ANALYSIS OF AGRICULTURAL SECTOR BASE IN MALANG REGENCY WITH GRDI AND LABOR INDICATORS

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ABSTRACT

Indonesia is a country that has abundant natural wealth. Agriculture plays an important role in the national economy. This study aims to determine whether the agricultural sector in Malang Regency is a leading sector and can become the basis and wheel of the regional economy in the present and the future with GRDP and Labor indicators. The analytical methods used are Location Quotient (LQ) and Dynamic Location Quotient (DLQ). Based on the results of LQ GRDI analysis at constant prices for 2015-2022, it proves that the agricultural sector in Malang Regency is a leading sector with an LQ value > 1.37, the leading sub-sectors are Horticultural Crops 3.70, Livestock 2.38, and Agricultural Services with a value of 1.77, the absorption of agricultural workers in Malang Regency is not appropriate because it shows LQ <1. Based on the DLQ method, the farm sector will become a non-basic sector in the future because it shows a DLQ of 0.61, and the five agricultural sub-sectors in Malang Regency, namely food crops 0.57, horticulture 0.68, plantations 0.62, livestock 0.66 and farming and hunting services 0.54 are non-basic sectors in the future.

Keywords: GRDP, Sector, Economy, Labor, Agriculture.

ABSTRAK

Indonesia negara yang memiliki kekayaan alam melimpah, pertanian memegang peranan penting dalam perekonomian nasional. Penelitian ini bertujuan untuk mengetahui apakah sektor pertanian di Kabupaten Malang merupakan sektor unggulan di masa kini dan masa yang akan datang dengan indikator GRDI dan Tenaga Kerja. Metode analisis yang digunakan adalah Location Quotient (LQ) dan Dynamic Location Quotien (DLQ). Berdasarkan hasil analisis LQ GRDI harga konstan 2015-2022 membuktikan bahwa sektor pertanian di Kabupaten Malang merupakan sektor unggulan dengan menunjukan nilai LQ >1.37, subsektor yang menjadi unggulan adalah Tanaman Hortikultura 3.70, Peternakan 2.38 dan Jasa Pertanian dengan nilai 1.77, tenaga kerja sektor pertanian di Kabupaten Malang penyerapanya kurang sesuai karena menunjukan LQ <1. Berdasarkan metode DLQ sektor pertanian akan menjadi sektor nonbasis dimasa mendatang karena menunjukan DLQ 0.61 dan kelima subsektor pertanian di Kabupaten Malang yaitu tanaman pangan 0.57, hortikultura 0.68, perkebunan 0.62, peternakan 0.66 dan Jasa pertanian dan perburuan 0,54 merupakan sektor nonbasis dimasa mendatang.

***Kata kunci**: GRDI, Sektor, Ekonomi, Pertanian, Tenaga Kerja*

INTRODUCTION

Agriculture plays a vital role in a country where most of the population is farmers, especially in an agricultural country with abundant natural resources, fertile land, and water. Indonesia is an agricultural country, so agriculture plays a vital role in the

national economy. This is reflected in the large number of residents or workers who live or work in the agricultural sector or agricultural products agricultural production (Fitriansyah, 2021). The community's food needs come from agriculture, which makes this sector so important. The agricultural industry dramatically contributes to Indonesia's economic growth regarding food needs and mic growth (Heldayani, 2022).

The economic growth rate can be known through development priorities for accelerating regional development to increase the agricultural sector's contribution; sectors with comparative advantages need to be developed and supported. This is done so that development work carried out in the region can run effectively and efficiently. Malang Regency is a region that has advantages in the agricultural sector; this can be proven from the Gross Regional Domestic Product of Malang Regency that in the eight years 2015-2022, the farm sector was one of the most significant contributors to income in Malang Regency (Hakim et al.,2020). The agricultural industry, a vital component of our economy, comprises five sub-sectors: Food Crops, Horticulture, Plantations, Livestock, and Agricultural Services.

The results of previous studies have shown success in investigating the identification of leading sectors in the economic development of a region using various approaches. For example, research on determining the leading sectors of the Bandung City economy based on the 2017-2021 GRDP. The study's results contributed to supporting the absorption of labor in the city of Bandung. In addition, further research identified leading sectors in regional development in Jombang Regency using the LQ, DLQ, and Shiftshare approaches. The study results provide important insights into the regional development strategy of Jombang Regency. Other studies, for example, also implement the Location Quotient (LQ) method to analyze the potential for leading commodities in the horticulture sub-sector in Muara Enim Regency (Fitriansyah, 2021; Hakim et., 2020; Heldayani, 2022).

The novelty of this study is that it is about the basis of the agricultural sector in Malang Regency using indicators of GRDP and labor. Research specific to the agricultural industry in Malang Regency and research over eight years, using two approaches of GRDP and Labor that have yet to be widely studied. The purpose of this study is to

identify potential agricultural sectors that can become leading sectors in the economic development of Malang Regency and which sectors have the potential to absorb labor significantly. Thus, this study is expected to provide strategic input for local governments and related stakeholders in developing the agricultural industry as one of the driving forces of the economy in Malang Regency (Paksi et al., 2023; Romhadhonih et al., 2019).

The purpose of the LQ GRDI indicator research is to determine whether the agricultural sector in Malang Regency is a primary sector when compared to other industries. At the same time, the LQ workforce approach is used to determine whether the agricultural sector workforce in Malang Regency is qualified. The purpose of the DLQ research is to examine within eight years whether or not the agricultural sector in Malang Regency is still primary. The core of these two studies is to evaluate the agricultural sector's contribution to the Gross Regional Domestic Product (GRDI) of Malang Regency and East Java Province and assess the agricultural industry's role in absorbing labor in Malang Regency. Thus, this study aims to provide a better understanding of the role of the farm

sector in the local and regional economy (Malang, 2022).

METHODS

This study uses a descriptive method with a quantitative approach. Data was obtained from Gross Regional Domestic Product 2015-2022 and Labor 2015-2019 in Malang Regency and East Java Province. The analysis method used is the Location Quotient (LQ) and Dynamic Location Quotient (DLQ) analysis to determine the basis/non-basis of the growth rate in Malang Regency as follows:

Location Quotient (LQ) Analysis

Gross Regional Domestic Income (GRDI) Approach

$$LQ = \frac{Vi / Vt}{Yi/Yt}$$

Labor Force Approach

$$LQ = \frac{Li / Lt}{Ni/Nt}$$

Where:
Vi = Score GRDI sector i regency level
Vt = total GRDI regency level
Yi = Score GRDI sector I Province level
Yt = total GRDI at the province level
Li = labor number sector i region level
Lt = total labor at the regency level
Ni = labor number at sector I at the Province level
Nt = total labor at the Province level

Dynamic Location Quotient (DLQ) Analysis

$$DLQ = \frac{(1 + gij)/(1 + gi)}{(1 + Gi)/(1 + G)}$$

Where:

$g$ij = average GRDI growth rate of the agricultural sector in the regency.
gj = average GRDI growth rate in regency
Gi = average GRDI growth rate of the agricultural sector in the province.
G= average GRDI growth rate in the province

RESULT AND DISCUSSION

Economic Sector Base with GRDI Indicators

Seventeen key sectors support Malang Regency's economic activities. These include the agricultural sector, mining and excavation, processing industry, electricity and gas procurement, drinking water, waste processing and recycling, construction, wholesale trade and repair of cars and motorbikes, transportation and warehousing, accommodation and provision of food and beverages, information and Communication, financial services and insurance, real estate sector, corporate services, government administration, defense and mandatory social security,

education, health and social activities, and other service sectors, which encompass a range of professional, technical, and personal services.

Figure 1, results of the Location Quotient analysis in Malang Regency, show that the agricultural, forestry, and fisheries sectors during 2015-2022 have always been the basis of the economy in Malang Regency, the LQ value each year is always> 1, and the highest LQ results occurred in 2016-2019 which had a value of 1.44 with an average value of 1.37. Other sectors that are the basis are the construction sector, wholesale trade, and other services. These results show similarities with research by (Paksi et al., 2023) stated that the agricultural sector is one of the most significant contributors to the Probolinggo Regency, with an average LQ of 3.07.

Table 1. GRDI LQ Results for Economic Sectors

Sector	2015	2016	2017	2018	2019	2020	2021	2022	Av.
Pertanian, Kehutanan, danPerikanan	1,01	1,44	1,44	1,44	1,44	1,41	1,39	1,37	1,37
Pertambangan dan Penggalian	0,29	0,37	0,36	0,36	0,36	0,35	0,36	1,38	0,35
Industri Pengolahan	0,72	1,03	1,03	1,03	1,04	1,06	1,05	1,00	0,99
Pengadaan Listrik dan Gas	0,00	0,00	0,00	0,33	0,34	3,43	0,34	0,34	0,60
Pengadaan Air; PengelolaanSampah, Limbah, dan Daur ulang	0,69	0,98	0,97	0,98	0,99	1,02	1,04	1,00	0,96
Konstruksi	0,93	1,31	1,31	1,32	1,32	1,28	1,33	1,31	1,26
Perdagangan Besar dan Eceran; Reparasi Mobil danSepeda Motor	0,74	1,05	1,06	1,06	1,05	1,03	1,03	1,00	1,00
Transportasi dan Pergudangan	0,27	0,38	0,39	0,40	0,40	0,40	0,42	4,05	0,84
Penyediaan Akomodasi dan Makan Minum	0,45	0,63	0,63	0,64	0,64	0,65	0,65	0,65	0,62
Informasi dan Komunikasi	0,62	0,88	0,88	0,89	0,89	0,87	0,87	0,88	0,85
Jasa Keuangan dan Asuransi	0,44	0,62	0,62	0,62	0,62	0,62	0,62	0,62	0,60
Real Estat	0,59	0,84	0,86	0,87	0,88	0,88	0,90	0,89	0,84

Sector	2015	2016	2017	2018	2019	2020	2021	2022	Av.
Jasa Perusahaan	0,34	0,49	0,49	0,49	0,49	0,49	0,50	0,48	0,47
Administrasi Pemerintahan, Pertahanan, dan jaminanSosial wajib	0,58	0,81	0,81	0,81	0,81	0,80	0,79	0,75	0,77
Jasa Pendidikan	0,65	0,92	0,93	0,93	0,92	0,91	0,92	0,89	0,88
Jasa Kesehatan dan Kegiatan Sosial	0,63	0,89	0,89	0,89	0,89	0,89	0,90	0,86	0,86
Jasa Lainnya	1,00	1,43	1,44	1,45	1,45	1,45	1,43	1,35	1,38

Based on Table 1, the LQ value of the agricultural sector in Malang Regency increased from 2015-2016, after which it experienced a stable value from 2016-2019 and decreased in 2020-2022 due to the COVID-19 pandemic (Paksi et al., 2023).
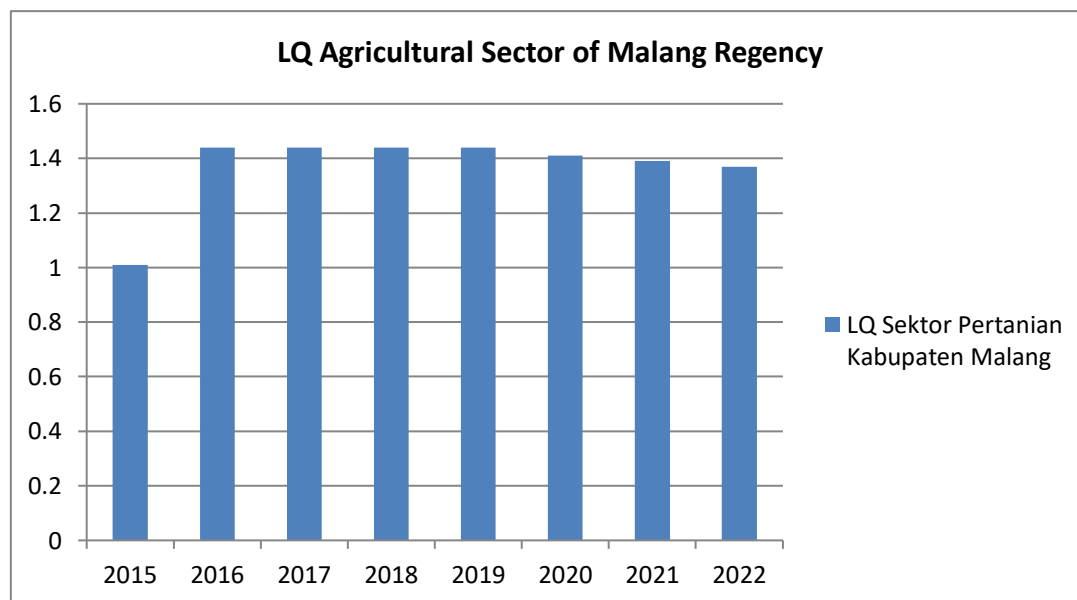

Figure 1. LQ Graph of the Agricultural Sector in Malang Regency

Basicity of the Agricultural Sector with GRDI Indicators

The results of the Location Quotient (LQ) study based on Table 2 show that of the five agricultural subsectors in Malang Regency, three subsectors have an LQ value> 1, namely the Horticultural subsector with an LQ value of 3.70, Livestock LQ 2.38 and Agricultural Services and Hunting LQ 1.77.

Table 2. Hasil Location Quotient GRDI Sub Sektor Pertanian

Sub Sector	2015	2016	2017	2018	2019	2020	2021	2022	Av.
a. Food Crops	1,00	0,90	0,87	0,93	0,93	0,90	0,88	0,88	0,91
b. Horticultural Crops	3,30	3,38	3,55	4,10	4,05	3,79	3,79	3,69	3,70
c. Plantations	0,80	0,87	0,86	0,96	0,92	0,90	0,98	1,00	0,91
d. Livestock	2,18	2,24	2,22	2,59	2,60	2,51	2,39	2,35	2,38
e. Agricultural and Hunting Services	1,71	1,72	1,69	1,88	1,84	1,77	1,76	1,77	1,77

This means that these three subsectors are the basis of the agricultural economy in Malang Regency. This meant that the three subsectors have export potential and are more significant contributors to Malang Regency's economy than other subsectors.

Graph 2 shows that the horticulture sub-sector has been the sector with the highest LQ for eight years, with a value of

>3, followed by the livestock sub-sector, which has had an LQ of >2 for eight years. For the food crop sector, the LQ value has decreased since 2016 and will not reach once again until 2022. Likewise, plantation crops only received an LQ of >1 in 2022, while agricultural and hunting services always received an LQ value of >1.
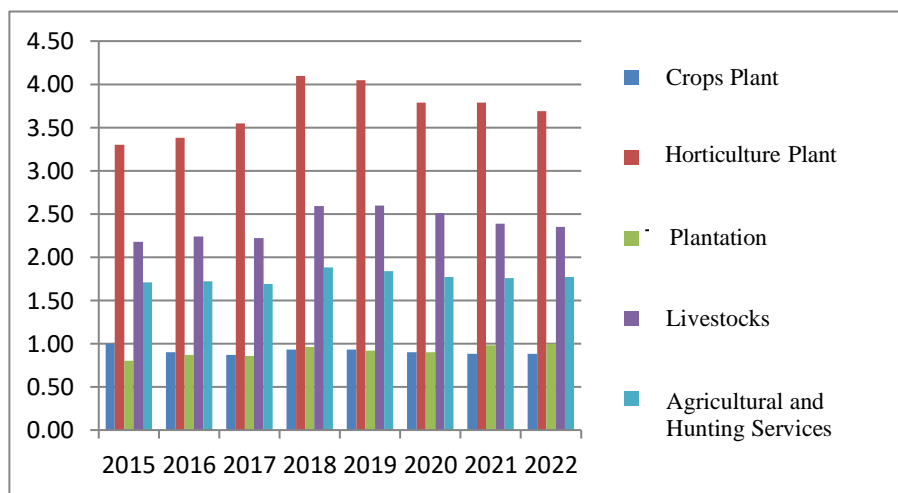

Figure 2. Location Quotient of Sub Sector Agriculture

Analysis of the Base Indicators of the Agricultural Sector Labor Force

Human resource management must be prioritized in economic development so that economic growth in every sector is evenly distributed (Risqullah & Pratama, 2022). The basis of the number of workers from all economic sectors in Malang Regency can be seen in Table 3. The results of the Location Quotient analysis of 9 economic sectors in Malang Regency show that the basis for labor absorption is only in 3 sectors, namely Industry,

Electricity, Gas and Water Supply, and construction, with an average LQ value of > 1, which means that the workforce from the three sectors has appropriate labor absorption. In contrast, the agricultural industry has inappropriate labor absorption because it has an average value of 0.99, which is <1. The workforce in Malang Regency has an LQ of 0.99. The results of this study are inversely proportional to research by (Romhadhonih et al., 2019) Stated that Bandung City has a workforce absorption

base of 6 sectors with an average LQ value of >1. Information and Communication is the leading industry with the highest workforce absorption, with an average LQ of 4.18.

Table 3. Results of the Economic Sector Workforce LQ

Labor Sector	2015	2016	2017	2018	2019	Average
Agriculture, Forestry, and Fisheries	0,90	0,99	1,09	1,00	0,98	0,99
Mining and Quarrying	0,48	0,66	1,06	0,66	0,85	0,74
Industry	1,13	1,04	1,01	0,98	1,05	1,04
Electricity, Gas and Water Supply	1,90	1,32	0,91	0,99	3,36	1,70
Construction	1,51	1,24	1,25	1,27	1,03	1,26
Trade, Restaurants and Accommodation Services	1,07	1,00	0,86	1,08	0,95	0,99
Transportation and Warehousing and Communication	1,15	0,94	1,01	0,85	0,94	0,98
Financial Institutions, Real Estate, Rental Businesses and Company Services	0,85	1,02	0,96	0,71	0,66	0,84
Community, Social, and Personal Services	0,76	0,87	0,88	0,84	1,08	0,89

Analysis of Economic Sector Growth Rate

The analysis to determine the changes in the position of the agricultural sector in Malang Regency was carried out using the Dynamic Location Quotient (DLQ) method.

Table 4. Results of the DLQ GRDI Economic Sector of Malang Regency

Field of Business	DLQ	Criteria
Agriculture, Forestry, and Fisheries	0,61	Non Basis
Mining and Quarrying	0,60	Non Basis
Processing Industry	0,61	Non Basis
Electricity and Gas Supply	0	Non Basis
Water Supply, Waste Management,	1,06	Basic
Waste and Recycling	1,00	Basic
Construction	1,02	Basic
Wholesale and Retail Trade; Repair	0,91	Non Basic
Penyediaan Akomodasi dan Makan Minum	1,00	Basic
Information and Communication	1,20	Basic
Financial and Insurance Services	0,97	Non Basic
Real Estate	1,04	Basic
Corporate Services	0,97	Non Basic
Government Administration, Defense, and	0,92	Non Basic
Mandatory Social Security	1,01	Basic
Education Services	1,14	Basic
Health Services and Social Activities	1,00	Basic

Unlike the Location Quotient method, the DLQ method is not static and can capture the possibility of changes that will occur in the future. These changes could include shifts in the types of crops grown, changes in production methods, or alterations in market demand (Romhadhoni et al., 2019). The results of the Dynamic Location Quotient research can be seen in Figure 4.

Figure 4 shows that the agricultural sector has changed its position with a DLQ of 0.61, initially a primary sector, to a non-basic sector because it has a DLQ value of <1. Still, the Construction, Trade, and other Services sectors will remain basic in the future because the LQ value is >1. The economic sector with the highest DLQ value is the Information and Communication sector, with a value of 1.20. This result is different from research by (Rozak, 2018), who stated that the agricultural sector in Jombang Regency has a DLQ of 1.33, which can be interpreted as agriculture in Jombang Regency becoming a base sector in the future.

Analysis of the Growth Rate of the Agricultural Sector

The results of the Dynamic Location Quotient research on the agricultural

sector in Malang Regency can be seen in Figure 5.

Table 5. Results of the DLQ of the Agricultural Sector in Malang Regency

Sub Sector	DLQ	Criteria
a. Food Crops	0,57	Non Basic
b. Horticultural Crops	0,68	Non Basic
c. Plantations	0,62	Non Basic
d. Livestock	0,66	Non Basic
f. Agricultural and Hunting Services	0,54	Non Basis

Based on the results of the DLQ analysis in Figure 5, it shows that all agricultural sub-sectors in Malang Regency have a DLQ value <1, namely Food Crops with LQ 0.57, Horticultural Crops LQ 0.68, Plantations LQ 0.62, Livestock LQ 0.66, Agricultural Services and Hunting LQ 0.54, so the five agricultural sub-sectors in Malang Regency are Non-Basic Sectors in the future. The results of this study are the same as the study conducted by (Sihombing, 2018), which stated that the agricultural sector in West Java experienced a decline in growth rate with a DLQ of 0.96.

CONCLUSION AND SUGGESTION

Conclusion

Based on the results of the analysis of Location Quotient and Dynamic Location Quotient in the agricultural sector using GRDI indicators and labor

in Malang Regency, the following conclusions were obtained:

1. The agricultural sector is primary because it has an average LQ of 1.37.

2. The primary sub-sectors are only the horticulture sector at 3.70, livestock at 2.38, and agricultural services at 1.77.

3. Labor absorption in Malang Regency still needs to be satisfactory because it has a value of <1.

4. The agricultural sector and sub-sectors are non-basic sectors in the future based on the results of DLQ <1.

Suggestion

Based on the discussion description, there are several suggestions from the researcher, namely 1) the Malang Regency government is expected to be able to advance and further develop the agricultural sector, which is the basis for increasing regional income, 2) for the Malang Regency government, it is expected to create strategies to attract the interest of the younger generation in the agricultural sector such as developing agro-industry, technological innovation, developing modern agriculture, training and empowering young farmers.

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