

Location Quotient Analysis of Agricultural Sector and Subsector in East Java 2010-2017 (A Reference for Law and Policy on Economics, Nutrition and Public Health)

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Abstract

Indonesia is known as an agrarian country, should rely on the agricultural sector as an economic source as well as supporting development. In addition to the economic aspects, the progress of agriculture is also very important for the provision of nutrients for the maintenance and improvement of public health. This study uses the Location Quotient method to obtain a base subsector in the agricultural sector, so that the results can be used as material for consideration of export specialties. This study uses East Java GRDP data and as a comparison using Indonesia's GRDP in 2010-2016. The results in this study indicate that the food crop and livestock sub-sector has an advantage compared to other sub-sectors and becomes a subsector of the base, so that these two sub-sectors can be used as export products for East Java.

Keywords: Location Quotient, Agriculture, East Java

Introduction

Background : The economic growth of a region can be seen from the increase in Gross Regional Domestic Products (GRDP).⁽¹⁾ Sector in GRDP is agriculture, mining and excavation, processing industry, electricity, gas and water sector, building sector, trade, hotel and restaurant sector, transportation and communication sector, financial sector, leasing and business services, and services sector.⁽²⁾ A region is said to be agrarian if the role of the agricultural sector is very dominant in its GDP, and vice versa is said to be an industrial area if the dominant sector is the industry.

The existence of agricultural potential in an area does not have meaning for the agricultural growth of the region if there is no effort to utilize and develop the potential of agriculture optimally. Therefore, the utilization and development of all potential agricultural potentials must be a top priority to be explored and developed in implementing regional agricultural development as a whole.⁽³⁾

Indonesia is known as an agrarian country, should rely on the agricultural sector as an economic source as well as supporting development. In addition to the economic aspects, the progress of agriculture is also very important for the provision of nutrients for the maintenance and improvement of public health. The role of the agricultural sector in economic development is very important, because most members of Indonesian society depend their lives on the sector. If the planners really pay attention to the welfare of their people, then the only way is to improve the welfare of most members of their community who live in the agricultural sector.⁽⁴⁾ The agricultural sector is still a part of potential development resources to be used as a strategic sector of current and future development planning, both at the national and regional levels.⁽⁵⁾

The percentage of East Java's agricultural sector to East Java GRDP during 2010-2017 averaged 14% with an increase every year. The Agriculture, Animal Husbandry, Hunting and Agricultural Services sub-sector has the largest contribution compared to the lack and logging and fisheries. Food crops have the largest contribution to the subsector of Agriculture, Livestock, Hunting and Agricultural Services and always increase every year.⁽⁶⁾ The potential of East Java province with

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agricultural and non-agricultural land resources reached 4,598,266 Ha at the end of 2016, with donations of 1,176,650 hectares of rice fields, 2,477,669 hectares of non-rice fields, and 943,946 hectares of non-agricultural land.⁽⁷⁾

The Agricultural sector has a forward and backward relationship that is relatively strong with the manufacturing industry sector; construction; trade, hotel and restaurant; transportation and communication; and services. This relatively strong forward link means that output from the agricultural sector is widely used as input by these sectors, the relatively strong backward link means that these sectors need a lot of raw materials from the agricultural sector.⁽²⁾

Economic growth is an important part that is inseparable from achieving economic development. Therefore, an analysis of the region that is the mainstay of the leading sector is needed to encourage economic growth in the East Java province. So that economic development planning can be realized in a structured manner based on its sectoral potential. If viewed from the regional GRDP sector value, the agricultural sector has a large role in increasing East Java GRDP. Nevertheless, it cannot be ascertained that the agricultural sector is the basis of the East Java Province, because comparisons with the wider area are needed. In this case, East Java Province is a comparison of the value of the East Java Regency GRDP sector. Calculation of Location Quotient (LQ) value is needed to find out the base and non-base sectors owned by East Java Province. LQ calculation can be used to find a Leading sector so that with industrial development it will spur and lift the development of other sectors, such as the agricultural sector. Rapid industrial growth will stimulate the growth of the agricultural sector to provide raw materials for industry.⁽⁸⁾

Purpose

Identification of the agricultural subsector which is the base sub-sector of East Java Province as the A Reference for Law and Policy on Economics, Nutrition and Public Health.

Method

Location Quotient (LQ)

LQ techniques are widely used to discuss economic conditions, leading to the identification of specialization of economic activities or measuring the relative

concentration of economic activities to get a picture in determining the leading sectors as a leading sector of an industrial economic activity.

Commodities that produce $LQ > 1$ are normative standards to be determined as superior commodities. However, when there are many commodities in an area that produce $LQ > 1$, while only one is sought, then the one that must be selected is the commodity that gets the highest LQ. Because the higher the value of LQ in an area shows the higher the potential for superiority of the commodity. Thus, the LQ analysis method or location quotient can be used easily and efficiently if you want to calculate a leading sector somewhere. Deficiencies encountered in the field can be reduced carefully and diligently in collecting data. The results obtained later are accuracy and leading sectors that can be empowered and developed by all communities in a particular region.

Based on GRDP data, sectoral contributions and economic growth rates in East Java and Indonesia, calculations can be made using the Location Quotient (LQ) method to find the

comparative advantage possessed by East Java Province towards Indonesia by identifying the base and non-base sectors. The data used is data on the basis of constant prices

With the aim to see economic developments in real terms whose growth is not affected by changes in prices or inflation / deflation. Sectors included in the base sector indicate that the sector has a comparative advantage. With the increase in the number of base activities in a region, the income inflows will increase due to export activities. On the other hand, non-base activities cause the outflow of income from the region to the monetary outflow caused by the region importing shortages in demand in the sector to meet needs within the region.

Base and Non-Base Sectors According to Arsyad⁽⁸⁾ economic base theory states that the main determinant of economic growth in a region is directly related to the demand for goods and services from outside the region. Economic base theory essentially differentiates base sector activities and non-base sector activities. Base sector activity is the growth of the sector that determines the overall development of the area, while the activities of the non-base sector constitute the city polowing sector, which means that it depends on developments that occur from comprehensive development.

Economic base theory seeks to find and recognize the activity of the basis of a region, then predict that activity and analyze the additional impact of the export activity. The key concept of economic base theory is that export activities are the engine of growth. Whether or not a region grows is determined by how the region's performance is against demand for goods and services from outside.

Furthermore, in economic base theory analysis, the theory can be used to determine potential sectors and sub-

sectors in East Java Province based on Gross Regional Domestic Product (GRDP). If the potential sector can be developed properly it certainly has a significant influence on the economic growth of a region, which in turn can increase regional income optimally. According to this theory an area can be differentiated into a mainstay area and not a mainstay, which is subsequently modified into a potential economic sector / subsector and not a potential economic sector / sub-sector.

Discussion

Table 1. GRDP at Constant Price Based on Business Fields in East Java and Indonesia in 2010 up to 2017 (Billion Rupiahs)

Sector	2010	2011	2012	2013	2014	2015	2016	2017
Agriculture, Forestry and Fisheries	133504.60	138870.10	146002.60	150463.70	155784.00	160889.40	164760.40	167197.00
1 Agriculture, Animal Husbandry, Hunting and Agricultural Services	108672.40	112521.80	116214.20	117512.80	120975.90	124238.40	127119.10	127603.80
a Food Crop	46010.30	46435.30	47585.50	48241.20	49679.10	51233.80	52136.80	51001.70
b Horticulture Plants	13372.90	14305.90	14461.70	14298.00	14735.30	15476.60	16541.40	16567.70
c Plantation Plants	20785.10	22121.00	23452.40	23877.70	25064.60	25379.00	25192.10	25534.20
d Ranch	26996.40	28126.70	29055.80	29365.60	29704.60	30302.80	31357.80	32579.10
e Agricultural Services and Hunting	1507.70	1532.80	1658.80	1703.20	1792.30	1846.10	1891.10	1921.00
2 Forestry and Logging	4239.60	4501.80	5675.80	6046.90	6055.10	6257.50	5709.70	6122.50
3 Fisheries	20592.50	21847.30	24112.60	26903.90	28752.90	30393.50	31931.60	33471.30
GROSS DOMESTIC PRODUCT	990648.80	1054401.80	1124464.60	1192789.80	1262684.50	1331376.10	1405561.00	1482147.60
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Table 1 is the data on GRDP of the Agriculture, Forestry and Fisheries sector of East Java Province and Indonesia's GRDP in billion Rupiah as comparative material for the analysis of the agricultural sector location quotient. In the agricultural sector including the subsector of agriculture, livestock, hunting and agricultural services (food crops, agricultural crops,

plantation crops, livestock and agricultural and plantation services), forestry and logging and fisheries. Based on GRDP, the eastern subsector of agriculture, animal husbandry, hunting and agricultural services has a greater contribution to East Java's GRDP compared to the forestry subsector and logging and fisheries.

The following are the results of East Java Agricultural sector LQ Calculation for the 2010-2017 period.

Table 2. LQ Processing Results

	2010	2011	2012	2013	2014	2015	2016	2017
Agriculture, Forestry and Fisheries	0.97	0.97	0.97	0.95	0.94	0.93	0.91	0.89
1. Agriculture, Animal Husbandry, Hunting and Agricultural Services	1.00	1.00	0.98	0.95	0.93	0.92	0.91	0.88
a Food Plants	1.26	1.28	1.24	1.23	1.26	1.23	1.22	1.16
b Horticulture	0.84	0.82	0.85	0.83	0.80	0.82	0.85	0.82
c Plantation	0.54	0.54	0.54	0.51	0.50	0.50	0.47	0.46
d Animal Husbandry	1.73	1.71	1.67	1.60	1.52	1.49	1.47	1.47
e Agriculture and Hunting Services	0.74	0.72	0.73	0.71	0.72	0.71	0.70	0.68
2 Forestry and Logging	0.51	0.53	0.66	0.70	0.69	0.70	0.64	0.67
3 Fisheries	0.99	0.98	1.01	1.04	1.03	1.01	1.00	0.99

LQ >1 and consistent from 2010-2017, it is the food crop subsector and livestock, with the highest LQ value being the livestock subsector. The two sectors can be interpreted as the provisional sector base of East Java while the non-base sector is the subsector of Horticulture Plants, Plantation Plants and Agricultural Services and Hunting.

In the Food Crop sub-sector, the following information about the results of the calculation of Food Crop LQ value in East Java Province in 2010-2017: In 2010 the Food Crop sector has a LQ value of 1.26 >1 with a GRDP amounting to 46010.30 (Billion Rupiah) for one year. In 2011 the food crop sector had an LQ value of 1.28 >1 with a GDP value of 46435.30 (Billion Rupiah) for one year. In 2011, the value of LQ did not experience a significant change from 2010 to 2011 with an increase in the value of GDP that was also not too high. There is no significant change to the LQ value because this occurs when the economic growth rate in the Indonesian sector is greater than that of the East Java Province.

In 2012 the food crop sector had a LQ value of 1.24 >1, the LQ value in 2012 decreased compared to the LQ value in 2011 with a GDP value of 47585.50 in billion

rupiah. In 2013 the food crop sector value of LQ dropped back to become the number 1.23 >1, with a GRDP value of 48241.20. In 2014 the LQ value rose again to 1.26 >1 with a GDP value of 49679.10. However, in 2015-2017 the value of LQ has decreased continuously, namely 1.23 1.22 and 1.16 with a GDP value of 51233.80 in 2015, 52136.80 in 2016 and 51001.70 in 2017 in billion rupiah.

In the subsector of livestock, the value of LQ has continued to decline from 2010 to 2017. In 2010 the value of livestock subsector LQ was 1.73 with a GRDP value of 26996.40 in the rupiah bill. In 2011 the LQ value decreased by 1.71 with a GRDP value of 28126.70 in billion rupiah. And in 2012-2017 livestock subsector LQ values were 1.67 1.60 1.52 1.49 1.47 1.47 with a GDP value of 29055.80 in 2012, 29365.60 in 2013 29704.60 in 2014, 30302.80 in 2015, 31357.80 in 2016 and 32579.10 in 2017 in billion rupiah.

East Java Province has great potential in the food and livestock sector, including Malang and its surroundings. The food crop sector is the sector that has the largest increase in output as a result of changes in the demand for the end of East Java Province.⁽⁹⁾ Capital support is considered very much needed in both sectors. The

shift in the structure of the economy from agriculture to the industrial sector is feared to have an impact on the state of economic stability, where the agricultural sector also contributes to the food sector. Food security and increased regional income can be achieved through maximization and optimization in the agricultural sector. Land use and use of machinery are expected to increase agricultural productivity in East Java, so that sustainable development in the agricultural sector can work.⁽¹⁰⁾

The contribution of the food and livestock sector in East Java to GDP is the second largest after trade. Malang Regency is the largest producer of beef cattle in Indonesia.⁽¹¹⁾ Livestock subsector has a very important role in supporting the achievement of national food security. This is because livestock is a provider of animal food from livestock through increased production of various commodities, as well as providers of raw materials for industry. In addition, livestock indirectly plays a role in alleviating poverty, because⁽¹²⁾ livestock is a process that uses production factors from the community so as to provide remuneration to the community that will affect their income, as well as an alternative energy source for environmental sustainability life (Zulkifli et al., 2015).

Conclusion

Based on the analysis of the agricultural sector location quotient in East Java, the food crop and livestock sector can be regarded as a base sector, both sectors have $LQ > 1$. So that both sectors can be used as leading sectors to specialize in exports. Livestock has a greater LQ value compared to the food crop sector, this is because East Java is more precisely in Malang Regency, the largest producer of beef cattle in Indonesia. Food security and increased regional income can be achieved through maximization and optimization in the agricultural sector. As it is understood that food security in turn is a source for nutritional needs and improving public health.

Ethical Clearance: Yes

Conflict of Interest: None

Source of Funding: Authors

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