the provincial level
- V_t = province total revenue

The criteria used is if $LQ > 1$, then sector i is categorized as a base sector which means that the sector in addition to being able to meet its own needs can also meet other regions or be exported. If $LQ < 1$ then sector i as a non-base sector which means that the sector is only able to meet its own needs.

The formulation used for Shift Share analysis according to [6] :

- a. Calculate the National Shift (Ns) rate per economic sector of Gowa Regency with the formula:

$$Ns = \sum_{t-1}^n \{Er, i, t - n(EN, t/EN, t - n) - Er, i, t - n\} \quad (2)$$

b. Calculate proportional shift (Pr) rate per economic sector of Gowa Regency with formula:

$$Pr = \sum_{t-1}^n [\{(EN, i, t/EN, i, t - n) (EN, t/EN, t - n) X Er, i, t - n\}] \quad (3)$$

c. Calculate the differential shift rate (Dr) per economic sector of Gowa Regency with the formula:

$$Dr = \sum_{t-1}^n [\{Er, i, t - (EN, i, t/EN, i, t - n) - Er, i, t - n\}] \quad (4)$$

d. Calculates the shift-share (ΔE) total with a formula:

$$\Delta Er = (Ns + Pr + Dr) \quad (5)$$

Information :

- Δ : Increase, final number (year t) is reduced by the initial number (t-n year)
- N : National or higher level national region/region
- r : Analysis region or region
- E : Employment or the number of jobs
- I : Industrial sector
- t : Years
- t-n : Early years
- Ns : National Share
- Pr : Proportional shift
- Dr : Differential shift

If the economic sector of both the Ps and Ds components is positive it means that the sector has rapid growth and strong competitiveness (progressive sector) and if either or both of the components of ps or Ds negative means the sector is a non-progressive sector.

Table 1. Classification of GDP sector by Klassen typology

Kuadran I developed sectors $si > s$ dan $ski > sk$	Kuadran II stagnant sectors $si < s$ dan $ski > sk$
Kuadran III developing sectors $si > s$ dan $ski < sk$	Kuadran IV underdeveloped sectors $si < s$ dan $ski < sk$

Information :

- Si : Average GDP growth rate in Gowa Regency
- s : Average GDP growth rate of South Sulawesi Province
- ski : Average GDP contribution rate per economic sector of Gowa Regency
- sk : Average GDP contribution rate per economic sector of South Sulawesi Province

3. Results and discussion

3.1. Sectore base analysis in Gowa Regency

The results of the analysis of the base sector in the Gowa Regency economy using Location Quotient, Shift Share and Klassen Typology can be seen in table 2. The results of the analysis of LQ, Shift Share and Klassen Typology in the economic sector of Gowa Regency showed that the Electricity and Gas Procurement sector; Information and Communication sector and Real Estate sector is a superior sector based on LQ analysis, Shift Share and Klassen Typology. These three sectors have a comparative advantage (base sector) because they have LQ > 1 value, is a progressive sector because it has a competitive advantage or high competitiveness from other sectors in Gowa Regency. Electricity and

Gas Procurement Sector; Information and Communication sector and Real Estate sector is a fast-growing and advanced sector because it is a sector that has a large contribution to the GDP of Gowa Regency and also the sector has a faster growth rate than the provincial level.

Table 2. Results of analysis of LQ, Shift Share and Klassen Typology in Gowa Regency economic sector

PDRB Business Field	LQ	Shift Share	Klassen Typology
Agriculture, Forestry, and Fishery	1.477	Not Progressive	Stagnant sectors
Mining and excavation	0.445	Not Progressive	fast-growing sector
Processing Industry	0.458	Not Progressive	Underdeveloped sectors
Procurement of Electricity and Gas	1.964	Progressive	Fast-growing and advanced sectors
Water Supply, Waste Management, Waste and Recycling	1.122	Not Progressive	Stagnant sectors
Construction	0.867	Progressive	fast-growing sector
Wholesale and Retail Trade; Car Repair and Motorcycle	0.822	Progressive	fast-growing sector
Transportation and Warehousing	0.384	Not Progressive	fast-growing sector
Provision of Accommodation and fnb	1.751	Not Progressive	Stagnant sectors
Information and Communication	1.615	Progressive	Fast-growing and advanced sectors
Financial Services and Insurance	0.671	Not Progressive	fast-growing sector
Real Estate	1.884	Progressive	Fast-growing and advanced sectors
Company Services	0.277	Not Progressive	fast-growing sector
Government Administration, Defense and Compulsory Social Security	1.253	Not Progressive	Stagnant sectors
Education Service	0.855	Not Progressive	Underdeveloped sectors
Health Services and Social Activities	0.953	Not Progressive	Underdeveloped sectors
Other Services	1.076	Not Progressive	Stagnant sectors

Agriculture, Forestry and Fisheries Sector; Water Procurement, Waste Management, Waste and Recycling; accommodation and drinking food supply sector; Government Administration, Defense and Compulsory Social Security sectors and other Service sectors are the leading sectors based on LQ analysis and Klassen Typology. These five sectors have a comparative advantage (base sector) because they have $LQ > 1$ value. Agriculture, Forestry and Fisheries Sector; Water Procurement, Waste Management, Waste and Recycling; accommodation and drinking food supply sector; Government Administration, Defense and Compulsory Social Security sector and other Services sector is a developed sector but depressed because it is a sector that has a large contribution to the GDP of Gowa Regency but includes a sector that is not progressive because it does not have a

competitive advantage or low competitiveness of other sectors in Gowa Regency and also the sector has a slower growth rate than the provincial level.

The agricultural sector which is the base sector, supported by most of Gowa area which is an agricultural area of 75% of the entire gowa regency. The agricultural sector of Gowa Regency has an important role in supporting the food needs of South Sulawesi Province. Sub-districts in the highlands such as Parangloe, Bungaya and especially Tinggimoncong are vegetable producing centers. The most cultivated vegetables are potatoes, cabbage, mustard, leeks and chickpeas. Annually the yield of vegetables exceeds 5,000 tons. Vegetables from Gowa Regency are able to meet the market of Makassar City and its surroundings, even to the island of Kalimantan and Maluku through Parepare Port and Mamuju Port.

In addition to the large agricultural potential and most of the people's livelihoods are farmers who are also supported by government policies that support the agricultural sector, among others, increasing access to urban services and regional economic growth centers, including tourism and agricultural activities centers evenly and hierarchically and increasing production of crops / horticulture commodities. It appears that from 2012-2016 the agricultural sector is the sector that always contributes the most to the GDP of Gowa Regency compared to other economic sectors.

Construction Sector and Large Trade and Retail sector; Car and Motorcycle Repair is a superior sector based on Shift Share analysis and Klassen Typology. Both sectors are fast growing sectors because they are sectors that have a small contribution to the GDP of Gowa Regency and are also progressive sectors because they have a competitive advantage or high competitiveness from other sectors in Gowa Regency. Construction Sector and Large Trade and Retail sector; Car and Motorcycle Repair has a faster growth rate than the provincial level and is also a sector that can be expected to the economy of Gowa Regency in the next few years.

Table 3. Results of analysis of LQ, Shift Share and Klassen Typology in the agricultural subsector of Gowa Regency

Agriculture Subsectors	LQ	Shift Share	Klassen Typology
Food Crops	1.423	Not Progressive	Advanced but depressed subsectors
Horticultural Crops	1.544	Not Progressive	Advanced but depressed subsectors
Plantation Crops	0.228	Progressive	fast-growing subsector
Farm	0.589	Progressive	fast-growing subsector
Agriculture and Hunting Services	0.814	Not Progressive	fast-growing subsector

Mapping of leading commodities in Gowa regency will be able to estimate how big the development potential of leading commodities in the region. As stated by [7] that in the design of the region usually consists of maps and illustrations representing the desired future for an area. The results of analysis of LQ, Shift Share and Klassen Typology in the agricultural subsector of Gowa Regency showed that the Subsector of Food Crops and Horticultural Crops subsector is a superior subsector based on LQ analysis and Klassen Typology. Both subsectors have a comparative advantage (base sector) because they have an $LQ > 1$ value. Subsector of Food Crops and Horticultural Crops subsector is an advanced but depressed subsector because it is a subsector that has a large contribution to the agricultural sector of Gowa Regency but includes subsectors that are not progressive because it does not have a competitive advantage or low competitiveness of other agricultural subsectors in Gowa Regency and also the subsector has a slower growth rate than the provincial level [7].

The horticultural crop subsector has the highest role with an average VALUE of LQ 1,544. Subsector of horticultural crops has the greatest potential in the agricultural sector gowa district spread across eight sub-districts that are highland areas in the district of Gowa, namely in the district parangloe, manuju, tinggimoncong, tombolo pao, parigi, bungaya, bontolempangan, tompobulu and

biringbulu. In Gowa regency there are 3 sub-districts that are the center of producing vegetables, namely parangloe, bungaya and especially tinggimoncong.

The food crop subsector is also the base subsector, supported by the contribution of the food crop subsector of 73.38% of the GDP of the agricultural sector of Gowa Regency and also the increase of several commodities in the subsector. Rice production increased from 335,152 tons in 2012 to 401,979 tons in 2016.

Plantation Crop Subsector and Livestock Subsector are superior subsectors based on Shift Share analysis and Klassen Typology. Both subsectors are fast-growing subsectors because they are sectors that have a small contribution to the agriculture of Gowa Regency and also include progressive subsectors because they have a competitive advantage or high competitiveness of other agricultural subsectors in Gowa Regency. Plant Subsector

Plantations and livestock subsectors have a faster growth rate than the provincial level and are also subsectors that can be expected in the agricultural sector of Gowa Regency in the next few years.

4. Conclusions

Agriculture, Forestry, and Fisheries sector is one of the economic sectors that become the base in Gowa Regency, but is a 'developed but depressed sector (stagnant sector)' sector due to the growth rate that always decreases every year. Other economic sectors that are the basis in Gowa Regency are electricity and gas procurement sector; water supply, waste management, waste and recycling sectors; accommodation and drinking food supply sector; Information and Communication sector; Real Estate sector; Government Administration, Defense and Compulsory Social Security sectors; and other Services sectors. The agricultural subsector that becomes the base subsector in Gowa Regency. is the horticultural crop subsector and food crop subsector.

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