

Analysis Leading Sectors and Poverty Impact in "Golden Triangle" Agglomeration Area

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Abstract: This study analyzes the leading sectors and their impact on poverty levels in Bojonegoro Regency, Tuban Regency, and Lamongan Regency from 2013 to 2023. The methods used include Location Quotient (LQ), Dynamic Location Quotient (DLQ), Shift Share analysis, and panel data regression to measure the influence of base sectors on poverty levels. The results indicate that several economic sectors have significant comparative advantages and the potential to support regional economic growth. However, the gap between economic growth and poverty levels persists, suggesting that the development of base sectors have not yet fully contributed to poverty reduction. Therefore, this study recommends optimizing leading sectors through more inclusive development policies to improve community welfare. **Keywords**: Leading Sectors; Poverty; Regional Development.

Abstract: Penelitian ini menganalisis sektor unggulan dan dampaknya terhadap tingkat kemiskinan di Kabupaten Bojonegoro, Kabupaten Tuban, dan Kabupaten Lamongan pada periode 2013 sampai 2023. Metode yang digunakan mencakup *Location Quotient* (LQ), *Dynamic Location Quotient* (DLQ), *Shift Share*, serta regresi data panel untuk mengukur pengaruh sektor basis terhadap tingkat kemiskinan. Hasil penelitian menunjukkan bahwa beberapa sektor ekonomi memiliki keunggulan komparatif yang signifikan dan berpotensi dalam mendukung pertumbuhan ekonomi daerah. Namun, kesenjangan antara pertumbuhan ekonomi dan tingkat kemiskinan masih terjadi, mengindikasikan bahwa peningkatan sektor basis belum sepenuhnya berdampak pada penurunan angka kemiskinan. Oleh karena itu, penelitian ini merekomendasikan optimalisasi sektor unggulan melalui kebijakan pembangunan yang lebih inklusif guna meningkatkan kesejahteraan masyarakat.

Kata Kunci: Sektor Unggulan; Kemiskinan; Pembangunan Daerah.

INTRODUCTION

Economic development fundamentally represents an effort of a region to advance its area in achieving social welfare. The process of economic development is necessarily linked to appropriate policy strategies, taking into account the unique characteristics and focus of each region. Economic development follows various approaches aimed at a common goal: welfare through the optimization of prioritized sectors within a region.

A region can harness its potential by exporting leading sectors that exhibit higher growth compared to other regions in the same sector. Effective production capabilities that meet domestic demands and enable external trade allow these leading sectors to grow rapidly, driven by factors such as capital accumulation and advanced technology adoption. Economic growth and economic development are interconnected; growth provides the foundation for development, which in turn drives comprehensive economic improvements. While economic growth is demonstrated by tangible increases in regional income,





economic development is more dynamic, involving structural changes such as improvements in the Human Development Index and addressing various economic issues related to underdevelopment (Weliza et al., 2022). However, economic development is more substantial than economic growth, emphasizing the quality of factors such as human welfare, health issues, and poverty levels. Development that is not based on good governance can lead to externalities, particularly environmental degradation, as seen in the transition from a conventional to a modern economy that requires technologies that may harm the environment (Hakim et al., 2020).

Based on the phenomenon, it is given at Table 1 that consist of averaging GDP during 2013 to 2023.

Sectors	Bojonegoro	Tuban	Lamongan
Agriculture Livestock, Forestry, and Fishery	5.922,730	7.149,449	8.369,419
Mining and Quarrying	32.075,590	3.647,329	331,270
Manufacturing Industries	3.093,750	13.245,368	2.437,530
Electricity & Gas Supply	14,080	49,335	19,573
Water Supply, Waste Management, Sewage, and Recycling	18,536	26,437	29,193
Construction	3.678,580	4.679,679	2.781,969
Wholesale and Retail Trade, Car and Motorcycle Repair	4.530,980	5.741,660	5.092,876
Transportation and Warehousing	505,484	281,064	217,715
Food and Drinks, Accommodation Provision	467,971	384,402	394,253
Information and Communication	3.693,050	2.627,841	2.240,118
Finance and Insurance Services	713,912	840,144	512,308
Real Estate	653,369	627,615	584,820
Company Services	71,055	86,713	71,202
Government Administration, Defense and Mandatory Social Security	1.780,530	943,703	1.001,481
Education Services	559,739	703,966	715,060
Medical Services and Social Activities	218,959	235,250	246,537
Others	413,976	513,686	484,140

Table 1. Average of GDP Constant Prices During 2013 to 2023

Sources: Central Bureau of Statistics (BPS) of East Java

The presented **Table 1** shows that each sector in regencies has a different value, recognized from **Table 1**. The data used in this research is oriented to the use of Regional Gross Domestic Product (PDRB) according to business fields consisting of 17 sectors with basic calculations on the Basis of Constant Price (ADHK). The use of constant price is basically to eliminate the inflation factor that can change the real value of the price. The Gross Regional Domestic Product (GDPD) presented is on average for the last 11 years from 2013 to 2023.





Each sector has a contribution that is used to build the economy, based on the presentation above there is a dominance of sector contributions produced by each Regency with different values. In this case, there are various factors that affect, such as differences in geographical conditions and differences in natural resources that also have an effect.

In Bojonegoro Regency, there are 5 sectors that contribute quite a lot. The first contribution is the mining and quarrying sector worth 32.075,590 billion rupiah, then in second place is the agriculture, forestry and fisheries sector with 5.922,730 billion rupiah, large and retail trade sector, car and motorcycle repair worth 4.530,980 billion rupiah. In fourth place is the information and communication sector with a value of 3.693,050 billion rupiah and the last in the construction sector of 3.678,580 billion rupiah. Meanwhile, the smallest contribution is in the electricity and gas procurement sector of 14,080 billion rupiah.

Furthermore, in Tuban Regency, the first largest contribution was in the processing industry with a total value of 13.245,328 billion rupiah, followed by the agriculture, forestry, and fisheries sectors with 7.149,448 billion rupiah, the next sector with a value of 5.741,660 in the large and retail trade, car and motorcycle repair sectors. In fourth and fifth place there are construction and mining and quarrying sectors with 4.679,679 billion rupiah and 3.647,329 billion rupiah respectively. The smallest contribution with a value of 26,437 billion rupiah in the water procurement, waste management, waste and recycling sectors.

Finally in Lamongan Regency, the largest contribution is in the agricultural, forestry, and fisheries sectors with a sector of 8.369,419 billion rupiah, followed by the large and retail trade sectors, car and motorcycle repairs of 5.092,876 billion rupiah. Furthermore, there is the construction sector with a total value of 2.781,969 billion rupiah. The smallest sector that contributes is the electricity and gas sector with a value of 19,573 billion rupiah.

Based on the table that has been presented, it can be seen that Bojonegoro Regency is in the first place for the contribution of the PDRB value generated worth 58,412,579 billion rupiah, followed by Tuban Regency with a total PDRB value of all sectors of 41,783,745 and Lamongan Regency is in the area with the lowest contribution, with a value of only 24,945,016 billion rupiah.

Thus, each region has a different ability in managing the advantages it has, both in terms of natural resources, or human resources in processing them. The biggest contribution in each different region can also be interpreted that each region focuses on the potential it has and can be used as an economic base (daily economic activity).

The **Figure 1**, showing the gap between poverty and economic growth. There is poverty with sigificantly largest number that shows more than ten percentage. It multiplies around three times rapidly rather than economic growth. This unfitted condition interpreted the bias, economics growth should grow faster than poverty, it indicates that the economics did not accommodate the poverty. Tuban regencies, shown that has the highest poverty rate 16,231 percentage with the lowest economics growth percentage 4,256 percentage Based on the **Figure 1**, the larger regencies with poverty rate indicates the lower their economics growth. It can be concluded that, to lower poverty rate at each regencies, it is essentials to increase economics growth by optimalizing economics development through leading sectors.





Figure 1. Average Poverty (red) and GDP Rate (blue) in Bojonegoro, Tuban, and Lamongan Regencies 2013 to 2023 Sources: Central Bureau of Statistics (BPS) of East Java

The sectors in question refer to leading sectors that hold a comparative advantage over others. Given that each region possesses distinct geographical and natural characteristics, the basis for sectoral development varies significantly from one area to another. Various analytical methods are utilized to identify and assess the competitiveness of sectors within a region, which serve as valuable references for policy-making considerations. A region can maximize its potential by exporting its leading sectors that demonstrate superior growth compared to other regions in the same sector. Effective production capabilities, ensuring the fulfillment of domestic demand while facilitating external trade, enable a leading sector to contribute to regional economic expansion. This phenomenon underscores the importance of identifying and optimizing such sectors in driving sustainable development.

In the context of economic planning, the shift-share analysis approach is used to determine the growth performance of a sector in a specific region relative to a larger economic area. This method allows for an assessment of whether sectoral growth is influenced by national trends, industrial structure, or competitive advantages unique to the region. The findings derived from this analysis are expected to provide essential insights into the development trajectory of economic sectors within Bojonegoro, Tuban, and Lamongan regencies.

Identifying and analyzing leading sectors is crucial for regional economic development, as it enables policymakers to focus resources on industries with the highest growth potential and inter-sectoral linkages. For instance, a study by Armelly et al. (2021) utilized an input-output model to determine the key sectors influencing Indonesia's economy. The research revealed that the manufacturing sector exhibited the highest forward linkages, indicating its significant role in driving economic growth. Moreover, the study found a substantial relationship between the manufacturing and agricultural sectors, suggesting that advancements in manufacturing could have a multiplier effect on agriculture.





Based on the existing research gap, this study aims to evaluate the significance of economic base utilization in mitigating poverty levels, particularly within Bojonegoro, Tuban, and Lamongan regencies. The research seeks to analyze which sectors hold the greatest potential for economic optimization and how their development can contribute to poverty alleviation. This study is expected to enhance understanding of regional economic dynamics while offering recommendations for future economic planning in these areas.

The limitation of the problem is intended as a narrowing of the scope of research so that it focuses on the intended research object so as to reduce the research bias. The limitation in this study is to focus on the focus of the research, namely determining the superior sectors in Bojonegoro Regency, Tuban Regency, and Lamongan Regency as well as reviewing the influence of the base sector on poverty rates by using statistical datasets, namely PDRB Based on Constant Prices in Bojonegoro Regency, Lamongan Regency and Tuban Regency and East Java Province in 2013 to 2023 and Poverty Rate Percentage 2013 to 2023.

THEORETICAL REVIEW

The analysis of leading sectors plays a crucial role in understanding regional economic development and its implications for poverty reduction. Identifying key sectors that drive economic growth enables policymakers to formulate targeted strategies that foster sustainable development and improve community welfare. This study examines the leading sectors in Bojonegoro, Tuban, and Lamongan Regencies, assessing their impact on poverty levels. By exploring sectoral contributions to employment, income generation, and overall economic performance, this research aims to provide insights into how regional economic strengths can be leveraged to reduce poverty and promote inclusive growth.

Economic Base Theory posits that a region's economic growth is primarily driven by its capacity to produce goods and services for export beyond its boundaries. This theory distinguishes between basic sectors, which generate external revenue, and non-basic sectors, which cater to local consumption. A study analyzing the economic base in Surabaya from 2016 to 2021 identified key basic sectors contributing to regional growth, highlighting the practical application of this theory in urban economic planning (Prayitno, 2023).

Leading Sector Theory are defined as economic sectors that possess a sustainable comparative advantage, exhibit rapid growth, and demonstrate strong competitiveness within a region. These sectors significantly contribute to regional economic development by enhancing productivity, generating employment opportunities, and stimulating other related industries. Identifying and prioritizing leading sectors are crucial for formulating effective regional development strategies. For instance, a study analyzing the leading sectors in West Sumatra Province utilized methods such as Location Quotient (LQ), Differential Shift (DS), Dynamic LQ, and Klassen Typology to determine sectors with high potential for driving economic growth (Sari, 2024).

Pro-Poor Growth Theory examines how economic growth impacts poverty reduction, focusing on whether the benefits of growth are equitably distributed. Growth is deemed pro-poor if it leads to significant improvements in the well-being of the poor population. An analysis of pro-poor growth in Indonesia found that both economic growth





and income distribution play crucial roles in alleviating poverty, suggesting that policies should aim to enhance growth while ensuring equitable distribution (Permadi, 2018).

Leading sectors are identified using theories of comparative advantage and economic specialization. These sectors play a crucial role in regional economic development, contributing significantly to employment and income generation. The determination of leading sectors involves analytical tools such as the Location Quotient (LQ), Dynamic Location Quotient (DLQ), and Shift Share Analysis, which assess sectoral competitiveness and growth potential.

Several relevant studies have explored the relationship between leading sectors and economic growth. Haiting Li (2023) analyzed the mining industry in Anhui Province, finding that mineral processing plays a significant role in regional economic growth. Borges (2023) examined how dominant sectors influence geopolitical polarity shifts, particularly in the US-China economic rivalry. Economic base sectors strongly correlate with poverty reduction, supporting the idea that optimizing leading sectors can create employment opportunities and improve welfare.



Figure 2. Research Model

The relationship between GRDP and leading sectors is fundamental in determining sectoral priorities. GRDP serves as the basis for classifying leading sectors and assessing their contribution to regional development. Studies by Adiyatin et al. (2019) highlight the





importance of using GRDP-based sector classification to formulate effective economic policies.

The research model illustrates the relationship between economic growth, leading sectors, and poverty reduction. It begins with the issue of the gap between poverty and economic growth, highlighting how disparities in development affect different regions. To address this gap, the model emphasizes the role of leading sectors, which are identified as key drivers of regional economic growth.

The identification of these leading sectors is carried out through three analytical approaches. The Location Quotient (LQ) method is used to determine the sectors with a comparative advantage in a specific region. To further examine the impact of these sectors on economic growth and poverty reduction, a Panel Data Regression analysis is conducted. Additionally, the Dynamic Location Quotient (DLQ) method extends the LQ approach by incorporating sectoral growth trends over time, allowing for a more dynamic understanding of regional economic potential. Meanwhile, Shift Share Analysis is employed to assess the extent to which a sector's growth is influenced by regional competitiveness as opposed to broader national trends.

Through these analyses, the model ultimately aims to demonstrate how fostering the right leading sectors can contribute to poverty reduction. By identifying sectors that have strong growth potential and competitive advantages, regional policymakers can develop strategies that effectively bridge the gap between economic growth and poverty alleviation, ensuring more inclusive and sustainable development

Economic base sectors also have a significant relationship with poverty levels. The presence of strong base sectors can reduce poverty by generating employment, attracting investment, and creating a stable economic environment. By optimizing leading sectors leads to poverty reduction, reinforcing the notion that economic specialization and sectoral growth are crucial in addressing social inequality.

H0: Leading sector has no effect to poverty rate in Bojonegoro, Tuban, and Lamongan regencies.

H1: Leading sector has effected to poverty rate in Bojonegoro, Tuban, and Lamongan regencies.

METHODS

This study employs a quantitative research method with a descriptive quantitative analysis approach. Quantitative research focuses on structured data collection and analysis to examine relationships between variables systematically (Sugiyono, 2018). The research aims to present numerical data that provides an objective and measurable depiction of the economic sectors in Bojonegoro, Tuban, and Lamongan. Several analytical methods are applied in this study, including Location Quotient (LQ), Dynamic Location Quotient (DLQ), Shift Share Analysis, and Panel Data Regression. These methods are used to identify basic and non-basic sectors, classify their growth patterns, and analyze their impact on poverty levels. Panel data regression is employed as it allows for the analysis of variations across both time and cross-sectional units, providing more robust estimations (Ghozali, 2018). Panel data analysis enables a more comprehensive understanding of





economic trends by capturing both spatial and temporal variations (Ghozali, 2018). All data used in this research are secondary data, obtained from the Central Bureau of Statistics (BPS) of East Java, including Gross Regional Domestic Product (GRDP) at Constant Prices from 2013 to 2023 and Poverty Rate Data from the same period.

The population of this research includes all regencies in East Java Province, while the sample focuses on Bojonegoro, Tuban, and Lamongan. The selection is conducted using purposive sampling, a non-probability sampling method where subjects are chosen based on specific criteria that align with the research objectives (Sugiyono, 2018). The selection criteria include geographic proximity, economic activities, and socio-cultural similarities among the three regencies. The main variables analyzed in this study consist of poverty rate as the dependent variable, measured by the percentage of people living below the poverty line in Bojonegoro, Tuban, and Lamongan. The independent variables include two basic sectors, identified through Location Quotient (LQ) analysis, which is a widely used method in regional economic analysis to determine sectoral competitiveness (Ghozali, 2018).

Data collection is conducted through official statistical reports, obtained from the BPS database. The study employs documentation techniques, where relevant data are collected, reviewed, and analyzed systematically (Sugiyono, 2018). To analyze the impact of basic sectors on poverty reduction, several statistical methods are applied. Location Quotient (LQ) analysis identifies basic and non-basic sectors, while Dynamic Location Ouotient (DLO) assesses whether a sector has growth potential. Shift Share Analysis is employed to examine regional economic growth contributions. Lastly, Panel Data Regression Analysis is conducted to investigate the relationship between basic sectors and poverty levels, using econometric modeling techniques as outlined by Ghozali (2018).

Location Quotient (LQ) is an approach that measures which sectors that has an important role in that region. It is potentially to expand because the sectors – output could fulfill the domestic need and possibly marked on cross with another region trade.

$$LQ = \left(\frac{\frac{xi}{X}}{\frac{yi}{Y}}\right).$$
 (1)

xi represents sector i in GDP at constant prices at the district/city level, while x refers to the total sectors in GDP at constant prices at the district/city level. Yi represents sector i in GDP at constant prices at the provincial level, whereas Y refers to the total sectors in GDP at constant prices at the provincial level.

Dynamic Location Quotient (DLQ) ia an approach that developing from LQ form. The difference between DLQ and LQ located in the time duration. DLQ containing timeseries measuring to completed LQ equation. DLQ representing if the sectors could be determined as prospective sectors if the value more than 1 and potentially developed in the future if well- managed.

$$DLQ = \left[\frac{(1+gik)/(1+gk)}{(1+gtp)/(1+gp)}\right]^{t}.$$
 (2)

gik refers to the growth of sub-sectors' share in GDP at constant prices at the district/city level. gk represents the average growth of GDP at constant prices at the district/city level.





Gtp indicates the growth of sub-sectors' share in GDP at constant prices at the provincial level, while gp represents the average growth of GDP at constant prices at the provincial level.

Shift Share Analysis is a method that used to understand a few factors in which affected a regencies growth economy and compared in to the widely levels. By analyzing the measured components, can be identified the sectors that give significant role and competitive advantage in which essentials to develop those regencies/city.

Dij = Nij + Mij + Cij.(3)

Dij represents the change in subsectors at the regency/city level over a certain period. Nij refers to the national growth components of subsectors at the regency/city level. Mij indicates the mixed industry subsectors at the regency/city level, while Cij represents the competitive advantage of subsectors at the regency/city level.

Panel Data Regression is an approach that combine both of timeseries and crosssection to understand the character of the same unit. There are steps to analyze using this methods, such as choosing the greatest model with various steps, classic assumption test such normality test and interpreted the choosen model to recognize correlation between independent and dependent variables (Karunia et al. 2023).

 $PTit = \alpha + \beta 1LS1it + \beta 2LS2it + \varepsilon it...$ (4)

PT represents the poverty rate, while α is the constant. The coefficients $\beta 1$ and $\beta 2$ are the regression coefficients for the variables LS1 and LS2. LS1it refers to Leading Sectors -1, and LS2it represents Leading Sectors -2. Lastly, it denotes the error term.

By applying these statistical methods, this study provides an empirical foundation for policy recommendations, aimed at optimizing leading economic sectors to reduce poverty in Bojonegoro, Tuban, and Lamongan. The findings are expected to contribute to evidence-based policymaking, ensuring that economic development strategies are tailored to regional strengths and challenges.

RESULTS

Location Quotient (LQ) Analysis is used to recognize and determine which sectors that potentially developed in the region. If the LQ value has more than 1 it categorized leading sectors. The Table 3, represented the results of LQ analysis.

Sectors	Bojonegoro	Tuban	Lamongan
Agriculture Livestock. Forestry. and Fishery	0.900	1.610	3.020
Mining and Quarrying	11.180	1.810	0.270
Manufacturing Industries	0.180	1.060	0.310
Electricity & Gas Supply	0.080	0.380	0.250
Water Supply. Waste Management. Sewage. and Recycling	0.320	0.630	1.140

Table 3. Average Location Quotient (LQ) Analysis 2013 to 2023

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Contraction of the second seco		Jurnal	Ekonomi E-JE E-ISSN 2580-4901 P-ISSN 0854-9842
Construction	0.690	1.230	1.180
Wholesale and Retail Trade. Car and Motorcycle Repair	0.380	0.680	0.980
Transportation and Warehousing	0.300	0.230	0.290
Food and Drinks. Accommodation Provision	0.150	0.170	0.290
Information and Communication	1.040	1.020	1.430
Finance and Insurance Services	0.480	0.790	0.790
Real Estate	0.640	0.870	1.340
Company Services	0.160	0.270	0.360
Government Administration. Defense and Mandatory Social Security	1.440	1.050	1.830
Education Services	0.360	0.630	1.040
Medical Services and Social Activities	0.550	0.800	1.370
Others	0.520	0.870	1.350

Sources: Central Bureau of Statistics (BPS) of East Java.

Notes: The green colour represents leading sectors

According to the represented **Table 3**. it can be concluded that each regencies shows the difference leading sectors. Both of Bojonegoro and Tuban regencies has the largest potential in Mining and Quarrying sectors. then. Lamongan regency has the largest value at Agriculture. Forestry and Fishery sectors. All of the regencies has a similarity that they have two leading sectors at Information and Communication sector and Government Administration. Defense and Mandatory Social Security. However. there are several sectors that simultaneously in all three regions have a base in sector value less than one. these sectors included : Electricity and Gas Procurement; Wholesale and Retail Trade. Car and Motorbike Repair; Transportation and Warehousing; Food and Drink Accommodation; Financial Services and Insurance; Then. Company services. Thus. in these six sectors the three regions are unable to produce enough to meet domestic needs. So. it could be concluded. that six sectors above are still importiong from other regions to fill the domestic needs.

Dynamic Location Quotient (DLQ) Analysis can be said to be a modified method of Location Quotient. This method aims to carry out a more comprehensive analysis by looking dynamically (differences over a wider time span) of economic sectors by assessing the potential of each sector in the future.

Sectors	Bojonegoro	Tuban	Lamongan	
Agriculture Livestock. Forestry. and Fishery	0.080	1.237	0.049	
Mining and Quarrying	680.070	45.274	789.221	
Manufacturing Industries	0.274	0.610	50.542	
Electricity & Gas Supply	0.327	0.004	2.064	
Water Supply. Waste Management. Sewage. and Recycling	0.201	0.314	0.655	
Construction	0.847	0.001	0.326	
Wholesale and Retail Trade. Car and Motorcycle Repair	0.526	0.635	0.205	

Table 4. Average Dynamic Location Quotient (DLQ) Analysis 2013 to 2023



		Jurnal	Ekonomi E-JE E-ISSN 2580-4901 P-ISSN 0854-9842
Transportation and Warehousing	9.495	13.134	1.569
Food and Drinks. Accommodation Provision	2.014	1.051	1.265
Information and Communication	1.874	3.390	0.304
Finance and Insurance Services	2.147	0.493	0.135
Real Estate	3.226	2.869	1.561
Company Services	1.231	0.647	0.114
Government Administration. Defense and Mandatory Social Security	0.288	1.379	0.182
Education Services	0.234	0.883	0.655
Medical Services and Social Activities	0.139	2.717	0.547
Others	0.027	1.539	0.229

Sources: Central Bureau of Statistics (BPS) of East Java

Notes: The green colour represents leading sectors

Table 4 shows in Bojonegoro Regency there are seven out of seventeen sectors that are categorized as prospective. including: the mining and quarrying sector; transportation and warehousing sector; food and drink accommodation provision sector; Information and communication sectors; financial services and insurance sector; Company services sector; as well as real estate sectors. In Tuban Regency, there are eight prospective sectors. including: agriculture. forestry and fisheries sectors; mining and quarrying sector; transportation and warehousing sector; food and drink accommodation provision sector; information and communication sector; real estate sector; government administration. defense and mandatory social security sectors; health services and social activities sectors. Furthermore. in Lamongan Regency. there are six prospective sectors including: mining and quarrying sector. manufacturing industry sector; electricity and gas procurement sector; transportation and warehousing sector; accommodation. food and drink provision sector: as well as the real estate.

Shift Share Analysis is a methods where the aim is to find out the performance of the regional economy. structural shifts. relative positions of economic sectors and the identification of regional leading sectors in relation to the reference region's economy in two or more periods of time.

Sectors	Bojonegoro	Lamongan	Tuban
Agriculture Livestock. Forestry. and Fishery	-18.092.819	-25.246.728	-18.731.459
Mining and Quarrying	62.090.273	820.805	-1.471.565
Manufacturing Industries	1.825.011	12.995.849	5.592.109
Electricity & Gas Supply	-5.769	18.892	-122.582
Water Supply. Waste Management. Sewage. and Recycling	-6.310	18.390	-17.374
Construction	2.825.568	1.460.345	-12.026.736
Wholesale and Retail Trade. Car and Motorcycle Repair	4.484.974	3.800.923	2.511.578

Table 5. Shift Share Analysis of Bojonegoro Regions

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		Jurnal	Ekonomi E-JE E-ISSN 2580-4901 P-ISSN 0854-9842
Transportation and Warehousing	2.435.278	786.711	1.143.359
Food and Drinks. Accommodation Provision	1.503.255	1.297.918	703.914
Information and Communication	15.766.528	6.973.276	9.999.566
Finance and Insurance Services	548.380	-240.494	-536.592
Real Estate	1.269.308	1.063.217	693.602
Company Services	91.619	11.764	18.893
Government Administration. Defense and Mandatory Social Security	-4.113.784	-2.281.793	-2.031.673
Education Services	76.684	787.808	195.182
Medical Services and Social Activities	273.989	660.215	623.517
Others	-440.392	141.865	231.275

Sources: Central Bureau of Statistics (BPS) of East Java

The Shift Share in **Table 5.** giving an results analysis for Bojonegoro Regency reveals that net shift (Mij + Cij) indicates that twelve out of seventeen sectors are leading and expanding rapidly. with only agriculture. forestry. fisheries; electricity and gas supply; water supply. waste management. sewage. and recycling; Government administration. defense and mandatory. social security; and others are lagging. This suggests that Bojonegoro has significant economic potential. as most sectors demonstrate rapid growth and competitivenes

The Shift Share analysis for Tuban Regency indicates that all economic subsectors experience positive net shift (Mij + Cij) shows that ten out of seventeen sectors are leading and expanding. while seven. including agriculture. mining. and construction. are lagging. This suggests that although Tuban has strong economic potential. several sectors still require significant improvement to enhance competitiveness and growth.

The Shift Share analysis for Lamongan Regency indicates that net shift (Mij + Cij) reveals that fourteen out of seventeen sectors are thriving and categorized as leading sectors. while three—agriculture. financial services. and public administration—exhibit weaker growth. This suggests that while most sectors in Lamongan are expanding rapidly. certain industries require strategic improvements to enhance their economic impact.

Classical Assumption Test. The model selection uses a fixed effect model (FEM) where the final result of the Hausman test with a random cross section probability of 0.000. The normality test in this study uses the Jarque-Berra technique with a probability of 0.326. so that the data is normally distributed. The results of the multicollinearity test in this study show the correlation between the independent variables (*LS1. LS2*). the values are 0.833 (no more than 0.900) which are within acceptable limits. Thus, the data shows no multicollinearity. The results of the heteroscedasticity test for each independent variable (*LS1* = 0.420; *LS2* = 0.517) with probability values all more than 0.050, it can be concluded that there is no heteroscedasticity.

Panel Data Regression. The regression analysis in **Table 5**, results indicate that the intercept (2.405) suggests that if both independent variables (*LS1* and *LS2*) are zero. the poverty rate is estimated at 2.405. The negative coefficient of *LS1* (-1.857) implies that an increase in the Information and Communication sector reduces poverty. aligning with the theory that sectoral development attracts investment and lowers poverty. Conversely. the





positive coefficient of LS2 (1.565) indicates that growth in the Public Administration. Defense. and Social Security sector may increase poverty. possibly due to rising operational costs without direct benefits to society. The R-squared value of 0.814 shows that 81.400 percent of the variations in poverty levels are explained by these variables. demonstrating a strong model fit. The t-test confirms that LS1 significantly impacts poverty at the 1; 5; and 10 percentage significance levels. the same as LS2 is significant at 1;5; and 10 percentage levels. The F-test result. with a p-value of 0.000. confirms that the model is statistically significant. indicating that both independent variables together significantly influence poverty levels.

Dependent Veriable		Poverty Rate Percentage	е
Dependent variable	Coefficient	t-statistic	Probability
Leading Sector-1	-1.857	-7.671	0.000
Leading Sector-2	1.565	7.250	0.000
Prob (F-statistics)		0.000	
Adjusted R-squared		0.787	
C			

Table 6. The Results of Panel Data Regression

Sources: Author

DISCUSSION

The economic analysis of Bojonegoro. Tuban. and Lamongan regencies using the Location Quotient (LQ) method demonstrates that. although these three regions are geographically adjacent. they exhibit distinct economic structures and potentials. Each region has specific leading sectors that act as economic drivers. while others rely on external supply due to their lower production capacities. These variations in economic bases significantly influence local development strategies and poverty alleviation efforts (Laily & Muljaningsih. 2022; Hanafi & Priana. 2022).

Beyond static economic analysis. the Dynamic Location Quotient (DLQ) reveals potential shifts in sectoral significance over time. In Bojonegoro. the Agriculture sector. which is currently classified as non-base. demonstrates the possibility of evolving into a base sector if properly developed. This implies that with targeted investments. technological improvements. and policy support. Agriculture in Bojonegoro could become a more significant contributor to economic growth.

The Shift-Share analysis further provides insight into the growth trends of each region's sectors. Bojonegoro demonstrates significant economic growth, with twelve out of seventeen sectors experiencing expansion. However, the primary drivers of growth is Mining and Quarrying. These sectors benefit from high regional competitiveness and the national economic expansion. However, agriculture and manufacturing remain non-base sectors and show slow growth components. This indicates that these sectors are neither benefiting from national trends nor gaining regional momentum. If agriculture is to become a future growth driver, there needs to be policy intervention, investment in modern technology, and workforce development. Despite strong economic indicators, the reliance on Mining and Quarrying poses long-term sustainability concerns, as natural resources are finite and subject to price volatility.





Tuban has six base sectors that contribute to its economic stability: Agriculture. Forestry. and Fisheries; Mining and Quarrying; Manufacturing; Construction; Information and Communication; and Government Administration. The Shift-Share Analysis highlights that Tuban's agriculture sector. despite being a base sector. is growing at a slower rate than the national average (negative IME). This suggests that while agriculture is important. it is not evolving as fast as it should. Possible causes include: Low productivity due to outdated farming methods. Lack of value-added agricultural processing industries. Vulnerability to climate change and environmental factors. Manufacturing and Construction. however. show strong regional competitiveness. These sectors benefit from industrial expansion. investment inflows. and strong supply chain linkages with surrounding regions.

Lamongan has the most diverse economic base. with fourteen leading sectors. However. Shift-Share Analysis reveals that while multiple sectors are contributing to economic activity. not all are growing at an optimal rate. The health and education sectors are expanding. benefiting from national and local policies. Investments in healthcare facilities and educational institutions have boosted employment opportunities and service availability. Mining and Quarrying. however. remain underdeveloped compared to Bojonegoro and Tuban. Negative side suggests that Lamongan does not have the same natural resource endowment or extraction capabilities as the other two regions. Instead of trying to develop this sector. Lamongan should focus on leveraging its strengths in agriculture. trade. and services.

A crucial aspect of this study is the relationship between dominant economic sectors and their influence on poverty levels. Among the base sectors. the Information and Communication sector has proven to be a vital factor in improving economic conditions and reducing poverty rates. The expansion of internet access. digital platforms. and ecommerce opportunities has significantly contributed to increasing productivity and generating new income streams. Digitalization enables small businesses to reach broader markets and enhances educational accessibility. which in turn can elevate the socioeconomic conditions of the population. However. several challenges hinder the full potential of this sector. including digital literacy disparities. infrastructure limitations. and unequal access to technological advancements. particularly in rural areas. Addressing these issues is essential for ensuring that digital transformation benefits a larger segment of society rather than exacerbating existing inequalities.

Another sector playing a significant role in poverty reduction is Government Administration. Defense. and Social Security. This sector is responsible for implementing social welfare programs. including universal health insurance (BPJS). social assistance. and employment support initiatives. Well-managed governance and effective policy implementation can mitigate economic disparities and enhance social mobility. Nevertheless. the effectiveness of public service delivery is often constrained by bureaucratic inefficiencies. corruption. and administrative delays. which reduce the overall impact of government programs. Improving governance transparency. reducing bureaucratic complexity. and ensuring proper allocation of resources are critical measures to enhance the efficiency of poverty alleviation programs.

The findings suggest that each region possesses unique economic advantages that can be strategically developed to complement each other rather than compete directly. Bojonegoro's strength in the Mining and Quarrying sector positions it as a key player in natural resource extraction and energy production. while Tuban and Lamongan. with their





stronger Agricultural sectors. play significant roles in food production and agribusiness. By recognizing these strengths. policymakers can design targeted development strategies that leverage each region's comparative advantages.

To achieve sustainable economic growth and poverty reduction. the study highlights several policy recommendations. Bojonegoro should diversify its economic base beyond mining to ensure long-term economic resilience. Tuban and Lamongan need strategies to enhance the productivity and modernization of their Agricultural sectors. ensuring that they remain competitive and sustainable.

Expanding digital infrastructure and increasing digital literacy is an important strategy in digital transformation and inclusive development. By increasing access to digital technology and its usage skills. the Information and Communication sector can provide a more inclusive impact on economic development. Providing training programs for small business owners. farmers. and low-income communities allows them to utilize digital tools to increase income. For example, the development of digital infrastructure and training in digital skills are very important to reduce the gap between rural and urban communities (Susanti. 2020).

Strengthening social security programs. ensuring transparency in government assistance. and reducing bureaucratic inefficiencies are important steps in increasing the effectiveness of poverty alleviation efforts. Research shows that social assistance programs have a significant influence in reducing poverty rates in Indonesia (Salsabila et al.. 2023). In addition. transparency in the data collection of cash social assistance programs can increase the accuracy of the distribution of aid to people in need. thus reducing inequality and improving welfare (Laurentcia & Yusran. 2023). The reduction of bureaucratic inefficiencies also plays a role in increasing the effectiveness of poverty alleviation programs. In addition. public-private partnerships in infrastructure investment. education. and health services can create a more inclusive economic environment. Investment in adequate infrastructure is an important step to support economic growth. mobility. and a better quality of life (Parulian & Afifah. 2023). The government-private partnership also plays an important role in increasing resources and expertise to design and implement successful financial inclusion programs. which in turn encourages sustainable economic development and improves public welfare.

One of the key takeaways from the analysis of Bojonegoro. Tuban. and Lamongan is that economic specialization should not lead to isolated development. Instead. regional economies should be strategically interconnected. allowing each region to benefit from the strengths of others. Bojonegoro. with its strong Mining and Quarrying sector. can supply raw materials and energy resources that are crucial for industrial production in Tuban and Lamongan. Conversely. Tuban and Lamongan. with their robust Agricultural and Manufacturing sectors. can provide essential goods and services that support Bojonegoro's economy. Establishing a regional economic corridor—where infrastructure. logistics. and policies are aligned to support interregional trade—could enhance economic synergy and shared prosperity.

Through strategic policy implementation. regional cooperation. and economic innovation. these three regencies have the potential to achieve sustainable and inclusive growth. Future research should further investigate the role of digitalization. global market integration. and technological advancements in shaping the economic landscape of Bojonegoro. Tuban. and Lamongan.





CONCLUSION

The study analyzes in which sectors that give greatest contributions to economic growth that oriented to decrease poverty in Bojonegoro. Tuban. and Lamongan regencies/cities. Referring to the research results. it can be concluded that **Based on the Location Quotient (LQ)** analysis. Bojonegoro regencies has three leading sectors in which the biggest contributors is mining and quarrying. as same as Tuban regencies with six number of leading sectors. Then. Lamongan has nine leading sectors in which agriculture. forestry. and fishery has potential within largest number of LQ approach. Strengthening Base Sectors – Policies should focus on optimizing competining. information technology. and public services. while also investing in non-base industries to reduce reliance on external suppliers. **Based on the Dynamic Location Quotient (DLQ)** all of the four regencies simultaneously have great potential sectors. There are : Mining and Quarrying; Transportation and Warehousing; Accommodation. Food and Drink Provision; and Real Estate.

Therefore. concrete steps are being taken to develop those potential. These strategics include developin in agricultural sectors by multiply commodity that had never harvested before. The other steps is also building massive infrastructure. provide good facilities to ease licensing and mobility in business. **Based on the Shift Share analysis.** several sectors at the net shift level (Mij + Cij). show negative results. meaning that sector growth in the Regency is negative. one of which is the Agriculture. Forestry and Fisheries Sector. this sector is the base sector in Tuban Regency and Lamongan Regency. meaning that the sector's contribution has a base value but in reality there is negative growth. It is necessary to review the optimization of this sector. starting from farmer performance. suitability of land use and crop yields. as well as profits obtained. Sector optimization can take the form of empowering farming communities in Bojonegoro Regency.

Tuban Regency and Lamongan Regency. diversifying types of farming commodities. and also intensive training or counseling for farmer groups. Reviews are also carried out in all sectors in each region by considering concrete steps. Readiness of human resources and also infrastructure development that facilitates sector development. The Information and Communication Sector. as well as the Government Administration. Defense. and Mandatory Social Security Sectors have a significant influence on poverty levels. For the Information and Communication sector. there is a negative influence. which means that the development of Information and Communication Technology (ICT). including training schools. is able to create a creative and digital economy. so it is hoped that it can absorb labor so that it can reduce poverty. On the other hand, in the Government Administration. Defense and Mandatory Social Security sectors. transparency or openness is needed to avoid bureaucratic pathology and fraud. Transparency regarding budget funds is also needed. which can be implemented through integrated public data portals such as SPBE (Electronic Based Government System). Empowering the community in entrepreneurship. the Government of Bojonegoro Regency. Tuban Regency and Lamongan Regency can increase basic entrepreneurship training.

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