Analysis of the Role of the Agricultural Sector in Indonesia in 2015–2020

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Abstract. The agricultural sector in Indonesia is an important sector in the national economy, but its role in the formation of GRDP in most regions has begun to decline. This was followed by a decrease in the area of harvested land. The purpose of this study is to look at the agricultural sector and sub-sector that acts as the base sector in each province in Indonesia. The method used in this study uses the Location Quotient (LQ) method during the period 2015 to 2020. The results of this study indicate that the agricultural sector is still the base sector in most provinces in Indonesia. The agricultural sector is a non-basic sector in the Riau Islands Province, DKI Jakarta, West Java, DI Yogyakarta, East Java, Banten, East Kalimantan, West Papua and Papua. On average, the LQ value for the Sumatra region is 1.76 percent, indicating that the agricultural sector is the base sector of Sumatra. The agricultural sector in the Java region is a non-basic sector with an average LQ value of 0.37 percent. The Bali region has an average LQ value of 1.63 percent with the base sector being the agricultural sector. On average, the LQ value for the agricultural sector in the Kalimantan region is 1.26 percent. The agricultural sector is the base sector in the Sulawesi region with an LQ value of 2.22 percent. The Maluku region has an LQ value of the agricultural sector of 1.80 percent. Meanwhile, the Papuan agricultural sector is a non-basic sector with an LQ value of 0.80 percent on average. The sub-sectors of agriculture, plantations, hunting and agricultural services, food crops and plantation crops are the supporting sub-sectors for the agricultural sector in most provinces. The agriculture, plantation, hunting and agricultural services sub-sectors contributed an average of 1.65 percent to the provinces of Aceh, North Sumatra, Riau, Jambi, South Sumatra, Bengkulu, Lampung, West Nusa Tenggara, East Nusa Tenggara, West Kalimantan, Central Kalimantan, North Sulawesi, Central Sulawesi, South Sulawesi, Gorontalo, West Sulawesi, and North Maluku. The food crops sub-sector contributed 1.51 percent to Gorontalo Province. Meanwhile, the plantation sub-sector contributed 1.35 percent on average to the provinces of Riau, Jambi, Central Kalimantan, and West Sulawesi.

Keywords: agriculture · Location quotient (LQ) · Base sector · Non-basic sektor

1 Introduction

As an agrarian country, Indonesia's national economy is still largely dependent on the agricultural sector. Indonesia has 1.9 million square kilometres of land, the majority of which is suitable for agriculture, and the majority of the Indonesian population is farming as a livelihood. As an agricultural country, Indonesia has abundant natural resources and fertile land. Therefore, the agricultural sector has a huge potential to be utilized by the Indonesian population. The agricultural sector has made a major contribution to national development, employment, increasing people's incomes, Gross Domestic Product (GDP), and foreign exchange earnings through export–import [1].

The agricultural sector in Indonesia is not only the main livelihood for the people, but can be a support to improve the Indonesian economy. The competitiveness of commodities in the agricultural sector in Indonesia has a fairly high position in the international market. This is supported by research which states that there are 11 Indonesian agricultural products that rank very well in the world [2].

The agricultural sector from 2015 to 2020 turned out to have a large role in the formation of GRDP, but the role of the agricultural sector in Java has decreased, replaced by the manufacturing sector and the service sector. This reduction in agricultural land is caused by an increase in the number and activity of the population as well as development activities [3]. Fertile agricultural land has now been converted into housing, industry, and extensive infrastructure which is much larger than the area of the new rice fields [4]. This is reinforced by research conducted by that the conversion of land from agriculture to non-agriculture is caused by a structural transformation of the economy and demography [5].

According to the Strategic Plan Report of the Ministryi of Agriculture 2020–2024, the conversion of agricultural land will lead to reduced food production, investment losses, degradation of agro-ecosystems, degradation of agricultural traditions and culture, which results in the narrowing of farming areas and a decrease in farmer welfare so that farming activities carried out by farmers are not can guarantee a decent standard of living [6] (Fig. 1).

Land area is one of the determining factors for achieving production targets. Based on Fig. 5 in 2019, the area of rice fields was 7,463,948 hectares and decreased by 987,762 hectares from the land area in 2015. Then the Ministry of ATR/BPN again set the national standard area of rice fields in 2019 at 7,463,948 hectares (Agriculture, 2020). This is reinforced by research conducted by Mulyani and colleagues in nine rice centre provinces
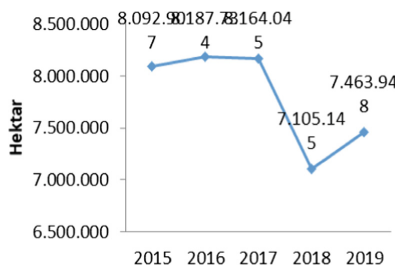

Fig. 1. Paddy Field Area

(West Java, East Java, Bali, West Nusa Tenggara, South Sulawesi, South Kalimantan, South Sumatra, North Sumatra and Gorontalo) which show the conversion of rice fields of 96,512 ha/year [7].

Agriculture is the basis of the Indonesian economy. The agricultural sector is one of the factors driving the economic growth of a country because the agricultural sector is able to absorb labour. In addition, the agricultural sector also plays a role as a provider of raw materials and a potential market for the industrial sector [8]. The agricultural sector has a tendency to become one of the economic base sectors in various provinces in Indonesia, this can be seen from the contribution of the agricultural sector to the formation of Indonesia's GDP and the formation of provincial GRDP [4, 9].

2 Ease of Use

Economic Base Theory (Economic Base Theory) is a theory or approach that aims to explain regional development and growth [10]. The main idea is that some economic activities in a region are specifically basic economic activities, which lead and determine the development of the region as a whole, while other non-basic activities are simply a consequence of the overall development of the region.

therefore the regional economy can be divided into two parts, namely base activities and non-base activities. Glasson in the book Regional: Development, Planning, and Economics states that:

Grassroots activities refer to activities that export goods or services outside the economic boundaries of a region or sell goods or services to people outside the economic boundaries of the community concerned. Grassroots activities are activities that provide needed goods to communities within their economic boundaries.

Meanwhile, non-basic activities are activities that provide goods needed by people who live within the economic boundaries of the community concerned.

3 Prepare Your Paper Before Styling

This research is a quantitative descriptive research in the form of Location Quotient (LQ) analysis. The data used in this study comes from the Central Statistics Agency (BPS) at the address www.bps.go.id using time series data for the period 2015 to 2020.

The data is processed using Microsoft Excel with data on the GRDP of the agricultural sector, total GRDP, and GRDP of the agricultural sub-sector for each province in Indonesia. This study uses Location Quotient (LQ) analysis to see the basic and non-base sectors of each province in Indonesia. The formula for calculating LQ is as follows:

$$LQ = \frac{\left(\frac{xi}{PDRB}\right)}{\frac{Xi}{PDB}}$$

xi: The added value of sector i in a region/province.
Xi: The added value of sector i nationally.
PDRB: Gross Regional Domestic Product of the area.

PDB: Gross National Product or GDP.

The agriculture, plantation, hunting and agricultural services sub-sectors contributed an average of 1.65 percent to the provinces of Aceh, North Sumatra, Riau, Jambi, South Sumatra, Bengkulu, Lampung, West Nusa Tenggara, East Nusa Tenggara, West Kalimantan, Central Kalimantan, North Sulawesi, Central Sulawesi, South Sulawesi, Gorontalo, West Sulawesi, and North Maluku. The food crops sub-sector contributed 1.51 percent to Gorontalo Province. Meanwhile, the plantation sub-sector contributed 1.35 percent on average to the provinces of Riau, Jambi, Central Kalimantan, Central Sulawesi, and West Sulawesi.

4   Using the Template

To identify a potential and non-potential economic sector and sub-sector, a Location Quotient (LQ) analysis tool is used. Location Quotient analysis is a technique that can divide the economic activities of an area into two groups, namely:

- Economic sector activities that serve the market in the area itself and outside the area concerned. This economic sector is called the potential economic sector (base).
- The activities of economic sectors that serve the local market are called non-potential (non-basic) sectors or local industries. This theory states that the main drivers of economic growth in the region are directly related to the demand for goods and services from outside the region. The growth of industries that utilize local resources, such as labour and raw materials for export, will create local wealth and employment jobs.

Based on Table 1, the agricultural sector still dominates 25 provinces in Indonesia as the base sector. The contribution of the agricultural sector to the Indonesian economy is quite good which makes basic activities during the 2015 to 2020 period very good to be developed. This is because the agricultural sector acts as a provider of raw materials and a potential market for the industrial sector [8]. The agricultural sector has a tendency to become one of the economic base sectors in various provinces in Indonesia, this can be seen from the contribution of the agricultural sector to the formation of Indonesia's GDP and the formation of provincial GRDP [9]. Table 2 shows that the agricultural sector is supported by the sub-sectors of agriculture, plantations, hunting and agricultural services, contributing an average of 1.65 percent for the provinces of Aceh, North Sumatra, Riau, Jambi, South Sumatra, Bengkulu, Lampung, West Nusa Tenggara., East Nusa Tenggara, West Kalimantan, Central Kalimantan, North Sulawesi, Central Sulawesi, South Sulawesi, Gorontalo, West Sulawesi and North Maluku (Table 3 and 4).

Not only the sub-sector of agriculture, plantations, hunting and agricultural services, the food crops sub-sector also contributed 1.51 percent to Gorontalo Province. Meanwhile, the plantation sub-sector contributed 1.35 percent on average to the provinces of Riau, Jambi, Central Kalimantan, and West Sulawesi.

The agricultural sector is a non-basic sector in the Riau Islands Province, DKI Jakarta, West Java, DI Yogyakarta, East Java, Banten, East Kalimantan, West Papua and Papua.

Table 1. Location Quotient (LQ) Result for the Agricultural Sector

Province	2015	2016	2017	2018	2019	2020
Aceh	2.21	2.24	2.38	2.51	2.63	2.62
North Sumatera	1.91	1.93	1.96	1.98	2.00	1.99
West Sumatera	1.83	1.80	1.79	1.78	1.76	1.74
Riau	1.86	1.92	2.00	2.06	2.12	2.15
Jambi	2.01	2.09	2.12	2.12	2.12	2.08
South Sumatera	1.46	1.43	1.39	1.35	1.34	1.32
Bengkulu	2.26	2.25	2.23	2.22	2.22	2.15
Lampung	2.45	2.44	2.37	2.30	2.24	2.21
Bangka Belitung Islands	1.46	1.49	1.43	1.46	1.48	1.58
Jawa Tengah	1.08	1.07	1.04	1.03	1.00	1.02
Bali	1.11	1.09	1.08	1.07	1.07	1.12
West Nusa Tenggara	1.63	1.61	1.74	1.88	1.86	1.79
East Nusa Tenggara	2.18	2.16	2.18	2.16	2.15	2.11
West Kalimantan	1.75	1.75	1.80	1.84	1.88	1.87
Central Kalimantan	1.66	1.64	1.63	1.67	1.71	1.67
South Kalimantan	1.11	1.12	1.12	1.12	1.13	1.09
North Kalimantan	1.33	1.38	1.36	1.38	1.38	1.40
North Sulawesi	1.59	1.58	1.57	1.55	1.57	1.56
Central Sulawesi	2.47	2.31	2.27	1.99	1.90	1.72
South Sulawesi	1.65	1.69	1.68	1.67	1.63	1.57
Southeast Sulawesi	1.78	1.83	1.83	1.86	1.86	1.81
Gorontalo	2.79	2.83	2.92	2.99	3.03	2.87
West Sulawesi	3.05	3.04	3.08	3.11	3.12	3.10
Maluku	1.82	1.83	1.86	1.86	1.88	1.86
North Maluku	1.78	1.79	1.73	1.69	1.68	1.55

This is because the agricultural sector in these areas has transformed into other sectors, such as the service sector [10].

A. Implication and Suggestions for Future Research.

The agricultural sector is still the basic sector in 25 provinces in Indonesia. On average, the LQ value for the Sumatra region is 1.76 percent, indicating that the agricultural sector is the base sector of Sumatra. The agricultural sector in the Java region is a non-basic sector with an average LQ value of 0.37 percent. The Bali region has an average LQ value of 1.63 percent with the base sector being the agricultural sector. On average, the LQ value for the agricultural sector in the Kalimantan region is 1.26 percent. The agricultural sector is the base sector in the Sulawesi region with an LQ value of 2.22

Table 2. Location Quotient (LQ) Result For The Agricultural Sub-Sector

Agriculture Sector	2015	2016	2017	2018	2019	2020
Aceh	1.68	1.70	1.72	1.74	1.78	1.77
North Sumatera	1.46	1.44	1.43	1.41	1.40	1.38
West Sumatera	1.37	1.44	1.50	1.57	1.62	1.64
Riau	1.76	1.83	1.90	1.87	1.87	1.83
Jambi	1.07	1.06	1.02	0.99	0.94	0.95
South Sumatera	1.69	1.67	1.67	1.66	1.65	1.60
Bengkulu	1.93	1.93	1.85	1.81	1.77	1.74
Lampung	1.34	1.32	1.42	1.53	1.51	1.45
Bangka Belitung Islands	1.81	1.78	1.80	1.75	1.75	1.70
Jawa Tengah	1.50	1.51	1.56	1.61	1.65	1.64
Bali	1.38	1.38	1.40	1.45	1.49	1.46
West Nusa Tenggara	1.06	1.06	1.06	1.04	1.04	1.03
East Nusa Tenggara	1.87	1.73	1.70	1.48	1.40	1.30
West Kalimantan	1.10	1.12	1.10	1.08	1.02	0.98
Central Kalimantan	2.10	2.13	2.21	2.28	2.29	2.16
South Kalimantan	2.33	2.31	2.34	2.36	2.35	2.33
North Kalimantan	1.19	1.20	1.16	1.12	1.10	1.03

Table 3. Location Quotient (LQ) Result For The Agricultural Sub-Sector

Plantation Plant Sector	2015	2016	2017	2018	2019	2020
Riau	1.20	1.26	1.32	1.38	1.44	1.46
Jambi	1.29	1.35	1.38	1.37	1.38	1.36
Central Kalimantan	1.04	1.05	1.09	1.14	1.17	1.15
West Sulawesi	1.57	1.47	1.47	1.48	1.42	1.34
Gorontalo	1.43	1.46	1.54	1.60	1.60	1.48

percent. The Malukui region has an LQ value of the agricultural sector of 1.80 percent. Meanwhile, the Papuan agricultural sector is a non-basic sector with an LQ value of 0.80 percent on average. The agricultural sector is a non-basic sector in the Riau Islands Province, DKI Jakarta, West Java, DI Yogyakarta, East Java, Banten, East Kalimantan, West Papua and Papua.

The agriculture, plantation, hunting and agricultural services sub-sectors contributed an average of 1.65 percent to the provinces of Aceh, North Sumatra, Riau, Jambi, South

Table 4. Location Quotient (LQ) Result For The Agricultural Sector

Provinces	2015	2016	2017	2018	2019	2020
Riau Island	0.28	0.29	0.28	0.26	0.25	0.24
DKI Jakarta	0.01	0.01	0.01	0.01	0.01	0.01
West Java	0.00	0.00	0.00	0.00	0.00	0.57
DI Yogyakarta	0.70	0.69	0.68	0.66	0.63	0.65
East Java	0.00	0.00	0.00	0.00	0.81	0.81
Banten	0.43	0.44	0.44	0.44	0.43	0.45
East Kalimantan	0.50	0.47	0.53	0.55	0.55	0.54
Papua	0.89	0.85	0.85	0.83	0.00	0.00
West Papua	0.80	0.80	0.82	0.80	0.82	0.00

Sumatra, Bengkulu, Lampung, West Nusa Tenggara, East Nusa Tenggara, West Kalimantan, Central Kalimantan, North Sulawesi, Central Sulawesi, South Sulawesi, Gorontalo, West Sulawesi, and North Maluku. The food crops sub-sector contributed 1.51 percent to Gorontalo Province. Meanwhile, the plantation sub-sector contributed 1.35 percent on average to the provinces of Riau, Jambi, Central Kalimantan, Central Sulawesi, and West Sulawesi.

The weaknesses in this study only look at the basic sector in Indonesia. It is hoped that.

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