

East Java Province: Economic structure and forecast GRDP analysis

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ARTICLE INFO

ABSTRACT

Article history

Received : 2023-04-13

Revised : 2023-05-14

Accepted : 2023-05-27

Keywords

Location quotient

Shift-share

Klassen typology

Linier trend

Covid-19

Most of the sectors affected by the Covid-19 pandemic caused economic growth to decline. The sectors involved are not only the health sector but also the economy, especially trade, industry, and tourism. The research aims to identify the leading sectors, know the characteristics of the pattern and structure of the economy East Java Province. The method analysis used in this research is Location Quotient, Klassen typology, Shift-Share, and linear trend. The findings of this study are: (1) Industrial Sector Processing, Water Supply, Waste Management, Waste and Recycling, Wholesale and Retail Trade; Car and Motorcycle Repair, Provision of Accommodation and Food and Drink, and Information and Communication are the leading sectors that can encourage economic development in East Java Province; (2) Industrial Sector Processing, Water Supply, Waste Management, Waste and Recycling, Wholesale and Retail Trade; Car and Motorcycle Repair, Transportation and Warehousing, Provision of Accommodation and Food and Drink, Information and Communication, Financial and Insurance Services, Educational Services, Health Services and Social Activities are potential sectors in producing production to meet local demand; (3) The manufacturing industry sector is the sector that provides the largest contribution to the GRDP of East Java Province.

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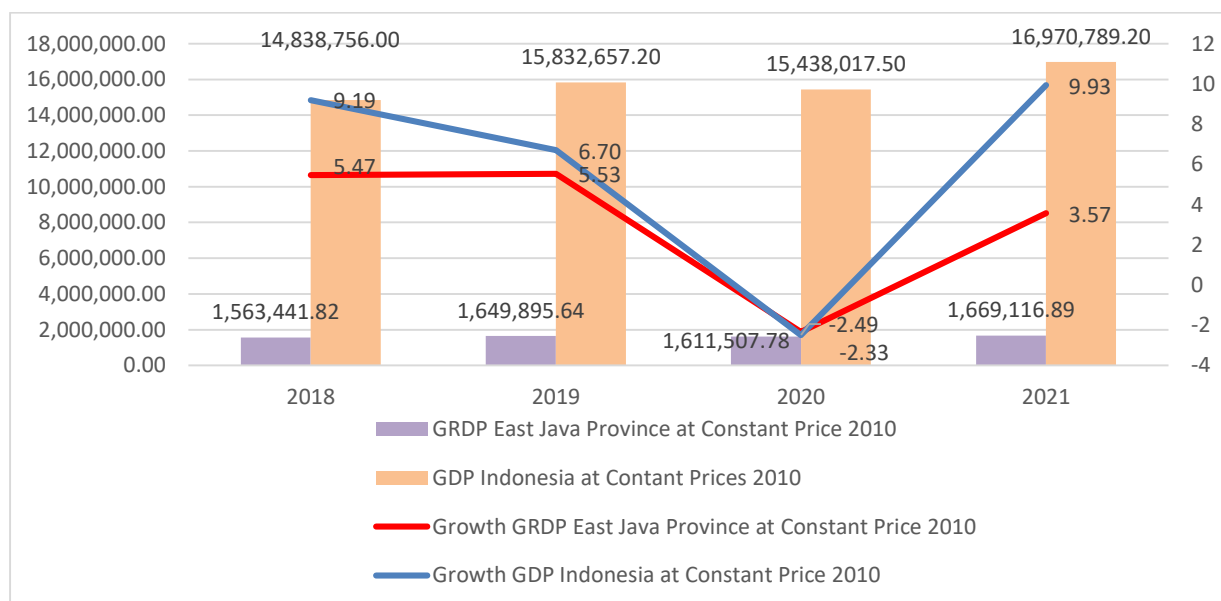


Introduction

Regional economic development is defined as a series of activities carried out by the government in collaboration with the community in terms of management and utilization of resources to improve the standard of living of the people in the area (Rizani, 2017). The potential resources owned by a region are used as the essential capital for regional development. Each region has different resources to be developed to achieve the region's development goals (Sumarsono & Rahmawati, 2016). Economic inequality is still a classic problem in regional development in East

Java, as it is the second largest economic contributor in Indonesia after DKI Jakarta. An indicator to measure development inequality in East Java can be seen from the high disparity in poverty rates between districts/cities. This disparity can also be seen from the contribution of administrative areas, in this case, the City Government, to East Java's GRDP of 30%. Another indicator of economic equality and welfare in East Java is the inflation disparity in 8 CPI cities. Economic growth in East Java in the fourth quarter of 2021 grew by 0.14%. Growth occurred in many business fields except Agriculture, Forestry & Fishery, Mining & Quarrying, and Health Services and Social Activities, which experienced a contraction compared to quarter III-2021 (q-to-q). Unlike the case with growth from the expenditure side, which includes all Expenditure Components.

Niyimbanira (2018) paper aims to identify the main industrial clusters in four coastal South African metropolitan cities: Cape Town, eThekwni, Buffalo City, and Nelson Mandela Bay. The findings of this paper show that sub-industries in the manufacturing and service sectors are the main drivers of economic development in these metropolitan cities. However, the results obtained to state that several metropolitan cities are experiencing economic stagnation in several sub-industries, which should be able to play an essential role in economic growth even though they have been supported by the creation of new technologies, new businesses, and new jobs as the spearhead of economic development in South Africa. Study from Anwar (2022) is to find out the differences in the economic structure of regencies and cities in North Kalimantan Province, precisely in the City of Tarakan. The results of the Klassen typology analysis show that only a few areas in the Regency/City of North Kalimantan Province are classified as an advanced and rapidly developing regional classification. Meanwhile, the Williamson Index value shows that inequality continues to decrease yearly, which means that inequality in North Kalimantan Province is very low.



Source: Central Bureau of Statistics, 2021

Figure 1. Development of GRDP in East Java Province and Indonesia's GDP in 2018-2021

The strategic geographical location supported by the potential of its natural resources gives East Java Province the potential to increase its economic growth. Economic growth in East Java Province also impacts national economic conditions. Figure 1 shows East Java Province plays an essential role in driving economic activity. According to the 2010 Gross Regional Domestic Product at Constant Prices (GRDP ADHK) 2010, the economic growth rate in East Java Province has fluctuated. A significant decline in economic growth occurred in 2020, namely -2.33 percent, which was lower than in previous years. This condition also occurred in Indonesia's economic growth, which experienced a drastic decline reaching -2.49 percent. This could be due to the Covid-19 pandemic hit almost all countries in the world since May 2020. The Covid-19 pandemic has significantly impacted several sectors, especially the health sector and the economic sector, especially trade, industry, and tourism. A decrease in goods and services can also cause a decline in economic growth; it impacts growth in economic sectors due to the Covid-19 pandemic (Hasanah, 2021). The potential resources owned by a region are used as the essential capital for regional development. Each region has different resources to be developed to achieve the region's development goals (Sumarsono & Rahmawati, 2016).

Economic development is essential in encouraging economic growth, while economic growth will impact the smooth regional development process. Economic development that needs to be better planned can damage the ecosystem (Mangilaleng et al., 2015). The economic activity of an area used as a center of growth results in a broad impact (spread effect) and multiple effects on the surrounding area so that the region also experiences an increase in economic growth (Yordani & Sugiarto, 2016). Indicators, namely economic growth, measure a region's success. This economic growth can also describe the condition of economic development from year to year, which can be determined based on shifts in the driving sectors (Rahayu et al., 2018). Economic growth is an increase in national income, which reflects increasing the production capacity of goods and services in an economy. Economic growth is measured by comparing the size of a country's domestic economy (GDP/Gross Domestic Product) and the province (GRDP/Gross Regional Domestic Product) in the current year with the previous year (Sukirno, 2019).

The findings of Darius et al (2021) state that the agriculture, fisheries, and forestry sectors have the most significant contribution to Pasaman Regency's GRDP, namely 55.51 percent. Some sectors included in the base sector with an LQ value of > 1 are the agricultural, fishery, and forestry sectors. Klassen's typology analysis shows that Panti and Rao Selatan Sub-District are included in the criteria for developed areas. At the same time, Lubuk Sikaping and Mapat Tunggul Selatan Sub-Districts are classified as underdeveloped areas. The calculation methods for Klassen Typology, Statistical Location Quotient, Dynamic Location Quotient, Shift Share Classic, and Shift Share Esteban Marquillas were used to analyze typology and leading sectors for 21 regencies and one city

in East Nusa Tenggara Province. The calculation results show that Kupang City is in quadrant I with 13 leading sectors, while other regions are still very underdeveloped (Tallo et al., 2018). The empirical study of Wijaya et al (2020) use the Klassen Typology analysis tool and the gravity index. These findings result that Samarinda City is an area that has high attractiveness and potential, while the center of growth is in the Kutai Kartanegara Regency.

The calculation results of location quotient and shift share analysis from Yossinomita et al (2022) research shows that the Mining and Quarrying Industry is still a sector capable of making the most dominant contribution to GRDP and being the main driver of economic growth in Jambi Province. Furthermore, the results of the Klassen Typology analysis stated that Tanjung Jabung Barat Regency was included in the category of a developed and rapidly developing region located in quadrant I. The results of the Location Quotient, Shift Share, and Klassen Typology analysis show that the agricultural sector is the base sector in Pohuwato Regency and is included in the fast-growing region category (Rahmawati et al., 2019). Soegoto & Warlina (2022) found that the agricultural sector is the basis sector in West Java Province, especially in the Garut Regency, which is indicated by an LQ value of 4 ($LQ > 1$). The leading agricultural commodity in Garut Regency is spanish onion. The findings from Firdaus et al (2022) prove that the Agriculture, Forestry, and Fisheries sectors; Information and Communication; Government Administration, Defense, Social Security; Education Services; and Health Services and Social Activities are the leading sectors in Jember Regency. This regency also produces a superior food commodity in the form of rice, producing 961,981 tons.

The regional economy can be divided into two sectors, namely the base and non-base sectors. The base sector is also called the primary sector that produces exports. The non-base or residential sector provides other production goods and services for the local market. Exports are the key to economic growth. What a region export is determined by its comparative advantage, that is, its ability to produce competitively priced commodities for markets outside the region (Conway, 2015). In economic basis theory, exogenous (essential) sectors can increase the attractiveness of an entire region or city. The development of a city or region's fundamental (exogenous) sector is possible because of dynamic exports, which proves that development is impossible in an environment without economic network features. Economic basis theory aims to identify short-term local development factors and regional specificities and determine development policies (Miszczak, 2021).

The theory of international trade is divided into the theory of absolute advantage and comparative advantage. Adam Smith put forward the theory of absolute advantage in 1776 in his book "The Wealth of Nations". The theory states that free trade is a policy. Adam Smith's theoretical analysis includes (1) the theory of labor value applies to determining the value of an item, and (2)

labor is only a homogeneous factor of production. David Ricardo, in his theory of comparative advantage, made improvements to the fundamental theory. This is because the fundamental theory has yet to provide a solution to the problems of a country that does not have an absolute advantage in being able to trade. The advantages of each trading country are relative, not absolute, as stated by Adam Smith (Asrawi et al., 2018).

This research is essential to describe the role of economic sectors in efforts to increase economic growth in East Java. The resources owned by East Java can be used as primary capital to promote regional economic development. This study aims to determine the leading sectors in East Java Province to know the characteristics of the pattern and structure of economic growth in each sector. Hopefully, this research can serve as material for formulating East Java's economic recovery policies and supporting the national economy after the Covid-19 pandemic. Based on previous research, this research focuses more on the role of the economic sector in supporting the acceleration of East Java's economic recovery after the Covid-19 pandemic to achieve community welfare both regionally and nationally. East Java Province's economic structure can be developed by exploring the potential sectors in the region. One of the potentials or resources that can be developed in the East Java region is the tourism sector in the form of natural tourist destinations in several districts/cities in East Java. Thus the development of this sector must be supported by tourism supporting sectors, especially the Transportation and Warehousing sector, Provision of Accommodation and Food and Drink, Information and Communication, and Corporate Services.

Method

This type of research is descriptive with a quantitative approach. This study uses secondary data published by Bank Indonesia (BI) and the Central Bureau of Statistics (BPS). Data on Indonesia's GDP and GRDP for East Java Province are GDP and GRDP data according to the 2010 business sector at constant prices for 2017 to 2021. Other data that is also used in this study is the GRDP data for East Java Province according to expenditure at constant prices in 2010 for the period 2011 to 2021 quarterly. Data analysis techniques use Location Quotient (LQ), Shift-Share, and Klassen Typology to determine leading sectors and economic structure in East Java Province from 2017 to 2021. Location Quotient identify primary industries by comparing the relative concentration of employment in specific industries in a regional area with the national benchmark (Edwards, 2007). The LQ method assumes that an industry in a region has a proportion of employment more significant than the national average so that a region can export all the output it produces (Treyz, 1993). This analysis is used to determine the leading sector that form the basis of a region. LQ analysis consists of Statistical Location Quotient (SLQ) and Dynamic Location Quotient (DLQ), which can be described as follows:

1. Statistical Location Quotient (SLQ) Analysis

SQL analysis is an index used to measure sectors that are the base sector (leading sector) or not for a region. Calculation of SLQ based on [Kim & Kim \(2016\)](#) can be formulated as follows:

$$LQ = \left(\frac{E_{ij}}{E_j} \right) / \left(\frac{E_{in}}{E_n} \right) \quad (1)$$

Where E_{ij} is employment in sector i and region j ; E_n and E_j is total employment at the national or regional level; E_{in} is the number of national employment in sector i . LQ less than one indicates industrial specialization in the regional area, which is lower than the national (base sector). LQ equal to one means that there is industry specialization in both regional and national areas. LQ of more than one states that industry specialization in the region is greater than national ([Guo, 2013](#)).

2. Analysis of Dynamic Location Quotient (DLQ)

DLQ analysis is a modification of LQ analysis used to overcome weaknesses in static LQ analysis which only gives an overview at a particular time. The formula for calculating the DLQ based on [Armstrong & Taylor \(2000\)](#) as follows:

$$DLQ = \frac{[(1 + g1R)/(1 + gR)]^t}{[(1 + G1)/(1 + G)]^t} \quad (2)$$

Where DLQ is potential sector index i at East Java Province; $g1R$ is growth rate of the sector i in East Java Province; gR is growth rate sector in East Java Province; $G1$ is growth rate of the sector i in Indonesia; G is growth rate sector in Indonesia; and t is difference between the final year and the year beginning. If DLQ value greater than one indicates that sector i is classified as a potential sector in the future come. If DLQ value less than one indicates that sector i is classified as a non-potential sector in the future come.

A shift-share analysis is a method for analyzing regional employment growth over time simply and quickly. This technique can identify problems in the industrial sector that still require special attention and provide policy recommendations related to industrial targeting. This analysis can also be used to assess the performance of a region relative to other regions as a whole focusing on regional employment or output by the industrial sector ([Stimson et al., 2006](#)). The method that can be used to calculate the projected GRDP of East Java Province in 2022 is the linear trend method with a regression technique. The specifications for the form of the linear trend for the GRDP growth rate equation in 2022 based on [Makridakis et al \(1982\)](#) are as follows:

$$\hat{Y} = \beta_0 + \beta_1 X + \varepsilon \quad (3)$$

Where \hat{Y} is gross regional domestic product (GRDP); β_0 is the constant; β_1 is the parameter coefficient; X is the GRDP-1; and ε error term. Nationally, it is possible to project the GRDP of employment per sector for year $t+m$, so to calculate the GRDP projection for East Java Province for the coming year (2022), the following formula can be used based on [Tarigan \(2014\)](#) as follows:

$$GRDP_{r,i,t+m} = GRDP_{r,i,t} \left[\frac{GDP_{i,t+m}}{GDP_{i,t}} + \frac{m}{n} \frac{D_{r,i,t}}{D_{r,i,t-n}} \right] \quad (4)$$

Klassen typology is used to analyze the pattern and structure of the growth area sector divided into prime, developing, potential, and lagging sectors. This analysis is illustrated by a matrix or Cartesian diagram based on sectoral growth and income grouping (Harjanti et al., 2021). The GRDP sector classification in the Klassen Typology analysis is divided into four categories (Basuki & Budiarto, 2021).

Table 1. Sectoral Class of Typology Classification

A	SLQ>1	DLQ>1	Leading Sector	Quadrant I
B	SLQ<1	DLQ>1	Potential Sector	Quadrant II
C	SLQ>1	DLQ>1	Potential and Developing Sectors	Quadrant III
D	SLQ>1	DLQ>1	Relatively Lagging Sectors	Quadrant IV

The sector classification of the Klassen Typology that shows in Table 1 can be explained as follows (Rajab & Rusli, 2019):

1. Leading sector

The leading sector in question is a sector that is advanced and can overgrow. This sector is located in Quadrant I, where the growth rate of specific sectors in GRDP (s_i) is greater than that sector in GRDP in the reference area (s). The value of the sector's contribution to the GRDP (s_{ki}) is also more significant than the sector's contribution to the GRDP of the reference area (s_k).

2. Potential sector

This sector is included in advanced sectors but is still under pressure. This sector is located in Quadrant II, which has a specific sector's growth rate in GRDP (s_i), which is smaller than the sector's growth rate in the GRDP reference area (s), but has a sector's contribution to GRDP (s_{ki}) more incredible than the contribution of the reference sector (s). The value of the sector's contribution to the GRDP (s_{ki}) is greater than the sector's contribution to the GRDP of the reference area (s_k).

3. Potential and developing sector

This sector is a potential sector that can still be developed. This sector is located in Quadrant III, which includes sectors with a specific growth rate in GRDP (s_i) more remarkable than the sector's growth rate in GRDP in the reference area (s). However, the sector's contribution to GRDP (s_{ki}) is smaller than the sector's contribution to the GRDP of the reference area (s_k).

4. The sector is relatively underdeveloped

The relatively lagging sector is located in Quadrant IV because it has a growth rate of specific sectors in GRDP (s_i) which is smaller than the growth rate of that sector in GRDP in the reference area (s). The value of the sector's contribution to the GRDP (s_{ki}) is smaller than

the sector's contribution to the GRDP of the reference area (sk).

Results and Discussion

The Statistical Location Quotient analysis uses East Java GRDP data and Indonesia's GDP over five years to determine the leading sectors in the East Java Province region. Table 2 the result of SLQ analysis, the economic sectors are the essential sectors in East Java Province, including the Manufacturing Industry, Water Procurement, Waste Management, Waste and Recycling, Wholesale and Retail Trade Car Repair and Motorcycles; Provision of Accommodation and Food and Drink; and Information and Communication due to the value of $SLQ > 1$. These base sectors are superior sectors that can encourage other sectors' contribution to East Java Province's economic development (Hasanah, 2021). This sector is also able to meet market needs, so it is expected to be able to export to other areas outside East Java Province.

Table 2. Statistical Analysis of Location Quotient East Java Province 2017-2021

Sector GRDP Business Field 2010	Average SLQ	Result
A. Agriculture, Forestry and Fishery	0.799	Non base sector
B. Mining and Quarrying	0.673	Non base sector
C. Processing Industry	1.517	Base sector
D. Electricity and Gas Procurement	0.245	Non base sector
E. Water Procurement, Waste Management, Waste and Recycling	1.433	Base sector
F. Construction	0.874	Non base sector
G. Wholesale and Retail Trade Car and Motorcycle Repair	1.422	Base sector
H. Transportation and Warehousing	0.573	Non base sector
I. Provision of Accommodation and Food and Drink	1.998	Base sector
J. Information and Communication	1.510	Base sector
K. Real Estate	0.594	Non base sector
L. Financial Services and Insurance	0.627	Non base sector
M,N. Corporate Services	0.422	Non base sector
O. Government Administration, Defense, and Compulsory Social Security	0.591	Non base sector
P. Educational Services	0.812	Non base sector
Q. Health Services and Social Activities	0.605	Non base sector
R,S,T,U Other services	0.736	Non base sector

Source: data processed

There are 12 non-base sectors in East Java Province, including Agriculture, Forestry and Fisheries; Mining and Quarrying; Electricity and Gas Procurement, Construction; Transportation and Warehousing; Real Estate; Financial Services, and Insurance; Corporate Services, Government Administration, Defense, and Compulsory Social Security; Education Services; Health Services, Social Activities, and Other Services. This is because the $SLQ < 1$, so the sector cannot meet market demand and import products from outside East Java Province. The 12 sectors are considered to have no competitive advantage and cannot contribute to the economy of East Java Province. Dynamic Location Quotient analysis can determine sectors that were not previously base

but could potentially become base sectors in the future (Romarina, 2020). The results of calculating the DLQ value as follows:

Table 3. Analysis of Dynamic Location Quotient East Java Province 2017-2021

Sector GRDP Business Field 2010	Average DLQ	Result
A. Agriculture, Forestry and Fishery	0.017	Non potential sector
B. Mining and Quarrying	0.000	Non potential sector
C. Processing Industry	4.878	Potential sector
D. Electricity and Gas Procurement	0.088	Non potential sector
E. Water Procurement, Waste Management, Waste and Recycling	3.507	Potential sector
F. Construction	0.801	Non potential sector
G. Wholesale and Retail Trade Car and Motorcycle Repair	1.655	Potential sector
H. Transportation and Warehousing	14.540	Potential sector
I. Provision of Accommodation and Food and Drink	14.912	Potential sector
J. Information and Communication	3.264	Potential sector
K. Real Estate	0.404	Non potential sector
L. Financial Services and Insurance	5.344	Potential sector
M,N. Corporate Services	0.314	Non potential sector
O. Government Administration, Defense, and Compulsory Social Security	0.931	Non potential sector
P. Educational Services	3.658	Potential sector
Q. Health Services and Social Activities	1.279	Potential sector
R,S,T,U Other services	0.020	Non potential sector

Source: data processed

Table 3 shows that nine business sectors have the potential to become potential sectors that can compete in East Java Province and have a comparative advantage because they have a DLQ value of > 1. These sectors are Processing Industry; Water Procurement, Waste Management, Waste, and Recycling; Wholesale and Retail Car and Motorcycle Repair; Transportation and Warehousing; Provision of Accommodation and Food and Drink; Information and Communication; Financial and Insurance Services; Education Services; Health Services, and Social Activities. Agriculture, Forestry and Fisheries; Mining and Quarrying; Electricity and Gas Procurement; Construction; Real Estate; Corporate Services; Government Administration, Defense and Compulsory Social Security; and Other Services are sectors that cannot compete with the same sectors in other regions in the reference area. This is because it has a DLQ value of < 1. This sector has less potential to be developed into a base sector in the future because it cannot meet local demand in the region, so it has to import products from other regions.

This finding support previous studies by Hastuti et al (2019) that the Accommodation and Food & Beverage Provision Sector is also one of the leading sectors in Batu City, Malang. This finding is also evidenced by the research results of Mustapa et al (2022) where the Manufacturing Industry sector is one of the leading sectors of Bone Bolango Regency as indicated by an LQ coefficient of more than one. The study of Yossinomita et al (2022) is also in line with the results of this study

because the results of the LQ analysis prove that the Water Procurement, Waste Management, Waste, and Recycling and Education Services sectors are the base sectors that drive economic growth in Jambi Province. Meanwhile, sectors not included in the base sector category are expected to develop in the next five to five years.

Table 4. Typology Matrix GRDP of East Java Province 2017-2021

Klassen Typology	ski > sk	s < sk
	Quadrant I	Quadrant II
si > s	Leading sectors (developed sector): <ul style="list-style-type: none"> • Provision of Accommodation and Food and Drink 	Potential sector (potential sector): <ul style="list-style-type: none"> • Transportation and Warehousing
	Quadrant III	Quadrant IV
si < s	Potential and developing sectors (developing sector): <ul style="list-style-type: none"> • Processing Industry • Water Procurement, Waste Management, Waste and Recycling • Wholesale and Retail Trade, Car and Motorcycle Repair • Information and Communication • Educational Services • Health Services and Social Activities 	Relatively lagging sectors (underdeveloped sector): <ul style="list-style-type: none"> • Agriculture, Forestry, and Fisheries • Mining and Quarrying • Electricity and Gas Procurement • Construction • Financial Services and Insurance • Real Estate • Corporate Services • Government Administration, Compulsory Defense and Social Security • Other Services

Source: data processed

Table 4 explain the results of the classification of the GRDP sector based on 2010 constant prices for East Java Province in 2017-2021 with the Klassen Typology analysis describe which sectors are located in quadrant I, quadrant II, quadrant III, and quadrant IV. It is known that one sector is included in the category of the developed sector and is overgrowing (quadrant I) and the advanced but depressed sector (stagnant sector), namely the Provision of Accommodation and Food and Drink. Transportation and Warehousing sectors are included in the potential sector group (quadrant II). The potential and developing sectors (quadrant III) consists of the Processing Industry Sector; Water Procurement, Waste Management, Waste and Recycling; Wholesale and Retail, Car and Motorcycle Repair; Information and Communication; Education Services, and Health Services and Social Activities. Agriculture Sector, Forestry, Fisheries; Mining and Quarrying; Electricity and Gas Procurement; Construction; Financial Services and Insurance; Real Estate, Corporate Services; and Government Administration, Compulsory Defense and, Social Security, other services are included in the relatively underdeveloped sector category (quadrant IV).

The results of the analysis conducted by [Anwar \(2022\)](#) divide the districts/cities in North Kalimantan Province into three classifications according to the Klassen typology. Tarakan City, Malinau Regency, and Nunukan Regency are included in classifying sectors that can grow fast, not

developing areas. Tana Tidung Regency is included in the classification of developed but depressed areas, while Bulungan Regency is included in relatively underdeveloped areas. The most potential and leading sector in Musi Banyuasin (Muba) Regency is the Mining and Quarrying sector. The leading industrial sector in Musi Banyuasin Regency is the gambier processing industry and its derivatives, namely the feed industry and the rubber product industry (Basuki & Budiarto, 2021). This research supports Ariani & Suryantini (2020) where the Corporate Services sector; and Government Administration, Defense, and Compulsory Social Security are included in the relatively underdeveloped sector group located in quadrant IV. Study from Warlina et al (2023) are also in line with the results of this study which proves that five sectors are growing fast (quadrant I), namely the Mining and Quarrying; Wholesale and Retail Trade, Car and Motorcycle Repair; Provision of Accommodation and Food and Drink; Financial Services and Insurance; and Government Administration. Compulsory Defense and Social Security. Sectors that are in the high quadrant are sectors that have higher indicators than the average of all other sectors. However, if the sector is in the low quadrant, it means that the indicators in a sector are lower than the average of all sectors in East Java Province (Silvya et al., 2019). The advanced and rapidly growing sector is a potential sector that has an economic growth rate and a larger share compared to the reference region and The sectors in quadrant III still have the potential to be developed because even though the growth rate is fast, they have yet to contribute to GRDP.

Table 5. Result of Shift Share of East Java Province 2017-2021

Sector GRDP Business Field 2010	NS	PS	DS	ΔE r
A. Agriculture, Forestry and Fishery	41,637.03	1,970.62	-40,409.69	3,197.96
B. Mining and Quarrying	20,061.23	18,637.13	-42,066.83	-3,368.47
C. Processing Industry	108,001.69	-24,466.87	-12,784.41	70,750.41
D. Electricity and Gas Procurement	1,144.30	-359.27	-673.47	111.56
E. Water Procurement, Waste Management, Waste and Recycling	361.89	36.70	-92.23	306.36
F. Construction	33,868.88	993.77	-18,581.14	16,281.51
G. Wholesale and Retail Trade; Car and Motorcycle Repair	67,971.77	-1,298.34	-27,504.41	39,169.02
H. Transportation and Warehousing	10,905.63	-11,835.55	1,641.98	712.07
I. Provision of Accommodation and Food and Drink	19,704.43	-14,537.53	1,739.27	6,906.17
J. Information and Communication	21,072.00	17,680.14	-9,494.40	29,257.75
K. Real Estate	9,469.93	1,524.54	-6,923.93	4,070.54
L. Financial Services and Insurance	6,281.26	-603.58	-683.98	4,993.70
M,N. Corporate Services	2,857.78	173.74	-2,051.99	979.53
O. Government Administration, Defense, and Compulsory Social Security	8,053.15	-2,541.93	-2,932.42	2,578.80
P. Educational Services	9,685.66	-179.50	-2,102.73	7,403.44
Q. Health Services and Social Activities	2,424.13	3,102.04	-2,422.71	3,103.47
R,S,T,U Other services	5,275.16	1,187.24	-6,098.90	363.50

Source: data processed

Table 5 shows only one sector has a negative value, namely the Mining and Quarrying sector. This condition indicates slow growth in the economic sector compared to the same sector in the broader area or reference region (Indonesia). The manufacturing sector provides the most considerable contribution to the GRDP of East Java Province because it has the most considerable Shift-Share value of IDR 70,750.41 billion. The following ranking is the Wholesale and Retail Trade sector; Car and motorcycle repairs amounted to IDR 39,169.02 billion, while in third place was the Information and Communication sector, amounting to IDR 29,257.75 billion, so it can be concluded that there was a shift in the economic sector from the Mining and Quarrying sector to the Processing Industry.

Table 6. GRDP Projection of East Java Province 2017-2021

Sector GRDP Business Field 2010	$E_{r,i,t}$ (a)	$E_{N,i,t+m}/E_{N,i,t}$ (b)	m/n (c)	$D_{r,i,t}/E_{r,i,t}$ (d)	$b + (c \times d)$ (e)	$E_{r,i,t+m}$ (f)
A. Agriculture, Forestry and Fishery	170,558.53	1.053	0.2	-0.241	1.005	171,361.76
B. Mining and Quarrying	77,267.91	1.053	0.2	-0.522	0.949	73,301.20
C. Processing Industry	504,864.57	1.053	0.2	-0.029	1.047	528,648.80
D. Electricity and Gas Procurement	4,711.10	1.053	0.2	-0.146	1.024	4,822.83
E. Water Procurement, Waste Management, Waste and Recycling	1,761.00	1.053	0.2	-0.063	1.040	1,832.00
F. Construction	152,417.90	1.053	0.2	-0.136	1.026	156,335.37
G. Wholesale and Retail Trade; Car and Motorcycle Repair	312,382.42	1.053	0.2	-0.101	1.033	322,649.18
H. Transportation and Warehousing	44,547.40	1.053	0.2	0.037	1.060	47,242.14
I. Provision of Accommodation and Food and Drink	86,108.36	1.053	0.2	0.022	1.057	91,050.29
J. Information and Communication	113,956.93	1.053	0.2	-0.112	1.031	117,441.84
K. Real Estate	42,135.04	1.053	0.2	-0.182	1.017	42,835.33
L. Financial Services and Insurance	30,241.30	1.053	0.2	-0.027	1.048	31,680.24
M,N Corporate Services	12,466.40	1.053	0.2	-0.179	1.017	12,681.73
O. Government Administration, Defense, and Compulsory Social Security	34,948.54	1.053	0.2	-0.091	1.035	36,167.61
P. Educational Services	46,335.09	1.053	0.2	-0.054	1.042	48,290.33
Q. Health Services and Social Activities	12,847.31	1.053	0.2	-0.249	1.003	12,889.35
R,S,T,U Other services	21,567.09	1.053	0.2	-0.288	0.995	21,469.45
PDRB Total	1,669,116.89	17.901	3.4	-2.361	17.429	1,720,699.43

Source: data processed

Projections on national economic growth use the consensus forecast method. National economic growth is expected to reach 4.5-5.3 percent in 2022, lower than the initial projection of

4.7-5.5 percent. Table 6 shows that GRDP of East Java Province in 2022 can be projected concerning the 2022 national economic growth rate of 5.3 percent. Thus the East Java Province's GRDP projection in 2022 is IDR 1,720.699.43 billion. Based on the results of SLQ and DLQ analysis and Klassen Typology, the most prominent leading sector in East Java Province is the Provision of Accommodation and Food and Drink sector, where this sector shows very fast growth and has high competitiveness. Furthermore, the Shift-Share analysis shows that the Processing Industry sector is a sector that contributes more dominantly to driving economic growth in East Java Province. This sector also has the opportunity to increase the competitiveness and productivity of the regional and national base sectors in order to achieve integrated and sustainable economic development targets.

Conclusion

This study found that based on the results of SLQ and DLQ calculations, as well as the Klassen Typology, it can be concluded that the Accommodation and Food and Beverage Provision sector is the leading sector and has the highest comparative advantage among other sectors. This sector is included in the category of advanced and rapidly growing sectors (developed sector). This sector significantly contributes to the formation of GRDP in East Java Province with an average SLQ value of 1.998 and DLQ of 14.912. Thus, the Provision of Accommodation and Food and Drink sector is a top priority that must be developed to increase the economic growth of East Java Province among the seventeen other GRDP-forming sectors. The Shift-Share calculation results show that the manufacturing industry sector is the sector that contributes the most to the GRDP of East Java Province because it has the most considerable Shift-Share value, namely IDR 70,750.41 billion.

The strategy or policy of the local government as an effort to increase the economic growth of East Java Province post-Covid-19 is to implement policies in developing the Accommodation and Food and Beverage Provision Sector, including improving the quality of MSME products, utilizing technology to market MSME superior products, expanding market share through strengthening opportunities export cooperation between the central government, regional governments, and potential export destination countries. Policies for the development of the tourism sector and its supporting industries, such as the Transportation and Warehousing sector, Provision of Accommodation and Food and Drink, Information and Communication, and Corporate Services, also need to be implemented in order to reduce poverty and unemployment, increase people's income for the realization of accelerated economic growth and economic development sustainable East Java Province.

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