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Analysis Of Leading Economic Sectors In Tuban Regency And Bojonegoro Regency In East Java Using The Location Quotient, Shift Share And Klassen Typology Methods

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Abstract

The aim of this study was to determine the leading and non-leading sectors in the Tuban and Bojonegoro regencies. Although these regions are close to each other and situated on the border of Central and East Java provinces, Tuban and Bojonegoro regencies derive their local income from different sources. The research was based on time series data from the Central Statistics Agency's website in 2022. The data was analyzed using Location Quotient, Shift Share, and Klassen Typology methods. The results showed that Bojonegoro Regency has three leading sectors, while Tuban Regency has six..

Keywords**: **Leading Sector; Location Quotient, Shift Share, and Klassen Typology

INTRODUCTION

Economic growth refers to the increase in output over time and is a key indicator of a country's development, as explained by Todaro in... (Wihastuti, 2008). It also encompasses the expansion in the production of goods and services that are part of a society's economic activities. Growth and development are often viewed as having a singular dimension, measurable through the rise in production output and income. In this context, a higher GDP reflects an increase in national income. (Syahputra, 2017)

Gross Regional Domestic Product (GRDP) represents the total value of labor and goods produced in a specific area over the course of a year or less. A high GRDP level suggests that the region's economy is growing. According to BPS, GRDP is the total value

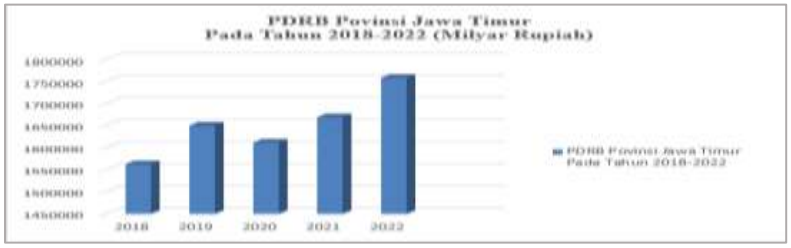
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added by all business units within a region. GDP at current prices shows the value of goods and services based on the prices of each year, while GDP at constant prices measures this value using the prices from a specific base year, providing a clearer picture of economic growth by excluding the effects of inflation. (Hasibuan et al., 2022)

According to data from the East Java Provincial Statistics Agency (BPS), the Gross Regional Domestic Product (GRDP) of East Java at Constant 2010 Prices by sector (in billion Rupiah) from 2018 to 2022 reveals a graph showing annual fluctuations in the region's GRDP. Despite these fluctuations, in 2022, East Java's GRDP experienced a significant rise, marking the highest increase compared to previous years.

Pict 1 GDP of East Java for 2018-2022 at constant 2010 prices by sector (in billion rupiah)



Source **:** Central Statistics Agency East Java Province

Based on data released from the Central Statistics Agency (BPS) of Tuban Regency, the Gross Regional Domestic Product (GRDP) of Tuban Regency at Constant 2010 Prices (in billion Rupiah) for the years 2018–2022 is as follows: in 2018 it was 45,356.94, in 2019 it decreased to 42,705.01, in 2020 it increased to 43,984.68, in 2021 it rose to 47,890.26, and in 2022 it saw another increase to 49,980.23. This data shows that the total GRDP of Tuban Regency has changed each year and demonstrates an upward trend over the last four years.

Based on data from the Bojonegoro Regency BPS, the Gross Regional Domestic Product (GRDP) of Bojonegoro Regency at constant 2010 prices by sector (in billion Rupiah) for the years 2018–2022 shows that the total GRDP in 2018 was 65,815.56, which increased to 69,985.68 in 2019. However, in 2020, it decreased to 69,703.42, followed by another decline to 65,839.51 in 2021, and further decreased to 63,310.69 in 2022. This indicates that the overall GRDP of Bojonegoro Regency has experienced inconsistency each year.

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Researchers chose the research year 2018-2022 because 2018 is the beginning of the period and 2022 is the end of the period. Researchers want to make a comparison between the leading sectors of the economy in Bojonegoro Regency and Tuban Regency from the beginning of the period and see the changes at the end of the period for 5 years. Development is directed at creating better economic conditions and not only focuses on increasing growth, but also pays attention to aspects of equity. This is easier to achieve if regional development is focused on leading sectors that drive the economy. Broad autonomy provides opportunities for regions to innovate creatively in managing resources as leading sectors.

Leading sector analysis is important in recognizing the business sectors that are the main drivers in a region's economy. This helps in setting development priorities that are in line with the potential of the local economy. Based on what has been described, researchers are interested in examining the two regions in East Java because both have a geographical location close to where researchers live. Tuban and Bojonegoro districts are also both located on the border between Central Java and East Java provinces. However, both have different sources of regional income. Tuban Regency relies more on the agricultural sector. Meanwhile, Bojonegoro Regency tends to rely on the mining sector, such as petroleum and natural gas. To identify these leading sectors, appropriate methods or techniques are needed to analyze them in more depth.

LITERATURE REVIEW

Theory of Economic Development

According to Todaro in (Hasan & Muhammad, 2018), one part of the development of a region is economic development. Development can be explained as a multidimensional process influenced by major changes in social order, changes in mental attitudes that have been formed, the existence of effective national institutions, and efforts to reduce absolute poverty.

According to Nafziger in (Syahputra, 2017), economic development refers to the process of economic growth that not only involves an increase in the total output of the economy but also changes in income distribution and the overall structure of the economy.

Economic Growth Theory

Economic growth refers to the expansion of an economy, leading to an increase in goods and services produced by the community and a long-term enhancement of societal

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welfare, as noted by Sukirno in (Firmansyah, 2021). More generally, economic growth is defined as the rise in the output or production of goods and services within a year compared to the previous year. It can be technically measured by comparing the real GDP of a particular year with that of the previous year.

The Potential for Regional Economic Development

According to Fachrurrazy in (Tumangkeng, 2018), the development of each region's economic potential is essential for promoting local economic growth. The primary policy should focus on advancing the key sectors that contribute the most to regional economic development. Strengthening the local economy in each area is crucial for overall progress. Identifying leading sectors provides insights for both regional and national economic strategies, with the aim of prioritizing these sectors to ensure they grow faster than others in the region.

RESEARCH METHODS

A descriptive approach is used for this research. By using quantitative analysis, this procedure is employed to identify the clear differences between the leading (base) sectors and the non-leading (non-base) sectors present in the Tuban and Bojonegoro regencies. The data obtained is processed using the numerical equations currently in use. The way to process this data will later provide an overview of the regions of Bojonegoro and Tuban. And which economic sectors will be produced that are experiencing slow growth and need to be developed first to enhance the national and regional economy as a whole.

Place and Time of Research

This research was conducted in the regions of Tuban Regency and Bojonegoro Regency in East Java, which are included in the scope of the study. The research was conducted starting on November 28, 2023.

Types and Sources of Data

In this study, the researcher utilized secondary data in the form of time series data spanning from 2018 to 2022. The data was sourced from the websites of the Central Statistics Agency (BPS) of East Java, Tuban Regency, and Bojonegoro Regency, as well as other reliable references, including those from educational institutions and local government agencies.

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Methods of Analysis Data

After the relevant data has been collected, mathematical analyses such as Location Quotient (LQ), Shift Share (SS), and Regional Typology are used. The notation used in this research analysis method is as follows:

1. Location Quotient (LQ) Analysis
   The LQ method is used to determine the comparison of total production in a region with total production in the same sector nationally.
2. Shift Share (SS) Analysis
   The SS method is used to determine work productivity in a certain area and compared with the area above it. national or provincial
3. The Klassen Typology
   The Klassen Typology Method categorizes regions based on two factors: economic growth and per capita GDP. The vertical axis represents average economic growth, while the horizontal axis represents average per capita GDP.

RESULT

Location Quotient Analysis

Results of the Location Quotient Analysis for Bojonegoro Regency

Source: Central Statistics Agency 2022, data processed

+IA1	Industry	2018	2019	2020	2021	2022	average	ket
1	Agriculture, Forestry and Fishing	1,63	1,67	1,55	1,69	1,60	1,63	BASIS
2	Mining and Quarrying	1,71	1,75	1,63	1,89	1,99	1,79	BASIS
3	Manufacturing	1,09	1,12	0,96	1,05	1,10	1,06	BASIS
4	Electricity and Gas	0,40	0,42	0,41	0,43	0,38	0,41	NON
5	Water supply, Sewerage, Waste Management and Remediation Activities	0,62	0,64	0,60	0,66	0,63	0,63	NON
6	Construction	1,17	1,19	1,13	1,20	1,12	1,16	BASIS
7	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	0,76	0,78	0,71	0,78	0,74	0,75	NON
8	Transportation and Storage	0,22	0,24	0,24	0,28	0,25	0,25	NON
9	Accommodation and Food Service Activities	0,18	0,18	0,17	0,19	0,18	0,18	NON
10	Information and Communication	1,03	1,06	0,99	1,10	1,08	1,05	BASIS
11	Financial and Insurance Activities	0,84	0,83	0,78	0,85	0,79	0,82	NON
12	Real Estate Activities	0,94	0,94	0,81	0,89	0,86	0,89	NON
13	Business Activities	0,28	0,27	0,29	0,29	0,27	0,28	NON
14	Public Administration and Defence; Compulsory Social Security	1,08	1,07	1,03	1,12	1,06	1,07	BASIS
15	Education	0,70	0,67	0,60	0,66	0,63	0,65	NON
16	Human Health and Social Work Activities	0,95	0,95	0,72	0,83	0,83	0,86	NON
17	Other Services Activities	0,82	0,83	1,01	0,90	0,88	0,89	NON

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Based on the table above, out of the seventeen sectors, the Location Quotient Analysis identifies seven as leading economic sectors in Tuban. Among these, the Agriculture, Forestry, and Fishing sector; the Mining and Quarrying sector; and the Construction sector stand out as the top three. The average Location Quotient for the Agriculture, Forestry, and Fishing sector is 1.63, while the Mining and Quarrying sector has an average value of 1.79. Meanwhile, the Construction sector's average Location Quotient is 1.16

Results of the Location Quotient Analysis for Bojonegoro Regency

Source: Central Statistics Agency 2022, data processed

No	Industry	2018	2019	2020	2021	2022	average	ket
1	Agriculture, Forestry and Fishing	0,86	0,85	0,83	0,88	1,01	0,89	NON
2	Mining and Quarrying	11,19	11,71	11,91	12,08	12,43	11,86	BASIS
3	Manufacturing	0,16	0,16	0,16	0,17	0,20	0,17	NON
4	Electricity and Gas	0,07	0,07	0,07	0.075	0,09	0,08	NON
5	Water supply, Sewerage, Waste Management and Remediation Activities	0,29	0,28	0,28	0,31	0,34	0,30	NON
6	Construction	0,61	0,62	0,61	0,68	0,78	0,66	NON
7	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	0,39	0,39	0,37	0,40	0,46	0,40	NON
8	Transportation and Storage	0,26	0,27	0,27	0,32	0,36	0,30	NON
9	Accommodation and Food Service Activities	0,14	0,14	0,14	0,15	0,18	0,15	NON
10	Information and Communication	0,97	0,97	0,94	1,03	1,18	1,02	BASIS
11	Financial and Insurance Activities	0,45	0,45	0,44	0,48	0,55	0,47	NON
12	Real Estate Activities	0,59	0,59	0,57	0,63	0,73	0,62	NON
13	Business Activities	0,15	0,15	0,14	0,16	0,18	0,15	NON
14	Public Administration and Defence; Compulsory Social Security	1,30	1,28	1,25	1,37	1,56	1,35	BASIS
15	Education	0,33	0,33	0,32	0,35	0,39	0,34	NON
16	Human Health and Social Work Activities	0,48	0,47	0,47	0,51	0,59	0,50	NON
17	Other Services Activities	0,47	0,46	0,44	0,47	0,52	0,47	NON

Based on the table above, the Location Quotient Analysis identifies three leading economic sectors in Bojonegoro Regency out of the seventeen areas analyzed. These sectors are Mining and Quarrying, Information and Communication, and Public Administration and Defense; Compulsory Social Security. The Mining and Quarrying sector has a Location Quotient (LQ) value of 11.86, indicating a strong specialization in this area. The Information and Communication sector has an average LQ value of 1.02, while the Public Administration and Defense; Compulsory Social Security sector has an average LQ value of 1.35.

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Shift Share Analysis

Negotiation helps resolve disputes and disagreements in a business environment, which is crucial as unresolved issues can deteriorate the working atmosphere. Effective negotiators are expected to explore a range of alternatives to address problems. To facilitate this process, strong communication skills are essential. Mastering negotiation skills is crucial for success in the workplace and plays a significant role in conflict resolution. To maintain positive relationships, it is essential to Shift Share Analysis Of Tuban

No	Industry	PR	PS	DS
1	Agriculture, Forestry and Fishing	>	PS<0	<0
2	Mining and Quarrying	>	PS<0	DS>0
3	Manufacturing	<	PS>0	DS>0
4	Electricity and Gas	>	PS<0	DS<0
5	Water supply, Sewerage, Waste Management and Remediation Activities	<	PS>0	DS>0
6	Construction	<	PS>0	DS<0
7	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	<	PS>0	DS<0
8	Transportation and Storage	<	PS>0	DS<0
9	Accommodation and Food Service Activities	<	PS<0	DS>0
10	Information and Communication	<	PS<0	DS>0
11	Financial and Insurance Activities	<	PS>0	DS>0
12	Real Estate Activities	<	PS<0	DS<0
13	Business Activities	<	PS>0	DS<0
14	Public Administration and Defence; Compulsory Social Security	<	PS<0	DS<0
15	Education	<	PS<0	DS<0
16	Human Health and Social Work Activities	<	PS>0	DS<0
17	Other Services Activities	<	PS>0	DS<0

Based on the table above, the Proportional Regional Shift Share Analysis indicates that certain sectors in Tuban Regency contribute significantly to the growth of East Java Province. These sectors include Agriculture, Forestry, and Fishing; Mining and Quarrying; and the Electricity and Gas sector.

From the PS results, it is found that there are 8 sectors that have a tendency to grow faster. There sectors are, Construction; Manufacturing; Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles; Water supply, Sewerage, Waste Management and Remediation Activities; Transportation and Storage Financial and Insurance;

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ActivitiesBusiness Activities; Human Health and Social Work Activities; and Other Services Activities.

From the DS result The results show that there are sectors that have competitiveness.

Shift share analysis of Bojonegoro

No	Industry	PR	PS	DS
1	Agriculture, Forestry and Fishing	>	PS<0	DS<0
2	Mining and Quarrying	>	PS<0	DS>0
3	Manufacturing	<	PS>0	DS>0
4	Electricity and Gas	<	PS<0	DS>0
5	Water supply, Sewerage, Waste Management and Remediation Activities	<	PS>0	DS<0
6	Construction	<	PS>0	DS>0
7	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	<	PS>0	DS<0
8	Transportation and Storage	<	PS<0	DS>0
9	Accommodation and Food Service Activities	<	PS<0	DS>0
10	Information and Communication	<	PS>0	DS>0
11	Financial and Insurance Activities	<	PS<0	DS>0
12	Real Estate Activities	<	PS>0	DS>0
13	Business Activities	<	PS<0	DS>0
14	Public Administration and Defence; Compulsory Social Security	>	PS<0	DS<0
15	Education	<	PS>0	DS>0
16	Human Health and Social Work Activities	<	PS>0	DS<0
17	Other Services Activities	>	PS<0	DS<0

Based on the table above, the results of the calculation of the Proportional Regional Shift Share Analysis show that there are several sectors in Bojonegoro Regency that tend to encourage the growth of East Java Province, namely agriculture, foresty and fishing; mining and quarrying; Public Administration and Defence; and other services activities.

From the PS results, it is found that there are 8 sectors that have a tendency to grow faster. There sectors are, Manufacturing; Water supply, Sewerage, Waste Management and Remediation Activities; Construction; Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles; Transportation and StorageFinancial and Insurance; ActivitiesBusiness Activities; Human Health and Social Work Activities; and Other Services Activities.

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From the DS result The results show that there are sectors that have competitiveness.

Typology Klassen

	KLASSEN TYPOLOGY	KUADRAN	
No	Industry	TUBAN	BOJONEGORO
1	Agriculture, Forestry and Fishing	IV	II
2	Mining and Quarrying	I	I
3	Manufacturing	IV	II
4	Electricity and Gas	III	III
5	Water supply, Sewerage, Waste Management and Remediation Activities	III	IV
6	Construction	III	II
7	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	IV	IV
8	Transportation and Storage	III	III
9	Accommodation and Food Service Activities	III	III
10	Information and Communication	III	I
11	Financial and Insurance Activities	III	IV
12	Real Estate Activities	III	IV
13	Business Activities	III	IV
14	Public Administration and Defence; Compulsory Social Security	II	II
15	Education	IV	IV
16	Human Health and Social Work Activities	IV	IV
17	Other Services Activities	IV	IV

Quadrant I is a prime sector, quadrant I is a sector that has a greater growth rate to GDP and is a sector that has a large contribution to GDP. the Mining and Quarrying sector is the only sector that is in quadrant 1 in these two districts. In Bojonegoro Regency, there is one other sector that falls into the quadrant I category, namely the information and communication sector.

Quadrant II represents developing sectors that contribute significantly to GDP but have a relatively small growth rate. In Tuban Regency, the Public Administration and Defense; Compulsory Social Security sector is the only one that falls into this category. In Bojonegoro Regency, there are three sectors that are classified in Quadrant II.

Quadrant III is a potential sector that can still grow rapidly but has a small growth rate and contribution to GDP. in Tuban there are 9 sectors that fall into this category. while in Bojonegoro there are 3 sectors in quadrant 3.

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Quadrant IV is an underdeveloped sector that has a small growth rate and contribution to GDP. There are 5 and 6 sectors included in quadrant IV in Tuban and Bojonegoro, respectively.

CONCLUSION

Based on the results of the discussion, it can be concluded that Tuban Regency has 6 basic sectors, namely Agriculture, Forestry, and Fisheries; Mining and Quarrying; Construction; Information and Communication; and Government Administration, Defense and Mandatory Social Security. While Bojonegoro Regency has three basic sectors, namely the mining and quarrying sector; Information and Communication; and Government Administration, Defense and Compulsory Social Security. Based on the results of this analysis, it can be concluded that these sectors are sectors that need to be prioritized for further development in order to help support the regional economy in TubanRegency and Bojonegoro Regency.

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