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Original Article

# Analysis of Leading Sectors and Structural Shifts in the Economy in Tojo Una-Una District in 2019-2023

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## Abstract

This study aims to analyse the leading sectors and shifts in economic structure in Tojo Una-Una Regency between 2019 and 2023, using the Location Quotient (LQ) and Shift-Share Analysis methods. The main objective of the research is to identify sectors that play an important role in regional economic growth and evaluate the factors that affect the performance of these sectors. The data used includes the Gross Regional Domestic Product (GRDP) of Tojo Una-Una Regency and Central Sulawesi Province during the period. The results of the analysis show that the agriculture, forestry and fisheries sector and the services sector such as education, health and accommodation provision have a major contribution to the regional economy. The Real Estate sector was recorded as the sector with the highest LQ, indicating enormous growth potential. In contrast, the manufacturing and mining sectors experienced a significant decline in competitiveness. Shift-Share analysis shows that most of the growth of the leading sectors is influenced by local factors, with the agricultural sector being the main contributor in the shift of the regional economy. This study recommends infrastructure development, labour quality improvement, as well as policies that support non-base sectors to improve the competitiveness and diversification of the regional economy.

**Keywords**: Economic Structure, Leading Sectors, Location Quotient, Regional Economy, Shift-Share Analysis.

## 1. Introduction

Regional economic development plays an important role in improving people's welfare and quality of life, especially in underdeveloped regions that often have different economic sectors compared to more developed regions. Location Quotient (LQ) is a widely used tool to identify leading sectors by measuring the concentration of a particular sector in a region compared to a larger region, such as the national level. A high LQ indicates that the sector has the potential for further development, providing a clear picture of the sectors that can drive local economic growth Bac (2022). However, the main challenge in applying LQ analysis in some regions is the lack of accurate data and analytical tools, as well as the reliance on traditional sectors such as agriculture which is not enough to drive sustainable growth amidst rapid global changes (Kusio et al., 2022).

To address these challenges, Shift-Share Analysis can be used to provide greater insight into the factors affecting the performance of leading sectors. Shift-Share Analysis divides changes within sectors into three components: national growth effects, industry mix effects, and regional competitiveness effects. As such, this analysis makes it possible to understand whether a sector's growth is more influenced by national economic trends, local industry composition, or regional competitive advantage. Ratnasari et al. (2022). The combination of LQ and Shift-Share can provide a comprehensive view of the leading sectors and the factors

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affecting their growth, which is very useful for formulating more effective economic development policies (Rosiana et al., 2023).

The agriculture and services sectors play an important role in regional economic development, particularly in certain regions. Agriculture is often the basic sector that provides employment and supports the local economy, and can stimulate the growth of related industries such as food processing and distribution. Manukyan (2023) on the other hand, the services sector, including health, education and tourism, is increasingly recognised as having great potential to diversify a region's economy. Improved public services in these sectors contribute to the productivity of other sectors, including agriculture, by providing essential services such as logistics, marketing, and technology (Utomo & Siddiq, 2024).

However, the biggest challenge in developing leading sectors, especially in some regions, is the lack of adequate infrastructure. Limited infrastructure in terms of access to transport, electricity, and internet connectivity hinders the development of non-agricultural sectors such as digital entrepreneurship or tourism, and limits the ability of regions to expand the market for local products Yahaya et al. (2021). In addition, low financial literacy and limited access to financial resources are significant barriers to diversifying the regional economy Zafrizal et al. (2021). Therefore, economic development policies that prioritise infrastructure improvements, education, and better access to finance will encourage sustainable economic growth in certain regions (Sharma & Agarwal, 2024).

Recent literature suggests that policies that focus on the development of leading sectors by utilising local advantages can enhance economic resilience and accelerate the process of economic diversification. For example, the sector-based development programme suggested by Katterbauer et al. (2023) emphasises the importance of policies that support already strong sectors, such as agriculture, to create new market opportunities and support related sectors. The success of the agricultural sector in improving people's welfare can create multiplier effects that strengthen non-agricultural sectors, such as services and industry. Therefore, it is important to create policies that support the development of these sectors through capacity building, providing the necessary infrastructure, and creating greater access to markets and financing.

While many studies have identified the importance of leading sectors in regional economic development, there is a gap in the implementation of appropriate policies to support the development of these sectors. Most existing policies have not adequately addressed the structural challenges that some regions face, such as infrastructure limitations, lack of investment in non-agricultural sectors, and the inability of these sectors to compete with more developed sectors in some regions. In this regard, Tojo Una-Una Regency's approach will encourage and accelerate economic growth. One indicator of Tojo Una-Una Regency's growth from year to year can be seen from the region's Gross Domestic Product (GRDP) which continues to increase. This can be seen in table 1 as follows:

**Table 1. Growth Rate of GRDP at Constant 2010 Prices by Business Field in Tojo Una-Una Regency (Percent), 2019-2023**

| No | Business Sector | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|
| 1 | Agriculture, Forestry, and Fisheries | 4,94 | -0,65 | 3,53 | 2,17 | 1,57 |
| 2 | Mining and Quarrying | 16,48 | -25,02 | 1,76 | 4,33 | 3,96 |
| 3 | Processing Industry | 1,62 | -0,28 | 0,66 | -0,03 | 0,24 |
| 4 | Electricity and Gas Procurement | 12,81 | 4,56 | 3,10 | 6,58 | 6,59 |
| 5 | Water Supply, Waste Management, Waste and Recycling | 0,53 | 5,61 | 3,41 | 2,49 | 4,16 |
| 6 | Construction | 5,97 | -18,98 | 5,42 | 7,21 | 3,95 |

| No | Business Sector | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|
| 7 | Wholesale and Retail Trade; Repair of Cars and Motorcycles | 3,45 | -6,05 | 9,20 | 8,59 | 7,16 |
| 8 | Transport and Warehousing | 5,87 | -30,18 | 3,89 | 23,26 | 8,03 |
| 9 | Provision of Accommodation and Drinking Food | -1,33 | -10,76 | 13,24 | 10,17 | 8,28 |
| 10 | Information and Communication | 9,72 | 7,87 | 7,93 | 5,16 | 6,86 |
| 11 | Financial Services and Insurance | 0,04 | 17,07 | 9,99 | -1,24 | 0,10 |
| 12 | Real Estate | 0,82 | 0,24 | 1,22 | 5,23 | 5,77 |
| 13 | Company Services | 3,38 | -0,39 | 2,18 | 4,63 | 5,76 |
| 14 | Public Administration, Defence and Compulsory Social Security | 4,75 | 1,17 | 4,76 | -0,83 | 3,47 |
| 15 | Education Services | 2,56 | -1,73 | 1,20 | -0,08 | 3,22 |
| 16 | Health and Social Services | 9,45 | 3,22 | 5,00 | 3,21 | 3,13 |
| 17 | Other Services | 2,61 | -5,94 | 1,82 | 3,45 | 5,96 |
| | GRDP | 4,74 | -3,17 | 4,25 | 3,46 | 3,34 |

Data Source: BPS (2024)

Based on Table 1, it can be seen that the GDP growth rate of the aggregate of various sectors in Tojo Una-Una Regency tends to change every year, where the GDP growth rate of Tojo Una-Una Regency in 2019 was 4.74 per cent, then experienced a drastic decline in 2020 of -3.17 per cent, then increased again in 2021 to 4.25 per cent, but in 2022 and 2023 it tended to decline by 3.46 and 3.34 per cent respectively. Some sectors, such as mining and quarrying, experienced a sharp decline in 2020 but recovered in the following years. On the other hand, sectors such as information and communication and electricity and gas procurement show stable growth, signalling their resilience to economic shocks.

Therefore, this study aims to further examine the challenges faced by leading sectors in Tojo Una-Una Regency and provide data-based solutions that can help formulate more effective development policies. The main objective of this research is to determine the leading sectors in Tojo Una-Una Regency using the Location Quotient and Shift-Share analysis approaches, as well as looking at the factors that influence the performance of these sectors. In addition, this study aims to provide policy recommendations that can encourage the growth of leading sectors and improve the economic competitiveness of the region. Through in-depth analysis, it is expected that this research can make a significant contribution to the development of sustainable economic policies in Tojo Una-Una Regency.

## 2. Literature Review

### 2.1. Regional Economic Development

Per capita income, which is the average income of a region's population, and national income, which is the value of production of goods and services created in an economy in one year, are related to economic development. Economic development is a spontaneous and sustained change caused by changes, particularly in industry and trade Mangilaleng et al. (2015). To create new jobs and encourage the growth of economic activity, in this case economic growth in a region, the local government and its people must make maximum use of all its resources and establish a pattern of cooperation with the private sector. This process is known as regional economic development (Ambar et al., 2021).

## 2.2. Regional Economic Growth

One of the main components of initiatives to promote regional development is regional economic growth, which is an important component in the development of regional development strategies and policies. In this context, 'region' refers to an area or significant component of a country, which can take the form of provinces, districts, and cities (Wakris et al., 2023).

Regional economic growth is one of the important elements in driving development in a region. This concept refers to positive changes in the production of goods and services that occur in a particular region, which can create jobs, increase income, and improve the quality of life of local people. Economic growth at the regional level is strongly influenced by fiscal policy, natural resources, and the development of leading sectors in accordance with local potential. Masnawaty et al. (2023). In this context, it is important for each region to identify and develop economic sectors that have great potential to support sustainable growth.

As part of regional development policy, regional economic growth must be strategically planned by considering the characteristics and special needs of the region (Hakim & Dewi, 2021). Therefore, efforts to boost regional economic growth require an integrated approach, which includes supportive fiscal policies, infrastructure development, and human resource and entrepreneurial capacity building in each region (Cherkasova et al., 2021).

## 2.3. Gross Regional Domestic Product

According to Sukirno (2016) Gross Regional Domestic Product (GRDP) is the total value added resulting from various economic activities in a region, regardless of who owns the factors of production, whether they belong to residents of that region or residents of other regions (Kamagi et al., 2024). Gross Regional Domestic Product by Hasibuan et al. (2022) Gross Regional Domestic Product (GRDP), both at current prices and at constant prices, is an important indicator of the state of the economy of a region over a period of time. GRDP often refers to the total value of finished goods and services obtained by all economic sectors or the total value added obtained by all business units in a region. The ability of a region to create in a given period is reflected in the Gross Regional Domestic Product (GRDP) at the regional level (province, district, or city). Two methods of production and use are used to calculate GRDP, both of which offer a source of information on value added that is specific to the business domain that generates economic activity as well as its application components. The total of all the components of gross value added that a business sector can generate for various industrial activities is known as the gross income of the business sector. On the other hand, the use of value added is described from the field of use.

## 2.4. Economic Base Theory

According to Maksar et al. (2024), the economic base theory states that the rate of economic growth of a region is based on the magnitude of the increase in exports based on the region, which further determines the rate of economic growth of a region, namely the expansion of sectors that create employment opportunities and regional wealth by utilising local resources, such as labour and raw materials, which are then exported.

## 2.5. Leading Sector

A leading sector is a sector that is resilient enough to be the foundation of economic growth. The leading sector must have high growth, the ability to produce high added value, competitiveness, and a relatively high level of labour absorption. Therefore, the structure of the economy is reflected in the leading sector (Isramia, 2023). When compared with other sectors in relation, either directly or indirectly, the leading sector can be seen as an economic

sector or productive business activity that is generated as a development potential. The leading sector can function as the foundation of a region's economy. Regional planners will find it easier to compile information for regional economic development if there is a leading sector. These leading sectors can experience growth and decline in their development. This depends on initiatives that can strengthen the position of the leading sector (Fisri, 2023).

## 2.6. Theory of Structural Change

According to Sukirno (2006) Structural change theory is that development is a process of growth and change that can be observed, whose main characteristics are the same in all countries. Structural change focuses on the mechanism of economic transformation experienced by developing countries from a subsystem and agricultural-orientated economy to a more modern economic structure dominated by industry and services. However, the model recognises that differences may exist between developing countries in terms of the steps taken and the general pattern of development, all of which are determined by a number of factors.

## 2.7. Previous Research

According to Bancin (2023) regarding the Leading Sector Analysis of Gunung Mas Regency. Location Quotient Analysis, Shift Share, Klassen Typology, and Growth Ratio Model are the analytical tools used. The results of the analysis show that the sectors in Gunung Mas Regency that experienced the most rapid growth were agriculture, forestry and fisheries, mining and quarrying, construction, and information and communication. The sectors of wholesale and retail trade, repair of cars and motorcycles, real estate, government administration, defence and compulsory social security, health services, and social activities are potential sectors according to the results of the Growth Ratio Model research.

Research by Rizani (2019) on possible Leading Sector Analysis for economic development planning of Bandung City. Shift Share Analysis, Location Quotient (LQ), and Growth Ratio Model (MRP) are some of the analytical tools used. Based on the research results, it can be concluded that: Shift Share research results, the economy of Bandung City grew by Rp70,697,045.9 million in the period 2010 to 2017. Water supply, waste management, solid waste and recycling, construction, wholesale and retail trade, repair of cars and motorcycles, transportation and warehousing, provision of lodging and eating and drinking, information and communication, financial services and insurance, real estate, corporate services, government administration, defence and mandatory social security, education, health, and social activities, and other services sectors are the top 13 (thirteen) sectors in Bandung City based on Location Quotient (LQ) analysis. Based on the Growth Ratio Model (MRP) analysis, the industries with the largest growth and contribution are as follows: corporate services, education, health, and social activities; transport and warehousing; lodging and provision of food and beverages; information and communication; and construction/transportation.

Research Irmansyah (2024) with the title 'Evaluation of the Main Industries in Mojokerto Regency, East Java.' This study uses secondary data from the Gross Regional Domestic Product (GRDP) of East Java Province and Mojokerto Regency in 2015-2016. Location Quotient (LQ) analysis, Dynamiq Location Quotient (DLQ) analysis, Shift Share analysis, and Klassen Typology are the analytical tools used in this study. Based on the results of the analysis by sector, the manufacturing sector is the leading sector in Mojokerto district in meeting the requirements to be categorised as a basic and competitive sector. In Mojokerto district, the manufacturing industry and real estate sectors need to be prioritised.

Research Asyafina and Muljaningsih (2022) Analysis of the Leading Sector of Economic Growth in Madiun City. The quantitative approach used is Klassen Typology, LQ, DLQ, and Shift Share analysis. The water supply sector, wholesale and retail trade, transportation and storage, information and communication, financial and insurance services, real estate, government administration, education and health services, and other services are listed as sectors that have comparative and competitive advantages in the calculation of LQ with shift share. The primary sector represented by the mining and agriculture sectors dominates the economic structure of Madiun City. The tertiary sector is represented by the trade, transport, finance, and services sectors, while the secondary sector is represented by the building, clean water, energy, and industry sectors. In addition, the trade sector has the greatest influence on the formation of Madiun City's GRDP from 2016 to 2019, which is 25.93%. In addition, the manufacturing sector contributed 16.23%, followed by the financial and insurance services sector at 10.15%, and the information and communication sector at 13.12%.

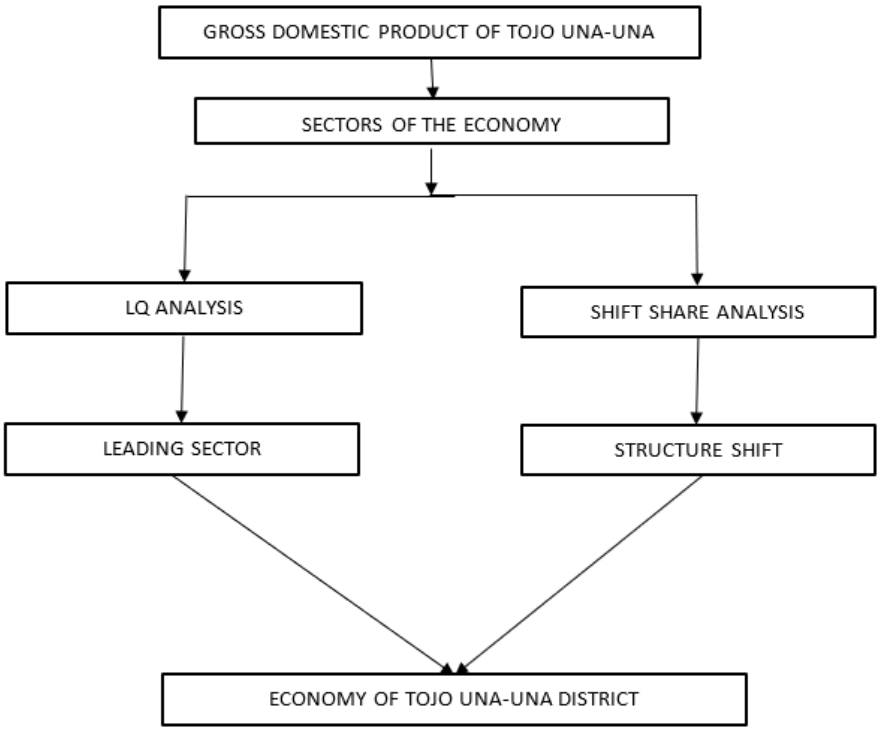


**Figure 1. Research Framework**

# 3. Methods

## 3.1. Type of Research

Quantitative Research is research that uses statistical techniques or other quantitative (measurement) methodologies to produce new findings known as quantitative research (Jaya, 2020). Descriptive research is research that aims to present symptoms, facts, or events relating to the characteristics of certain populations or areas correctly and methodically known as descriptive studies. Finding or explaining relationships and testing hypotheses are usually not required in descriptive research (Hardani et al., 2020).

Quantitative Descriptive Research is research without calculating or seeing its relationship with other treatments or variables, quantitative descriptive research aims to present the findings of quantitative or statistical data collection, such as surveys, as they are. The descriptive quantitative data analysis method is a method that helps describe, show or

summarise data in a constructive way that refers to a statistical description that helps understand the details of the data by summarising and finding patterns from a particular data sample (Aziza, 2023).

## 3.2. Data Source

In this study, the data used is Gross Regional Domestic Product (GRDP) data at constant 2010 prices of Tojo Una-Una Regency and Central Sulawesi Province from 2019 to 2023. The data used in this study were obtained from the Central Statistics Agency (BPS) of Tojo Una Una Regency and the Central Sulawesi Province Statistics Agency (BPS).

## 3.3. Analysis Tools

### A. Location Quotient (LQ) Analysis

The Location Quotient (LQ) analysis tool can be used to identify which economic sectors are the leading and non-leading sectors in a region, as well as the degree of specialisation of these sectors (Weriantoni et al., 2024). Location Quotient is one of the analytical methods that can be used to assess the economic potential of Tojo Una-Una Regency. The purpose of this analysis is to compare the role of economic sectors in Tojo Una-Una Regency with the role of economic sectors in Central Sulawesi Province to determine how much the economic sectors are capable of. This method will identify sectors that are base and non-base. The formula used to calculate Location Quotient (Tarigan, 2024) :

With the formula :

$$LQ = \frac{yi/yt}{Yi/Yt}$$

Where:
LQ: Location Quotient Value
yi : GRDP of sector i at Tojo Una-Una Regency level
yt : Total GRDP of all sectors at Tojo Una-Una Regency level
Yi : GRDP of sector i at Central Sulawesi Province level
Yt : Total GRDP of all sectors at the level of Central Sulawesi Province
Based on the formula above, there are 3 possible LQ values found, namely :

1. LQ value in sector i = 1; meaning that the growth rate of sector i in Tojo Una-Una Regency is the same as the growth rate of sector i in Central Sulawesi Province.
2. LQ value in sector i > 1; meaning that the growth rate of sector i in Tojo Una-Una Regency is greater than that of Central Sulawesi Province or a basic sector.
3. LQ value in sector i < 1; means that the growth rate of sector i in Tojo Una-Una Regency is smaller than that of Central Sulawesi Province or non-base sector.

### B. Shift Share Analysis

Shift share analysis is one of the approaches to evaluate the growth rates of various sectors in a region. The isolation approach is used in the analysis as a factor that causes changes in the industrial structure of a region as it grows over time. Asyafina & Muljaningsih (2022). Shift share analysis is a technique for describing the impact of variables that drive growth in a region and how these variables relate to other regions is called shift share analysis. (Tarigan, 2024).

The equation used in the shift share analysis is as follows:

1. Provincial growth effect of sector i in Tojo Una-Una Regency (national share).

$$N_{ij} = E_{ij} \times r_n$$

2. Effect of industrial mix of sector i in Tojo Una-Una Regency (proportional shift).

$$M_{ij} = E_{ij} ( r_{in} - r_n )$$

3. The effect of the locational component of sector i in Tojo Una-Una Regency (differential shift).

$$C_{ij} = E_{ij} ( r_{ij} - r_{in} )$$

4. Growth of sector i in Tojo Una-Una Regency.

$$D_{ij} = N_{ij} + M_{ij} + C_{ij}$$

Description:
i = Economic sectors studied (17 sectors).
j = District variables studied (Tojo Una-Una District).
n = Regional variables of Central Sulawesi Province.
Eij = GRDP in sector i of Tojo Una-Una Regency
Ein = GRDP in sector i of Central Sulawesi Province
rij = Growth of sector i in Tojo Una-Una district
rin = Growth of sector i in Central Sulawesi Province
rn = Economic growth of Central Sulawesi Province

# 4. Results and Discussion

This study aims to analyse the leading sectors in the economy of Tojo Una-Una Regency and provide insight into the contribution of these sectors to regional economic growth, particularly by using the Location Quotient and Shift-Share Analysis methods. These two methods provide an in-depth understanding of the dynamics of the regional economy and the ability of certain sectors to drive economic growth.

## 4.1. Research Results

### 4.1.1. Location Quotient (LQ) Analysis

In the Location Quotient (LQ) analysis, the results show that some sectors in Tojo Una-Una Regency have a higher concentration compared to Central Sulawesi Province.

Based on Table 2 of the Location Quotient (LQ) analysis results for various business sectors for the period 2019 to 2023, it can be seen that there are 13 basic and 4 non-basic sectors in Tojo Una-Una Regency. A basic sector is a sector that has an LQ value of more than 1, which means that the sector has a comparative advantage and is able to serve economic needs outside the region (exports). Conversely, a non-base sector is a sector with an LQ value of less than 1, indicating that the sector only serves the needs of the region and has not become the leading sector in Tojo Una-Una Regency. As can be seen in table 2 below:

**Table 2. Location Quotient (LQ) Calculation Results of Tojo Una-Una Regency in 2019-2023**

| No | Business Sector | 2019 | 2020 | 2021 | 2022 | 2023 | Avrage (LQ) | Description |
|---|---|---|---|---|---|---|---|---|
| 1 | Agriculture, Forestry, and Fisheries | 1,59 | 1,74 | 1,85 | 2,05 | 2,22 | 1,89 | Basis |
| 2 | Mining and Quarrying | 0,13 | 0,10 | 0,09 | 0,09 | 0,09 | 0,10 | Non Basis |
| 3 | Processing Industry | 0,38 | 0,33 | 0,30 | 0,26 | 0,22 | 0,30 | Non Basis |
| 4 | Electricity and Gas Procurement | 1,32 | 1,45 | 1,54 | 1,67 | 1,82 | 1,56 | Basis |
| 5 | Water Supply, Waste Management, Waste and Recycling | 1,58 | 1,80 | 1,91 | 2,11 | 2,32 | 1,94 | Basis |
| 6 | Construction | 0,83 | 0,80 | 0,76 | 0,83 | 0,93 | 0,83 | Non Basis |
| 7 | Wholesale and Retail Trade; Repair of Cars and Motorcycles | 1,26 | 1,36 | 1,43 | 1,55 | 1,71 | 1,46 | Basis |
| 8 | Transport and Warehousing | 0,99 | 1,12 | 1,17 | 1,27 | 1,40 | 1,19 | Basis |
| 9 | Provision of Accommodation and Drinking Food | 1,75 | 1,91 | 2,04 | 2,24 | 2,39 | 2,07 | Basis |
| 10 | Information and Communication | 1,80 | 1,93 | 2,06 | 2,30 | 2,49 | 2,12 | Basis |
| 11 | Financial Services and Insurance | 0,86 | 0,99 | 1,06 | 1,18 | 1,26 | 1,07 | Basis |
| 12 | Real Estate | 2,88 | 3,11 | 3,30 | 3,55 | 3,78 | 3,32 | Basis |
| 13 | Company Services | 0,18 | 0,20 | 0,21 | 0,23 | 0,25 | 0,22 | Non Basis |
| 14 | Public Administration, Defence and Compulsory Social Security | 1,52 | 1,66 | 1,76 | 1,95 | 2,14 | 1,80 | Basis |
| 15 | Education Services | 2,05 | 2,22 | 2,39 | 2,58 | 2,76 | 2,40 | Basis |
| 16 | Health and Social Services | 2,57 | 2,71 | 2,90 | 3,25 | 3,43 | 2,97 | Basis |
| 17 | Other Services | 1,96 | 2,00 | 2,12 | 2,28 | 2,47 | 2,17 | Basis |

Source: Data processed, 2025

Over the past five years, the Real Estate sector recorded the highest average LQ value of 3.32, indicating that this sector is the most superior and potential sector in Tojo Una-Una Regency. The dominance of this sector can be attributed to the increasing trend in demand for property after the COVID-19 pandemic, especially in 2021-2023, as people's purchasing power

recovers and the increase in housing and infrastructure projects driven by the national economic recovery programme (PEN).

The Health Services and Social Activities sector with an LQ of 2.97 also showed significant strength during the period, especially since 2020 when the pandemic hit. The demand for health services increased sharply, including the development of hospitals, clinics, vaccination services, and improved public health facilities. This increase is not only temporary, but will continue until 2023 as public awareness of the importance of health increases. The Educational Services sector with an LQ of 2.40 is also an important base sector.

The pandemic triggered a major transformation in the sector, from face-to-face to online learning. Despite many challenges in implementation in 2020-2021, the sector has survived and even expanded its reach. The Information and Communication sector with an LQ of 2.12 experienced rapid growth in line with the accelerated digitalisation caused by the pandemic. The period 2020-2022 is an important moment for the growth of digital ecosystems in the regions, ranging from e-commerce, digital MSMEs, to communication service providers. The high LQ value of this sector shows that the region has great potential as part of the national digital economy.

The Agriculture, Forestry, and Fisheries sector remains the mainstay with an LQ of 1.89. Where the highest agricultural production over the past 5 years is coconut plantations, in addition, the commodity with the largest production in the forestry sector is rattan, while cattle farming is the commodity with the highest livestock population in the livestock sector, then capture fisheries is the commodity with the highest population in the fisheries sector. During the pandemic, this sector has proven to be resilient, because it can still operate and support food security. The government is also intensifying the millennial farmer programme and optimising idle land during 2020-2022 to boost growth in this sector.

Electricity and Gas Procurement with an LQ of 1.56, which experienced an increase in demand due to the expansion of residential areas and the growth of small industries. Wholesale and Retail Trade with an LQ of 1.46 which continued to grow despite being hit at the start of the pandemic. The recovery of household consumption and the adoption of online shopping technology were the main drivers. Transport and Warehousing with an LQ of 1.19 was mainly triggered by increased logistics activities in line with the growth of e-commerce and the distribution of goods during the economic recovery period.

Meanwhile, there are several sectors that are classified as non-base, which means that their contribution to the regional economy is still low compared to regional or national levels. The Mining and Quarrying sector shows a very low average LQ of only 0.10. This reflects the lack of mining exploration and production activities in Tojo Una-Una Regency, either due to limited geological resources, or the absence of large investments in this sector. The Manufacturing Industry sector with an LQ of 0.30 is a particular highlight as industrialisation is an important pillar in accelerating economic growth. Over the past five years, the low LQ values indicate that the region still exports more raw materials and has not been able to develop downstream industries or large-scale manufacturing. This could be due to limited industrial infrastructure, low investment, or a lack of skilled labour in the sector.

Corporate Services with an LQ of 0.22, which includes activities such as professional, technical, and management services, has also not developed optimally. This sector plays an important role in supporting efficiency and innovation in other sectors. The Construction sector also remains in the non-base category with an LQ of 0.83 despite showing an upward trend in 2022-2023. This likely reflects that development activity is more localised and has not been able to significantly reach other regions.

In general, the region's economic structure is dominated by services and service sectors, especially those related to education and health as basic needs of the community: Education and health as basic community needs, Property and real estate that support settlement and development, Trade and transport, which play a role in distribution and mobility, Information technology, which strengthens connectivity and digital economic activity.

### 4.1.2. Shift-Share Analysis

The results of the Shift-Share analysis show that the growth of sectors in Tojo Una-Una Regency is influenced by three main components: national growth, industrial composition, and local factors. As can be seen in table 3 below:

**Table 3. Calculation Results of Shift Share Analysis of Tojo Una Una Regency in 2019-2023**

| No | Economic Sector | Nij (National Share) | Mij (Proportional Shift) | Cij (Differential Shift) | Dij (Nij+Mij+Cij) |
|---|---|---|---|---|---|
| 1 | Agriculture, Forestry, and Fisheries | 731,50 | -626,78 | -8,13 | 96,59 |
| 2 | Mining and Quarrying | 39,52 | 11,96 | -64,84 | -13,36 |
| 3 | Processing Industry | 171,54 | 303,51 | -473,05 | 2,00 |
| 4 | Electricity and Gas Procurement | 1,04 | -0,53 | -0,05 | 0,46 |
| 5 | Water Supply, Waste Management, Waste and Recycling | 3,28 | -2,55 | 0,33 | 1,06 |
| 6 | Construction | 163,67 | -101,78 | -77,33 | -15,44 |
| 7 | Wholesale and Retail Trade; Repair of Cars and Motorcycles | 178,24 | -97,40 | -13,13 | 67,70 |
| 8 | Transport and Warehousing | 62,46 | -68,07 | 1,42 | -4,19 |
| 9 | Provision of Accommodation and Drinking Food | 13,99 | -7,51 | -0,84 | 5,64 |
| 10 | Information and Communication | 122,67 | -46,15 | -2,37 | 74,15 |
| 11 | Financial Services and Insurance | 29,49 | -17,20 | 3,50 | 15,79 |
| 12 | Real Estate | 83,57 | -50,25 | -12,12 | 21,20 |
| 13 | Company Services | 0,72 | -0,53 | -0,01 | 0,18 |
| 14 | Public Administration, Defence and Compulsory Social Security | 150,07 | -126,18 | 1,85 | 25,74 |
| 15 | Education Services | 122,49 | -105,62 | -10,69 | 6,18 |
| 16 | Health and Social Services | 60,59 | -35,68 | -6,68 | 18,24 |
| 17 | Other Services | 24,77 | -16,84 | -5,55 | 2,39 |
| | GRDP | 1,959,62 | -987,60 | -667,69 | 304,33 |

Source: Data processed, 2025

Based on the results of data management in table 3 above, several things were found:

1. The national share (Nij) value shows that Central Sulawesi's economic growth in the 2019-2023 period has had a positive influence on the economic activities of Tojo Una-Una Regency where this can be seen in all the positive economic sector values of Tojo Una-Una Regency with a total value of the entire economy of 1,959.62. The sector that has the highest Nij value in Tojo Una-Una Regency is the agriculture, forestry and fisheries sector, which is 731.50, indicating that the growth of the agriculture, forestry and fisheries sector in Tojo Una-Una Regency is strongly influenced by economic growth in Central Sulawesi Province.
2. The overall proportional shift (Mij) value of the economy in Tojo Una-Una Regency has not progressed because it is seen from the Mij results that the GRDP is (-987.60). The lowest sector value is in the agriculture, forestry and fisheries sector with a Mij value of (-626.78) where the growth of the sector is relatively slow. However, in 17 sectors, there are 2 sectors that have positive values, namely the quarrying and mining sector with an Mij value of 11.96, and the processing industry with an Mij value of 303.51, indicating that the growth of the 2 sectors is relatively fast.
3. The Differential Shift (Cij) value of (-667.69) shows that the economic development of Tojo Una-Una Regency as a whole has a lower competitiveness or competitive advantage over the economy in Central Sulawesi Province, this can be seen in the negative Cij value in Tojo Una-Una Regency where the lowest sector value is in the manufacturing industry sector with a Cij value of (473.05). However, there are 4 sectors that have positive values, namely the Wholesale and Retail Trade sector; Car and Motorcycle Repair of 0.33, Transportation and Warehousing of 1.42, Financial and Insurance Services of 3.50, and Government Administration, Defence and Compulsory Social Security of 1.85 where the sector has a competitive advantage in the economy in Tojo Una-Una Regency.
4. The sum value of the three components (Dij) of 304.33 shows a positive value, meaning that there is a change or development of the economy in Tojo Una-Una Regency. Sectorally, there are 3 sectors that have a negative value (decreased), namely the Mining and Quarrying sector by (-13.36), Construction by (-15.44), and Transportation and Warehousing by (-4.19), while other sectors have a positive value where the sector that has the highest value is the Agriculture, Forestry and Fisheries sector of 96.59 where the sector has a net shift or superior economic performance in Tojo Una-Una Regency.

## 4.2. Discussion

The utilisation of Location Quotient (LQ) and Shift-Share methods in this study provides a complementary picture of the strengths and weaknesses of the economic structure of Tojo Una-Una Regency. The results of the LQ analysis show that certain sectors, such as Real Estate, Health Services, Education, and Information-Communication, have high LQ values, indicating the strategic role of these sectors as the main drivers of the regional economy. The consistent increase in the LQ value of these sectors over the 2019-2023 period indicates a structural transformation driven by social dynamics, changes in people's behaviour, and post-pandemic government policies.

The Real Estate sector takes the top spot with the highest LQ value, reflecting a significant surge in property demand. This is inseparable from external factors, such as the national economic recovery (PEN) programme that boosted infrastructure development and the housing sector, as well as people's need for affordable housing. In addition, government policies that introduced fiscal incentives for the property sector also accelerated its growth. This finding is consistent with Morrissey (2016), which asserts that sectors with a high LQ reflect the comparative advantage of the region, as well as the export potential of the sector. In addition, increased investment in infrastructure, especially in housing and integrated

economic zones, has accelerated the development of this sector, expanding employment opportunities and increasing people's income.

The Health and Education Services sector experienced rapid growth in line with increasing public awareness of the importance of quality health and education services. This transformation was triggered not only by the COVID-19 pandemic which accelerated changes in the way people access health and education services, but also by government programmes focusing on improving access to public services. The Health Services sector, for example, received a significant boost in the form of the construction of health facilities, an increase in the number of medical personnel, and the expansion of public access to basic health services. Similarly, the Education sector is also growing rapidly, especially with the introduction of online learning methods and an increase in the number of vocational education institutions in line with local labour market needs.

The Information and Communications sector has gained great momentum from the accelerated digitisation of the local economy, contributing to increased efficiency and connectivity between sectors. This digital revolution opens up opportunities for traditional sectors to adopt new technologies and increase productivity. It also plays an important role in the development of the MSME sector, with many businesses starting to utilise digital platforms to expand their market reach. As Meyer and Niyimbanira (2021) stated that the services sector plays an important role in diversifying and stabilising the economies of developing regions. Digitalisation paves the way for new economic ecosystems that are technology-based and sustainable.

The Agriculture, Forestry, and Fisheries sector, although not at the top of the LQ, remains the mainstay sector for Tojo Una-Una Regency. The stable and high LQ value during the 2019-2023 period shows the resilience of this sector amidst the crisis and shifting economic structure. The dependence on the agricultural sector as the main source of livelihood for most of the people of Tojo Una-Una Regency still shows the strength of the regional economy. The superiority of this sector is further strengthened by the results of the Shift-Share analysis which shows that the agricultural sector is the largest contributor to the shift in regional economic performance. The dominance of positive values in the net growth component (Dij) of the agricultural sector indicates that the driving force of this sector's growth does not only come from national trends, but also from local forces, such as improved distribution infrastructure, agricultural revitalisation programs, and efforts to modernise more efficient agricultural techniques. The excellence of the agricultural sector is increasingly relevant amid global change and the need for food security. As said by Li et al. (2024), the growth of locally-based agriculture is able to increase household consumption and support sustainable economic growth. Therefore, this sector can be a key pillar in the creation of economic resilience, especially by optimising the potential of natural resources and introducing innovations in agricultural practices that are more environmentally friendly and efficient.

The manufacturing and mining sectors face major challenges. LQ values far below one indicate the weak competitiveness of these sectors in Tojo Una-Una Regency. Both sectors face difficulties in developing a strong industrial base, which includes the production of finished goods and increasing the added value of products. The LQ analysis shows that these two sectors have values lower than one, indicating that they do not have significant competitiveness when compared to other sectors in Central Sulawesi Province. This suggests that these sectors require further attention from both the local government and the private sector to improve their competitiveness, either through increased investment, infrastructure development, or improving the quality of labour.

Shift-Share results showing negative Cij values further reinforce this conclusion. This indicates that despite some growth influenced by national trends, these sectors fail to compete at the regional level. The lack of investment, limited skilled human resources, and lack of infrastructure support are the main inhibiting factors that prevent these sectors from growing. This finding is in line with Abdillah et al. (2025) which states that limited infrastructure and local labour are the main barriers to the development of the regional industrial sector. Therefore, it is important for the government to develop policies that support investment in the industrial sector and ensure that the infrastructure needed to support the sector is improved.

This condition is exacerbated by the low access to financial services in developing regions. Reliance on microfinance institutions that often offer high interest rates and a lack of financial literacy make it difficult for local entrepreneurs to grow their businesses. As explained by Zafrizal et al. (2021), microfinance institutions are often not supported by additional services such as business training or market access, resulting in their impact on economic development remaining limited. It is therefore important to develop an inclusive financial system that enables local entrepreneurs to gain access to low-interest capital and business training that can increase their capacity.

The issue of labour migration is also a major concern. Many young people prefer to seek employment in cities, leaving the region with a shortage of skilled labour that can support non-base sectors. As explained by Kifli et al. (2021), the provision of vocational training linked to local needs is a key solution to addressing these migration flows and maintaining the sustainability of non-base sectors. Local governments need to work with the education and industry sectors to develop skills training programmes that match local labour market demands.

This study also shows that service sectors, such as education services, health services, and provision of accommodation and food, have experienced positive growth over the past five years. LQ values greater than one for these sectors indicate that these sectors also have the potential to continue to grow and become the main drivers of regional economic growth. In line with the findings by Meyer and Niyimbanira (2021) which states, the services sector plays an important role in diversifying the regional economy, especially in developing regions. These sectors not only support people's basic needs, but also have a positive impact on economic welfare through job creation and improved quality of life.

The relationship between the agricultural sector and service sectors such as education, health, transport, and finance forms a symbiotic pattern of mutual benefits. An increase in agricultural productivity can boost the growth of the service sector, and conversely, progress in the service sector can improve the efficiency of agricultural production. As stated by Utomo and Siddiq (2024), these linkages strengthen local economic resilience through mutually supportive sector synergies. Thus, the direction of regional economic development should focus on improving the competitiveness of non-base sectors, strengthening cross-sector integration, and strengthening the local economy as a whole. Strategies geared towards infrastructure investment, provision of skills training, expanding access to inclusive finance, and optimising the role of the service sector can form the foundation of a more resilient and inclusive economy for Tojo Una-Una Regency. This approach will ensure that leading sectors continue to thrive, creating jobs and improving the welfare of people in the region.

## 5. Conclusion

This study analyzes the leading economic sectors in Tojo Una-Una Regency using the Location Quotient (LQ) and Shift-Share Analysis methods. The results indicate that sectors such as Real Estate, Health Services, Education, and Information-Communication significantly contribute to regional economic growth, with an increasing LQ over the 2019–2023 period. The Real Estate sector recorded the highest LQ value, reflecting growing demand in the property market. Similarly, the Health and Education sectors have shown substantial growth, playing a crucial role in enhancing the quality of life in the post-pandemic era. The Shift-Share analysis reveals that many of the region's leading sectors are driven by local factors, with the agricultural sector being the primary contributor to the regional economic shift.

On the other hand, sectors like Manufacturing and Mining are facing competitiveness challenges, indicated by low LQ values. This suggests that these sectors require more attention, particularly in terms of infrastructure investment and improving labor quality. Developing these non-base sectors is essential to achieving a more balanced and diversified regional economy.

To address these challenges and harness growth potential, the local government needs to focus on infrastructure development that supports non-base sectors, especially manufacturing and mining. Enhancing human capital through vocational training tailored to local industry needs is also crucial for strengthening the workforce and reducing dependency on external labor. At the same time, service sectors such as education, health, and information-communication offer promising opportunities and should be prioritized for development to drive economic diversification. Strengthening collaboration among local government, the private sector, and the community is urgently needed to accelerate the development of leading sectors and create employment opportunities.

Improving access to inclusive financing through low-interest financial institutions and financial literacy programs will support local entrepreneurship and small business growth. This integrated and sustainable development strategy is vital to enhancing economic resilience and ensuring that leading sectors become more robust drivers of long-term regional growth.

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