

## ANALYSIS OF THE AGRICULTURAL SECTOR'S CONTRIBUTION TO THE INCREASE OF GRDP IN THE REGENCY OF GROBOGAN

Muhammad Syaroni<sup>1\*</sup>, Rahmawati Setiyani<sup>2</sup>, Bimoseno Sepfrian<sup>3</sup>

Department of Agrobusiness, Faculty of Science & Technology, Duta Bangsa University

\*Correspondence Email : [202030056@mhs.udb.ac.id](mailto:202030056@mhs.udb.ac.id)

### ABSTRACT

*Grobogan Regency is one of the regencies with the largest agricultural area in Central Java Province, with 134,174.10 hectares in 2023. In the same year, the growth rate of Gross Regional Domestic Product in the agricultural sector in Grobogan Regency was only 0.17%. This research uses Location Quotient Analysis, Shift Share Analysis, and Descriptive Analysis methods. The data used is secondary data in the form of Gross Regional Domestic Product (GRDP) at market prices by sectors in Central Java Province and Grobogan Regency from 2019 to 2023. The objectives of this study were to (1) analyze the growth and competitiveness of the agricultural sector; (2) analyze the ability of the agricultural sector to increase the GRDP of Grobogan Regency. As a result, from 2019 to 2023, the agricultural sector in Grobogan Regency has contributed 25.77%; 26.78%; 26.76%; 25.82%; and 24.63% respectively to the economy of Grobogan Regency. The value of KPN in the agricultural sector of Grobogan Regency is 0.11. In the Proportional Growth Component, the agricultural sector in Grobogan scored -0.05. The Regional Growth Share component of the sector was also negative, -0.02. The Shift Share value of the agriculture sector was 0.05% from 2019 to 2023. The agricultural sector in Grobogan Regency is experiencing slowing growth and is not competitive despite being a basic sector. High food crop production in Grobogan Regency is expected to increase the role of the agricultural sector in the Gross Regional Domestic Product of Grobogan Regency.*

### KEYWORDS

Economy, GRDP, Agriculture, Grobogan



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### INTRODUCTION

Central Java is one of the provinces that excel in the agricultural sector. This is evident from the agricultural sector GRDP of Central Java Province which amounted to 131,397.46 billion Rupiah in 2023. This value puts Central Java in the fourth position with the highest agricultural sector GRDP.

Table 1. Ten Provinces in Indonesia with the Highest Agricultural GRDP by 2023

Province	GRDP of Agriculture Sector at Current Market Price (Billion Rupiah)
Jawa Timur	177.632,30

Sumatera Utara	153.245,51
Riau	149.361,10
Jawa Tengah	131.397,46
Jawa Barat	113.308,54
Sulawesi Selatan	72.226,30
Lampung	69.679,69
Sumatera Selatan	58.153,47
Jambi	45.697,30
Aceh	41.626,32

Source: Badan Pusat Statistik (2023)

Grobogan is the regency with the second largest agricultural area in Central Java, 134,684.73 hectares (BPS, 2023). In 2023, Grobogan's paddy fields covered 129,651.83 hectares with rice production of 679,393.06 tons (BPS, 2023). The size of the agricultural area in Grobogan District is not directly proportional to the GRDP value of its agricultural sector in 2023, which only amounted to 5,513,426.52 million Rupiah (BPS, 2023). This value is quite low compared to other regencies/cities such as Brebes, which was able to record an agricultural sector GRDP value of 11,504,399.03 million Rupiah even though its agricultural area is only 81,315.87 hectares (BPS processed, 2023).

Table 2. Ten Regencies/Cities in Central Java with the Most Agricultural Land in 2023

Regency	Agricultural Land Area (ha)
Cilacap	135,174.10
Grobogan	134,684.73
Sragen	123,658.60
Pati	109,974.79
Blora	109,857.90
Demak	101,215.28
Kebumen	95,685.42
Wonogiri	8,874.04
Brebes	81,315.87
Pemalang	78,630.60

Source: BPS processed (2023)

Regions with extensive agricultural land should be followed by a high GDRP growth rate in the sector. However, this does not occur in Central Java Province because the region with the highest GDRP growth rate in the agricultural sector is actually Surakarta City. According to (BPS, 2023), the GDRP growth rate of the agricultural sector in Grobogan Regency was only 0.17%. This is inversely proportional to the size of agricultural land in Grobogan Regency.

Table 3. Regencies/Cities in Central Java with the Lowest Growth Rate of Agricultural GRDP in 2023

Regency/City	Growth Rate of GRDP in Agriculture Sector in 2023 (%)
Kabupaten Brebes	-2,11
Kabupaten Tegal	-2,04
Kabupaten Demak	-1,48
Kota Pekalongan	-0,47
Kabupaten Batang	-0,29
Kabupaten Wonogiri	-0,27
Kabupaten Blora	-0,14
Kabupaten Pemalang	0,00
Kabupaten Jepara	0,03
Kabupaten Karanganyar	0,11
Kabupaten Grobogan	0,17

Source: BPS Central Java Province (2023)

Table 2 and Table 3 show that Grobogan Regency is the region with the second largest agricultural land area in Central Java, but the GDRP of the agricultural sector is not in the top 10 growth rates of GDRP of the agricultural sector. This is not directly proportional between the land area and the GDRP growth rate, which means that there are problems in the agricultural sector in the Regency. The objectives of this study are to (1) analyze the growth and competitiveness of the agricultural sector in Grobogan Regency, (2) analyze whether the agricultural sector is able to increase Grobogan Regency's GRDP.

## RESEARCH METHOD

This research is located in Grobogan Regency. The location was determined using the purposive method, which is a method of determining the research location intentionally. The time span of this research was from May to June 2024. The data used in this research is secondary data. Secondary data is data obtained from books, literature, and various other sources, as well as from previous research related to this study (Permatasari, 2014). The data for this study were sourced from the Central Java Provincial Statistics Agency (Badan Pusat Statistik/BPS), the Central Java Provincial Statistics Agency (Badan Pusat Statistik/BPS) for each city/regency in Central Java Province, as well as from other agencies related to this research. The data taken includes the Gross Regional Domestic Product (GRDP) of Central Java Province and Grobogan Regency in 2019 – 2023.

The sample and population used in this study are secondary data. The secondary data used are data on the value of Gross Regional Domestic Product for each sector in Grobogan Regency and Central Java Province, as well as the value of Gross Regional Domestic Product in Grobogan Regency and Central Java Province. The GRDP data used is GRDP data at constant 2010 prices from 2019 to 2023.

The methods used in this research are LQ (Location Quotient) Analysis and Shift Share Analysis. The tool used to perform the analysis is Microsoft Office Excel software.

### 1. Location Quotient Analysis

LQ analysis compares the extent of the role of a sector in a region with the role of the sector at the national level (Tarigan, 2015).

$$LQ = \frac{ps/pl}{Ps/Pl}$$

Description:

LQ = Location Quotient

ps = GRDP of sector i in Grobogan Regency

pl = Total GRDP of Grobogan Regency

Ps = GDRP of sector i in Central Java Province

Pl = Total GRDP of Central Java Province

Location Quotient Analysis Criteria:

- a.  $LQ \geq 1$  (basic sector), meaning that the sector has been able to meet the needs within the region and export outside the region.
  - b.  $LQ < 1$  (non-basic sector), meaning that the sector is only able to meet the needs of the region.
- ### 2. Shift Share Analysis

Shift Share analysis is a quantitative technique that can be used to analyze changes in the structure of the regional economy against the economic structure of higher administrative regions. In this analysis, it is assumed that changes in economic activity are influenced by 3 (three) components of regional growth (Soepono, 1993).

**National Growth Component (Komponen Pertumbuhan Nasional)**

$$\frac{Y_t}{Y_o} - 1$$

Y<sub>t</sub> = National regional economic indicators at the end of the analysis year  
Y<sub>o</sub> = National regional economic indicators at the beginning of the analysis year

**Proportional Growth Component (Komponen Pertumbuhan Proporsional)**

$$\frac{Y_{it}}{Y_{io}} - \frac{Y_t}{Y_o}$$

Y<sub>it</sub> = The economic indicator of the national region in sector i at the end of the analysis year  
Y<sub>io</sub> = National regional economic indicator of sector i at the beginning of the analysis year  
Y<sub>t</sub> = National regional economic indicator at the end of the analysis year  
Y<sub>o</sub> = National regional economic indicators at the beginning of the analysis year

**Regional Share Growth Component (Komponen Pertumbuhan Pangsa Wilayah)**

$$\frac{y_{it}}{y_{io}} - \frac{Y_{it}}{Y_{io}}$$

y<sub>it</sub> = Local area economic indicator of sector i at the end of the analysis year  
y<sub>io</sub> = Local area economic indicators of sector i at the beginning of the analysis year  
Y<sub>it</sub> = Economic indicators of the national region in sector i at the end of the year of analysis  
Y<sub>io</sub> = National economic indicators of sector i end of analysis year  
The economic growth of a local region is derived from the sum of the three components above.

**RESULT AND DISCUSSION**

**Growth and Competitiveness Analysis**

Growth and competitiveness analysis was conducted using the Location Quotient Analysis and Shift Share Analysis method. Location Quotient and Shift Share analysis was conducted using Microsoft Excel tools. The results of the Location Quotient can be seen in Table 4.

Table 4. Location Quotient Analysis Calculation Results

Sectors	Average LQ	Caption
<b>Agriculture, Forestry &amp; Fishing</b>	<b>1,98</b>	<b>Basic</b>
Mining & Quarrying	0,56	NonBasic
Manufacturing	0,37	NonBasic
Electricity & Gas	0,93	NonBasic
Water supply, Sewerage, Waste Management & Remediation Activities	0,62	NonBasic
Construction	0,49	NonBasic
<b>Wholesale &amp; Retail Trade; Repair of Motor Vehicles &amp; Motorcycles</b>	<b>1,42</b>	<b>Basic</b>
<b>Transportatin &amp; Storage</b>	<b>1,47</b>	<b>Basic</b>
<b>Accomodation &amp; Food Service Activities</b>	<b>1,39</b>	<b>Basic</b>
Information & Communication	0,67	NonBasic
<b>Financial &amp; Insurance Activities</b>	<b>1,42</b>	<b>Basic</b>
<b>Real Estate Activities</b>	<b>1,18</b>	<b>Basic</b>
Bussiness Activities	0,64	NonBasic

<b>Public Administration &amp; Defence; Compulsory Social Security</b>	<b>1,17</b>	<b>Basic</b>
<b>Education</b>	<b>1,10</b>	<b>Basic</b>
<b>Human Health and Social Work Activities</b>	<b>1,10</b>	<b>Basic</b>
<b>Other Service Activities</b>	<b>1,73</b>	<b>Basic</b>

Source: BPS Grobogan Regency Processed (2023)

The results of the Location Quotient analysis show that the agricultural sector is a basic sector in Grobogan Regency. This is because the agricultural sector is a favored sector in Grobogan Regency. Grobogan Regency utilizes its vast agricultural area by increasing production of agricultural commodities such as rice, corn, and soybeans.

Head of the Agriculture Department of Grobogan Regency, Sunanto, stated that the value of food crop production in Grobogan Regency reached 7.5 trillion Rupiah in 2021. The agricultural sector has proven to be a pillar of Grobogan Regency's economy. Rice production in Grobogan in 2021 reached 800 thousand tons, the highest production in Central Java and number seven at the national level. Grobogan Regency also has the highest corn and soybean production in Indonesia, at 835 thousand tons and 25 thousand tons respectively. The production of large quantities of agricultural commodities allows the agricultural sector to meet local needs and provide surpluses for export outside the region.

Table 5. Shift Share Analysis Calculation Results

<b>Sectors</b>	<b>KPN</b>	<b>KPP</b>	<b>KPPW</b>	<b>Shift Share (KPN + KPP + KPPW)</b>
<b>Agriculture, Forestry &amp; Fishing</b>	<b>0,11</b>	<b>-0,05</b>	<b>-0,02</b>	<b>0,05</b>
Mining & Quarrying	0,11	-0,13	-0,37	-0,39
Manufacturing	0,11	-0,05	-0,13	-0,06
Electricity & Gas	0,11	0,08	-0,15	0,05
Water supply, Sewerage, Waste Management & Remediation Activities	0,11	0,03	-0,03	0,11
Construction	0,11	0,00	0,02	0,13
Wholesale & Retail Trade; Repair of Motor Vehicles & Motorcycles	0,11	0,00	0,01	0,13
Transportation & Storage	0,11	0,19	0,12	0,43
Accommodation & Food Service Activities	0,11	0,16	-0,02	0,25
Information & Communication	0,11	0,28	0,00	0,39
Financial & Insurance Activities	0,11	-0,05	-0,07	0,00
Real Estate Activities	0,11	0,03	0,05	0,20
Business Activities	0,11	-0,02	0,03	0,12
Public Administration & Defence; Compulsory Social Security	0,11	-0,08	0,00	0,03
Education	0,11	-0,04	0,00	0,08
Human Health and Social Work Activities	0,11	0,06	-0,01	0,17
Other Service Activities	0,11	0,00	-0,02	0,09

Source: BPS Grobogan Regency Processed (2023)

The national growth component is the change in employment or production opportunities in a region caused by changes in national employment or production opportunities in general, changes in national economic policy or changes in matters affecting the economy of all sectors and regions (Suhariyono, 2013). The value of the National Growth Component table shows a positive value (0.11) in the agricultural sector, meaning that the sector is nationally competitive and when economic growth in Central Java Province is positive it will have a positive impact on the agricultural sector in Grobogan Regency. This is due to the impact of policies implemented in the agricultural sector of Central Java Province such as the addition and rehabilitation of agricultural infrastructure for food crops, horticulture and plantations. Since 2019, Department of

Public Works and Spatial Planning (DPUPR/Dinas Pekerjaan Umum dan Penataan Ruang) of Grobogan Regency has been repairing and adding infrastructure to support agricultural activities, such as improving roads to support the distribution of agricultural products and making agricultural irrigation lines.

The value of the Proportional Growth Component (KPP) for the agricultural sector in Grobogan Regency is -0.05. This value indicates that the agricultural sector in Grobogan experienced slow growth compared to the average growth of the same sector at the national level. This means that the sector is not growing as fast as expected if it follows the national trend.

The Regional Share Growth Component value of the agricultural sector in Grobogan Regency is negative, -0.02. This indicates that the agricultural sector in Grobogan Regency does not have comparative competitiveness compared to the agricultural sector in Central Java Province.

Research conducted by Rahmawati et al. (2023) showed that in 2017 - 2022 each sub-district in Grobogan Regency had varying land carrying capacity for rice farming. In 2022 there was a change in the carrying capacity of rice farming land in Grobogan District and Purwodadi District caused by a decrease in agricultural land area and an increase in population. The research is also in line with research conducted by Gamaputra et al. (2023) which states that the production of rice commodities in Grobogan Regency is lower than other commodities such as soybeans and corn.

Based on the Shift Share Analysis that has been conducted, it can be seen that the Shift Share value in the agricultural sector in Grobogan Regency is 0.05. Although the agricultural sector has a lower KPP and KPPW value compared to other sectors in Grobogan Regency, the sector as a whole is still experiencing growth even though it is small. Although the agricultural sector shows a significant contribution to the GRDP of Grobogan Regency with a value of 24.6% in 2023, the growth of the agricultural sector tends to be slow compared to other sectors. The growth of the agricultural sector tends to stagnate from year to year with a contribution to the GRDP of Grobogan Regency that has not increased significantly, but still has the opportunity to grow better and increase GRDP.

#### **Attempts to Increase the Contribution of the Agricultural Sector to Grobogan Regency's GRDP**

The agricultural sector in Grobogan Regency experienced slow growth and lacked competitiveness despite being a basic sector. The sector as a whole experienced positive growth, albeit small, and still has the opportunity to grow better. The development of the agricultural sector is closely related to the economic development of a country, which not only encourages the level of output but also encourages the level of welfare and living standards of farmers (Azmi and Hasmarini, 2022). So the efforts that can be made to develop the agricultural sector in order to increase its contribution to the GRDP of Grobogan Regency are as follows :

1. Encourage the development of integrated agribusiness from upstream to downstream, including the agro-processing industry to increase the added value of products. Integration from upstream to downstream allows for better management of planting, crop care, processing, and marketing. This can increase the productivity and quality of agricultural products.
2. Upgrade agricultural infrastructure such as irrigation systems and access roads to farmland. Good transportation infrastructure such as roads and bridges can improve the accessibility and distribution of agricultural products, making them more competitive in the market. Transportation infrastructure is infrastructure that functions for transportation that plays a role in stimulating economic growth because the availability of roads will minimize complementary capital, so that the production

and distribution process will be more efficient (Subroto and Sapha, 2016). Infrastructure such as irrigation is very important in increasing agricultural productivity, especially when the weather is unpredictable. Irrigation allows farmers to control water more effectively so that production can increase. Irrigation infrastructure will make it easier for people to manage their agricultural crops (Subroto & Sapha, 2016).

3. Adoption of modern agricultural technologies such as efficient use of fertilizers and pesticides, and technology to monitor land conditions. Technology helps farmers optimize resource use and reduce losses due to crop diseases and pests by monitoring crop growth. The use of agricultural equipment technology can affect the effectiveness and efficiency of production (Rusydi and Rusli, 2022).
4. Training and empowerment of farmers so that they can adopt modern agricultural technologies. Empowerment and training are also important to improve farmers' skills in various aspects of agriculture, such as farming techniques, pest and disease management, and crop management so as to increase production and added value.

Development in the agricultural sector is inseparable from the development of rural areas that place agriculture as the main driver of the economy. Land, labor potential, and the rural local economic base are the main factors for agricultural development (Kusumaningrum, 2019). Agricultural development must be based on the principle of sustainability, which includes ecological, social and economic aspects (Wibowo, 2004). The agricultural sector has a very important role in the economy. Apart from being a provider of employment, the agricultural sector also plays a role in providing food needs for the community.

### **CONCLUSION**

In conclusion, this study reveals that while the agricultural sector in Grobogan Regency remains foundational to the local economy, contributing consistently around 25% to the region's GRDP, its growth trajectory is stagnating and lacks competitiveness. Despite having one of the largest agricultural areas in Central Java, Grobogan's agricultural sector underperforms in terms of growth and comparative advantage. The analysis through Location Quotient and Shift Share shows that the sector is a "basic" one but does not generate significant economic momentum compared to other regions with similar agricultural potential.

Factors such as climate challenges, limited infrastructure, and underutilization of modern agricultural techniques constrain growth. To unlock the agricultural sector's potential, Grobogan must embrace an integrated approach that encompasses infrastructure upgrades, sustainable pest and crop management practices, and technology adoption. By focusing on improving productivity and value-added processes, the agricultural sector in Grobogan could bolster its role not only in local GRDP but also in regional economic stability, fostering broader socio-economic benefits for the community.

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