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IDENTIFICATION OF LEADING SECTORS IN BATU CITY USING LOCATION QUOTIENT, DYNAMIC LOCATION QUOTIENT, AND SHIFT SHARE ANALYSIS

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ABSTRACT

Batu City was ranked 7th for the city/district with the lowest GRDP in East Java. Furthermore, even though it is famous for its tourism, it turned out that the other service sector and the sector providing accommodation and food and drink were not the biggest contributors to GRDP in Batu. Therefore, it is important to find the leading sector in Batu so that it can become the focus of the government in making policies in order to boost the economy. This research was conducted to find leading sectors in Batu using Location Quotient (LQ), Dynamic Location Quotient (DLQ), and Shift-Share. The results of the combined analysis of LQ and DLQ show that there are five leading sectors in Batu City, namely other service sectors; agriculture, forestry and fishery sectors; sector of water supply, waste management, waste and recycling; real estate sector; and the construction sector. Meanwhile, the results of the shift share analysis show only one leading sector, namely the manufacturing sector. From these two results, the Batu Local Government should make policies that prioritize the development of these six leading sectors to be able to boost its economy

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1. INTRODUCTION

Batu City, also known as Batu The City of Tourism, is one of the cities located in East Java Province. This city is situated at an altitude of 700 meters above sea level. Due to its high land elevation, the temperature in this city is quite cool. Geographically, Batu City borders Malang Regency, Mojokerto Regency, and Pasuruan Regency. Previously, Batu City was part of Malang Regency. However, in 2001, a territorial expansion occurred, leading Batu City to separate from Malang Regency and become an autonomous city (Kurniawan, 2013). According to data from BPS (Central Statistics Agency), the population of Batu City reached 216,735 people in 2022. The city has fairly comprehensive facilities and infrastructure. In terms of healthcare, there are 5 general hospitals, 5 community health centers (puskesmas), and 189 integrated health posts (posyandu). As for education, there are 79 elementary schools (SD), 27 junior high schools (SMP), 12 senior high schools (SMA), and 13 vocational schools (SMK) in the city.

As its name suggests, Batu the City of Tourism is famous as the most popular tourist destination in East Java (Kholiq, 2018). The characteristics of this tourist city are its cool climate, fresh air, and beautiful natural scenery. But that's not all; Batu City is home to various well-known tourist spots in East Java. Among them are the Transport Museum, Selecta Park, Batu Night Spectacular, and East Java Park (Jatim Park) 1 – 4. These tourist attractions offer various rides, swimming pools, and beautiful flower gardens that captivate tourists. Additionally, Batu City boasts several breathtaking natural attractions such as Coban Rondo Waterfall, Mount Banyak Sky Park, Paragliding spots, and many more. Batu City is also renowned for its apple orchards. In fact, visitors can directly pick apples from the trees or taste various apple-based products in these orchards. Because of these attractions, Batu City has developed into the most popular recreational and tourism center in East Java.

The statistics show that the number of visitors to tourist attractions in Batu City reached 6 million people in 2019. This impressive number has attracted investments in various sectors, such as hotels and restaurants. There are a total of one thousand hotels in Batu City, offering 9,293 available rooms. However, despite being famous for its tourist destinations, Batu City ranks 7th lowest in terms of Gross Regional Domestic Product (GDRP) out of 38 Cities/Regencies in East Java. In 2022, Batu City recorded a

GDRP of 18.59 trillion Indonesian rupiahs. This figure represents a significant increase of 10.37% compared to the GDRP in 2021. This growth is attributed to the relaxation of the Large-Scale Social Restrictions (PSBB) implemented due to the Covid-19 pandemic. The low ranking of Batu City's GDRP has sparked the interest of researcher to study the economic potential in the city. The objective is to identify and focus on its key sectors to promote GDRP growth, thus enabling Batu City to harness its economic potential more effectively.

Table 1. GRDP of Batu City in 2019 at Constant 2010 Prices

Sector	Nominal	Contribution
Agriculture, Forestry, and Fisheries	1,530,991	13%
Mining and Quarrying	17,646	0%
Manufacturing Industry	543,421	5%
Electricity and Gas Supply	5,994	0%
Water Supply, Waste Management, Waste, and Recycling	21,490	0%
Construction	1,379,076	12%
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	2,310,424	20%
Transportation and Warehousing	165,755	1%
Accommodation and Food Services	1,272,792	11%
Information and Communication	876,311	7%
Financial and Insurance Services	398,798	3%
Real Estate	344,833	3%
Professional, Scientific, and Technical Services	53,601	0%
Public Administration, Defense, and Mandatory Social Security	270,804	2%
Education Services	449,029	4%
Health and Social Activities Services	90,889	1%
Other Services	2,054,838	17%
GDRP	11,786,649	

Based on the Gross Regional Domestic Product (GDRP) data for the year 2019 (pre-Covid-19), the tourism sector, encompassing other services in Batu City, made a significant contribution to the city's economy. This figure, however, does not yet include the contributions of the hotel and restaurant sectors, which are part of the accommodation and food and beverage provision sector and also play a substantial role in the economy of Batu City. Nevertheless, both of these sectors are not the ones with the largest contributions. The wholesale and retail trade; repair of motor vehicles and motorcycles sector claims the title of the sector with the largest contribution to the economy of Batu City. Additionally, the Agriculture, Forestry, and Fisheries sectors also play a considerable role in the economy. This raises the question of whether the tourism sector truly remains the leading sector in Batu City or if it has been overtaken by other sectors. This phenomenon becomes intriguing and calls for further investigation, especially considering the impact of the Covid-19 pandemic that has left the tourism sector stagnant (Prasetyandari, 2021). Therefore, researcher aim to conduct a study to identify the leading sector in Batu City. This research is crucial to enable Batu City to accurately determine its primary sector and formulate appropriate policies accordingly.

Research Question

Based on the background description of the problem, the research questions for this study are as follows:

1. Which sectors are classified as base sectors in Batu City based on Location Quotient analysis?
2. Which sectors are classified as prospective sectors in Batu City based on Dynamic Location Quotient analysis?
3. Which sector is considered the leading sector in Batu City based on a combination of Location Quotient and Dynamic Location Quotient analysis?
4. Which sectors have comparative advantages and experienced economic structural shifts in Batu City based on Shift-Share analysis?

Research Objectives and Benefits

The objectives to be achieved in this study are as follows:

1. To identify the base and non-base sectors in Batu City for the years 2017-2021
2. To identify the prospective and non-prospective sectors in Batu City for the years 2017-2021
3. To identify the leading sector in Batu City for the years 2017-2021

4. To determine the comparative advantages and economic structural shifts in Batu City for the years 2017-2021

The expected benefits of this research are as follows

1. To serve as a reference that can be utilized by the Batu City Government in determining priority policies for regional economic development
2. To contribute to the body of research discussing leading sectors in various regions in Indonesia
3. serve as inspiration for other parties to conduct further research on similar topics

Literature Review

Theoretical Framework

Regional Economic Development

Regional economic development is a process that can increase per capita income of the population (Anggraeni, 2022). Essentially, it refers to the efforts made by local governments to enhance economic growth, create job opportunities, and improve the well-being of communities in a specific area. The success of development is indicated by a decrease in the number of people living in poverty in that region (Aedy, 2016). The primary objective of this development is to optimize the potential and resources available in that particular area. In this process, active participation from both the local government and the community is necessary to boost the region's economy (Arsyad, 1999).

Of course, each region possesses its own potential and socio-economic conditions. This indicates that policies for economic development may vary from one region to another. A policy that proves successful in one area may not necessarily yield the same results when applied to another region (Anggraeni, 2022). Therefore, the policies implemented in a region need to be tailored to suit its unique potential, conditions, and resources (Bahri, 2018).

Location Quotient Analysis

The Location Quotient analysis is a method used in regional economics to compare the strength or specialization of an economic sector in a specific area with a larger region. This analysis is employed to determine the base sectors within a particular region (Ardiansyah, 2007). The structure of the LQ formulation will yield the following values:

- LQ > 1

  Sectors with an LQ greater than one are considered base sectors because the production in these sectors exceeds the consumption needs of the analyzed region, allowing the surplus to be sold outside the region
- LQ = 1

  Sectors with an LQ equal to one are non-base sectors as the production in these sectors can only meet the consumption needs of the analyzed region
- LQ < 1

  Sectors with an LQ less than one are non-base sectors as the production in these sectors does not meet the consumption needs of the analyzed region, necessitating the purchase of additional resources from outside the region

Dynamic Location Quotient Analysis

The Dynamic Location Quotient (DLQ) analysis is an alternative to complement the LQ analysis. The DLQ analysis is used to identify changes in the specialization and competitive advantage of economic sectors within a region over time. This analysis can indicate increases or decreases in the LQ development over time (Hidayat & Supriharjo, 2014). According to Davis (1985), the interpretation of DLQ analysis results is as follows (Langi et al., 2018):

- DLQ > 1

  The development potential of the sector in the analyzed city is faster compared to the same sector's development potential in other cities/districts within the same province. In the future, if the current conditions remain the same, this sector is expected to be more competitive than the same sector in other cities/districts within the analyzed province (Prospective)
- DLQ = 1

  The development potential of the sector in the analyzed city is comparable to the same sector's development potential in other cities/districts within the analyzed province (Still prospective)

- DLQ < 1

The development potential of the sector in the analyzed city is lower compared to the same sector's development potential in other cities/districts within the same province. In the future, if the current conditions remain the same, this sector will be less competitive than the same sector in other cities/districts within the analyzed province (not prospective)

Combined Location Quotient dan Dynamic Location Quotient Analysis

From the results of the combined analysis of Location Quotient and Dynamic Location Quotient, sectors in a region can be classified into four groups as follows (Widodo, 2006) :

Table 2. Classification of Combined LQ dan DLQ Analysis

Criteria	DLQ ≥ 1	DLQ < 1
LQ > 1	Leading	Potential
LQ ≤ 1	Developing	Lagging

- Leading (LQ > 1 dan DLQ ≥ 1)
  This sector is a base sector in the analyzed city and has a growth rate that is relatively faster or equal to the same sector in the analyzed province
- Potential (LQ > 1 dan DLQ < 1)
  This sector is a base sector in the analyzed city, but it has a growth rate that tends to be slower compared to the same sector in the analyzed province
- Developing (LQ ≤ 1 dan DLQ ≥ 1)
  This sector is not a base sector in the analyzed city, but it continues to develop with a growth rate that is relatively faster or equal to the same sector in the analyzed province
- Lagging (LQ ≤ 1 dan DLQ < 1)
  This sector is not a base sector in the analyzed city and has a growth rate that is relatively slower compared to the same sector in the analyzed province

Shift-Share Analysis

The shift-share analysis is used to analyze the economic changes of a regional variable or sector within a specific area. It is a simple and user-friendly method to depict the economic changes of a region (Ardiansyah, 2007). There are four components in the shift-share analysis (Pribadi & Nurbiyanto, 2021):

1. Provincial Growth (PN)
   The change in production in the analyzed city caused by changes in production at the provincial level.
2. Proportional Growth (PP)
   The growth that occurs due to differences in each sector's final demand, availability of raw materials, and industrial policies
3. Regional Share Growth (PPW)
   The rate of economic growth in the analyzed city influenced by other cities/districts. The speed and slowness of this growth depend on comparative advantages, market access, institutional support, and others
4. Net Shift (PB)
   Obtained by summing up the PP and PPW components

The interpretation of the results of the shift-share analysis is as follows:

Table 3. Classification of Shift-Share Analysis

Criteria	PPW > 0	PPW < 0
PP > 0	Quadrant I (Rapid Growth, Competitive)	Quadrant III (Rapid Growth, Non-Competitive)
PP < 0	Quadrant II (Slow Growth, Competitive)	Quadrant IV (Slow Growth, Non-Competitive)

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Criteria	Interpretation
PB > 0	The sector's growth is classified as progressive
PB < 0	The sector's growth is classified as slow

Previous Research

Several studies have been conducted previously using Location Quotient, Dynamic Location Quotient, and Shift-Share analyses. The first referenced study was conducted by Putri et al. (2016) titled "Analysis of Base Sectors and Regional Competitiveness Potential of Bangkalan Regency Post the Establishment of the Suramadu Bridge." This research identified the base sectors in Bangkalan Regency for 5 years before and 5 years after the establishment of the Suramadu Bridge. The study found that the base sectors both before and after the bridge's establishment were agriculture, transportation and communication, construction, and services. Two sectors, construction, and electricity, gas, and clean water experienced faster economic growth. The study suggested strengthening cooperation and efforts to promote equitable economic growth.

The second referenced study was conducted by Cahyo (2017) titled "Analysis of Economic Structure and Identification of Leading Sectors in Bontang City." This research aimed to identify the leading sectors in Bontang City. The study showed that there were only two base sectors and leading sectors, namely the manufacturing industry sector and company services sector. The shift-share analysis identified the sectors with competitive advantages in their commodities, which were agriculture, forestry, and fisheries; water supply, waste management, recycling; wholesale and retail trade, repair of motor vehicles, information, and communication sectors. The research also indicated real growth in sixteen economic sectors.

The third referenced study was conducted by Jafar & Meilvidiri (2021) titled "Location Quotient (LQ), Dynamic Location Quotient (DLQ), and Carvalho Classification Analysis in Determining the Economic Potential of Takalar Regency." This research aimed to identify the leading sectors in Takalar Regency for the period 2017-2020. The study concluded that the agriculture, forestry, and fisheries sectors were consistent base sectors during the period 2017-2020. Additionally, the real estate sector along with the administrative, government, defense, and mandatory social security sectors were considered prospective. Based on the Carvalho classification analysis, seven sectors were categorized as medium groups, indicating their potential for development but still not exported outside the region.

The fourth referenced study was conducted by Langi et al. (2018) titled "Analysis of Base and Non-Base Sectors in Minahasa Regency Using Static and Dynamic Approaches." This research aimed to classify the sectors in Minahasa Regency for the period 2017-2019. The study identified four leading sectors in Minahasa Regency, namely agriculture, forestry, and fisheries; the supply of electricity and gas; water supply, waste management, recycling; and administrative, government, defense, and mandatory social security sectors.

The fifth referenced study was conducted by Gafur et al. (2016) titled "Analysis of Leading Sectors/Sub-Sectors in Bungo Regency." This research aimed to recognize base and prospective sectors in Bungo Regency for the period 2001-2013. The study identified six base sectors: agriculture, construction, trade, hotels, and restaurants; transportation and communication; financial, leasing, and business services; and services. Additionally, four prospective sectors were identified: mining and quarrying; electricity, gas, and clean water; construction; and trade, hotels, and restaurants.

These studies are referenced in this research because the analysis methods used in these studies are similar or partially similar to the analysis methods used in this research, namely Location Quotient (LQ), Dynamic Location Quotient (DLQ), and Shift-Share analysis. Examining the results of previous studies can facilitate the examination of the issues to be discussed in this research.

Conceptual Framework

Based on the explanations discussed in the theoretical framework and the review of previous studies, the following conceptual framework can be depicted:

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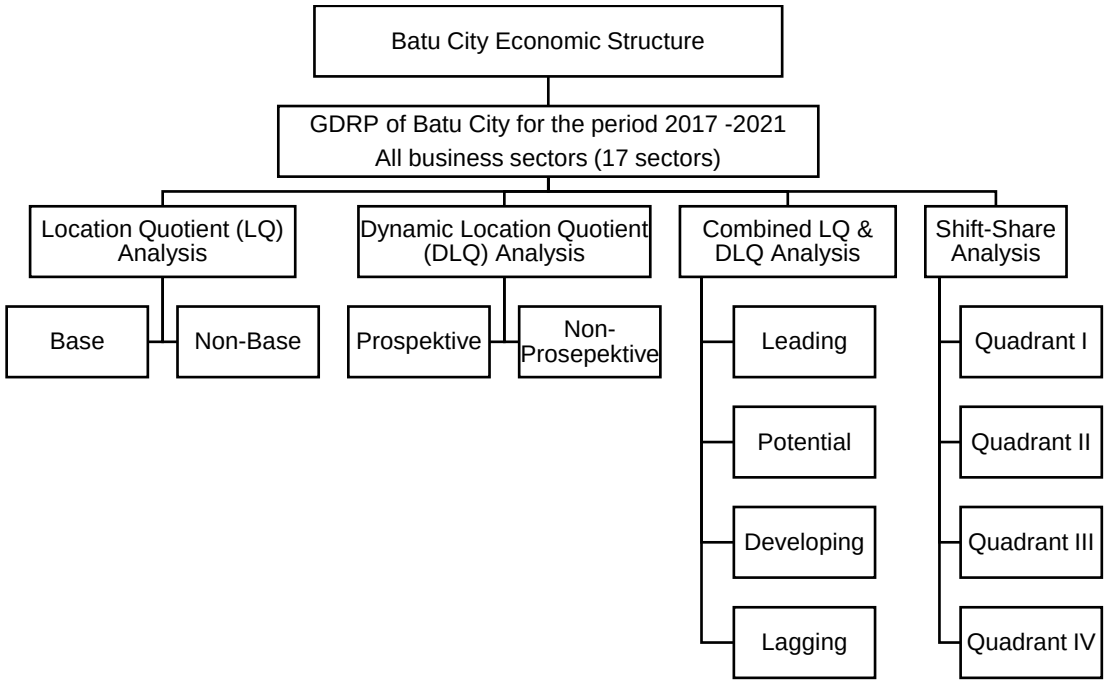

2. METHOD

The method used in this research is a quantitative method. Quantitative research method prioritizes the use of numerical data in collecting, analyzing, and interpreting data to generate information and conclusions. According to Sugiyono (2018), quantitative methods are based on positivism philosophy, relying on real discoveries and observations. This research is of a descriptive analysis nature, which involves describing, recording, analyzing, and interpreting research findings. The object of this research is Batu City, located in the East Java Province. The study period spans from 2017 to 2021, with 2021 being selected due to data limitations, as the GDRP data for East Java Province is only available until 2021.

The data collection method used in this research is documentation, which involves gathering data through documents such as archives, books, or reports related to the research problem. The data used in the research is secondary data obtained from the Central Statistics Agency (BPS) in the form of Batu City's GDRP and East Java Province's GDRP. The analysis techniques used in this research are Location Quotient (LQ) analysis, Dynamic Location Quotient (DLQ) analysis, and Shift Share analysis. These analysis techniques are employed to determine the base, prospective, leading, and comparative advantage sectors in Batu City.

3. RESULT AND DISCUSSION

Location Quotient Analysis

Table 4. Location Quotient Analysis Result

Sector	LQ					LQ Average	Base / Non-Base
	2017	2018	2019	2020	2021		
Agriculture, Forestry, and Fisheries	1.25	1.29	1.29	1.36	1.34	1.31	Base
Mining and Quarrying	0.03	0.03	0.03	0.03	0.03	0.03	Non-Base
Manufacturing Industry	0.15	0.15	0.15	0.16	0.17	0.16	Non-Base
Electricity and Gas Supply	0.17	0.18	0.18	0.20	0.19	0.18	Non-Base
Water Supply, Waste Management, Waste, and Recycling	1.92	1.93	1.90	1.97	1.94	1.93	Base
Construction	1.21	1.23	1.26	1.27	1.27	1.25	Base
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	1.06	1.06	1.05	1.08	1.06	1.06	Base

Transportation and Warehousing	0.47	0.47	0.48	0.54	0.56	0.50	Non-Base
Accommodation and Food Services	2.00	1.97	1.94	1.74	1.75	1.88	Base
Information and Communication	1.31	1.29	1.26	1.31	1.29	1.29	Base
Financial and Insurance Services	1.41	1.37	1.35	1.40	1.37	1.38	Base
Real Estate	1.73	1.71	1.70	1.75	1.74	1.73	Base
Professional, Scientific, and Technical Services	0.62	0.59	0.57	0.60	0.59	0.59	Non-Base
Public Administration, Defense, and Mandatory Social Security	1.11	1.09	1.08	1.10	1.08	1.09	Base
Education Services	1.46	1.45	1.43	1.47	1.46	1.45	Base
Health and Social Activities Services	1.21	1.16	1.13	1.18	1.16	1.17	Base
Other Services	11.71	11.97	12.16	12.38	12.32	12.11	Base

Based on the Location Quotient calculations, Batu City has 12 sectors that serve as the economic base, and only 5 sectors are non-base sectors. The base sectors are as follows (listed in descending order of LQ):

1. Other services
2. Water supply, waste management, recycling
3. Accommodation and food service activities
4. Real estate
5. Education services
6. Financial and insurance activities
7. Agriculture, forestry, and fisheries
8. Information and communication
9. Construction
10. Health and social work activities
11. Administrative, government, defense, and mandatory social security activities
12. Wholesale and retail trade; Repair of motor vehicles and motorcycles

These sectors are the ones whose production has exceeded the consumption needs in Batu City, enabling the surplus to be sold outside the region. Among these 12 base sectors, one sector stands out significantly with an average LQ value of 12.11 compared to the other sectors, which have average LQ values below 2. This sector is "other services." The economy of Batu City, which relies on the tourism sector, is closely related to this category (Wahyuti, 2022). According to the Indonesian Standard Industrial Classification (KBLI) 2009, the "other services" sector is a combination of four sectors:

- Arts, entertainment, and recreation
- Other service activities
- Personal services provided to households, which include activities that produce goods and services by households for their own use to meet their needs
- Other international and extra-territorial activities

Dynamic Location Quotient Analysis

Table 5. Dynamic Location Quotient Analysis Result

Sector	GIK	GTP	(1+GIK) / (1+GK)	(1+GTP) / (1+GP)	t	DLQ	Prospective / Non-Prospective
Agriculture, Forestry, and Fisheries	0.02	0.00	0.99	0.97	4	1.069	Prospective
Mining and Quarrying	-0.00	-0.01	0.97	0.96	4	1.044	Prospective
Manufacturing Industry	0.06	0.04	1.03	1.01	4	1.081	Prospective
Electricity and Gas Supply	0.04	0.01	1.01	0.98	4	1.142	Prospective
Water Supply, Waste Management, Waste, and Recycling	0.05	0.05	1.02	1.02	4	1.003	Prospective
Construction	0.04	0.03	1.01	1.00	4	1.048	Prospective

Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	0.03	0.04	1.00	1.00	4	0.997	Non-Prospective
Transportation and Warehousing	0.05	0.01	1.02	0.98	4	1.186	Prospective
Accommodation and Food Services	-0.01	0.02	0.97	0.99	4	0.895	Non-Prospective
Information and Communication	0.07	0.08	1.04	1.05	4	0.978	Non-Prospective
Financial and Insurance Services	0.01	0.03	0.99	1.00	4	0.970	Non-Prospective
Real Estate	0.04	0.05	1.02	1.02	4	1.007	Prospective
Professional, Scientific, and Technical Services	0.01	0.02	0.98	0.99	4	0.954	Non-Prospective
Public Administration, Defense, and Mandatory Social Security	0.01	0.02	0.98	0.99	4	0.978	Non-Prospective
Education Services	0.04	0.04	1.01	1.01	4	0.997	Non-Prospective
Health and Social Activities Services	0.05	0.07	1.03	1.04	4	0.953	Non-Prospective
Other Services	0.02	0.01	0.99	0.98	4	1.056	Prospective

Based on the Dynamic Location Quotient calculations, Batu City has 9 prospective sectors, which means the potential growth of these sectors in Batu City is faster compared to the potential growth of the same sectors in other cities/districts in East Java Province. In the future, these sectors are expected to compete more effectively with the same sectors in other cities/districts in East Java Province. The prospective sectors, listed in descending order of DLQ, are as follows

1. Transportation and warehousing
2. Electricity and gas supply
3. Manufacturing industry
4. Agriculture, forestry, and fisheries
5. Other services
6. Construction
7. Mining and quarrying
8. Real estate
9. Water supply, waste management, recycling

Among the nine prospective sectors, the transportation and warehousing sector has the highest DLQ calculation. This is due to the implementation of PPKM (Community Activity Restrictions) that resulted in many activities being conducted at home, leading to increased online purchases by the public and consequently boosting the transportation and warehousing sector.

Combined LQ and DLQ Analysis

The combination analysis of LQ and DLQ results in four classifications of sectors. From this classification, it is found that Batu City has 5 leading sectors, 7 prospective sectors, 4 developing sectors, and 1 lagging sector, as follows:

Table 6. Classification of Combined LQ and DLQ Analysis Results

Criteria	Prospective	Non-Prospective
Base	Leading 1. Other services 2. Agriculture, forestry, and fisheries 3. Water supply, waste management, recycling 4. Real Estate 5. Construction	Potential 1. Accommodation and Food Services 2. Education Services 3. Financial and Insurance Services 4. Information and Communication 5. Health and Social Activities Services 6. Public Administration, Defense, and Mandatory Social Security

		7. Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	
Non-Base	Developing 1. Transportation and Warehousing 2. Electricity and Gas Supply 3. Manufacturing Industry 4. Mining and Quarrying	Lagging 1. Professional, Scientific, and Technical Services	

Based on the table, it can be seen that from 2017 to 2021, Batu City has 5 leading sectors, which means these sectors currently form the economic basis of Batu City and will continue to be the economic basis in the future. This is because these 5 sectors in Batu City have a relatively faster growth rate compared to the same sectors in East Java province.

The first leading sector is the "Other Services" sector because Batu City heavily relies on its tourism. Batu City is a popular tourist destination in East Java province. On national holidays, school holidays, and other occasions, Batu City is crowded with visitors, with a recorded number of 6 million visitors in 2019. Among the frequently visited tourist attractions is the city square ("alun-alun kota"). According to BPS data, there are currently 33 registered tourist attractions in Batu City. This number has also been increasing in recent years. Therefore, it is reasonable that the "Other Services" sector becomes a leading sector in Batu City.

The second leading sector is Agriculture, Forestry, and Fisheries. This is supported by Witjaksono et al. (2021), stating that agriculture is one of Batu City's mainstays. The natural physical conditions, altitude, soil type, hydrology, and climate of Batu City strongly support the development of the agricultural sector (Witjaksono et al., 2021). Batu City is also one of the centers for ornamental plant production in East Java, especially in the orchid agribusiness, which is beneficial for the community and the local economy (Andri & Tumbuan, 2015). Among the plantation sectors, the dominant fruit commodities in Batu City are oranges and apples. In fact, Batu City is recognized as the largest apple producer in East Java (Rahmawati, 2022). This is due to the extensive apple plantations in Batu City, covering an area of up to 2,993 hectares.

The third and fourth leading sectors are Real Estate and Construction. The development of new artificial tourist destinations directly impacts the economy of Batu City (Pragmadeanti & Rahmawati, 2022). The increasing number of visitors to Batu City will attract investments in the construction of hotels and new tourist destinations in the city. This is evident in the continuous increase in the number of hotels in Batu City. Additionally, a new tourist destination, Jatim Park 4, has recently been completed and will be opened in March 2023.

The fifth leading sector is the "Water Supply, Waste Management, Waste and Recycling" sector. When looking at its contribution to East Java's GDP, this sector is ranked 17th, contributing the least. However, in terms of its contribution to Batu City's GDP, it ranks 15th. Moreover, this sector has shown constant growth at around 4.5% annually.

Shift-Share Analysis

Table 7. Shift-Share Analysis Results

Sector	PP	PPW	PB	Growth	Competitiveness
Agriculture, Forestry, and Fisheries	-10.69	5.33	-5.36	Slow	Competitive
Mining and Quarrying	-16.78	2.51	-14.27	Slow	Competitive
Manufacturing Industry	3.69	7.32	11.01	Fast	Competitive
Electricity and Gas Supply	-10.18	12.82	2.65	Slow	Competitive
Water Supply, Waste Management, Waste, and Recycling	8.46	-1.58	6.88	Fast	No
Construction	-0.64	2.94	2.30	Slow	Competitive
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	1.73	-2.34	-0.61	Fast	No
Transportation and Warehousing	-10.98	17.65	6.67	Slow	Competitive
Accommodation and Food Services	-3.88	-15.27	-19.15	Slow	No
Information and Communication	21.94	-5.12	16.82	Fast	No

Financial and Insurance Services	-1.91	-5.02	-6.93	Slow	No
Real Estate	7.18	-1.13	6.05	Fast	No
Professional, Scientific, and Technical Services	-4.08	-6.33	-10.40	Slow	No
Public Administration, Defense, and Mandatory Social Security	-4.64	-4.20	-8.84	Slow	No
Education Services	6.41	-2.24	4.17	Fast	No
Health and Social Activities Services	19.25	-8.22	11.02	Fast	No
Other Services	-10.89	3.24	-7.65	Slow	Competitive

Table 8. Classification of Shift-Share Analysis Results

Criteria	PPW > 0	PPW < 0
PP > 0	Quadrant I (Rapid Growth, Competitive): 1. Manufacturing Industry	Quadrant III (Rapid Growth, Non-Competitive): 1. Water Supply, Waste Management, Waste, and Recycling 2. Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles 3. Information and Communication 4. Real Estate 5. Education Services 6. Health and Social Activities Services
PP < 0	Quadrant II (Slow Growth, Competitive): 1. Agriculture, Forestry, and Fisheries 2. Mining and Quarrying 3. Electricity and Gas Supply 4. Construction 5. Transportation and Warehousing 6. Other Services	Quadrant IV (Slow Growth, Non-Competitive): 1. Accommodation and Food Services 2. Financial and Insurance Services 3. Professional, Scientific, and Technical Services 4. Public Administration, Defense, and Mandatory Social Security

Based on the results of the shift-share analysis, it is found that there is only one leading sector in Batu City, namely the Manufacturing Industry sector. This means that the manufacturing industry sector in Batu City has a comparative advantage compared to the same sector in other cities/districts in East Java. This is because Batu City has many business potentials that serve as the main source of livelihood for its residents, including food and beverage industry, handicrafts, textiles, and agribusiness, which have developed and produced high-value commodity products (Astuti, 2016). These industries are labor-intensive and can absorb a significant amount of workforce. After the Covid-19 pandemic, there were many layoffs (PHK), and affected individuals chose to start their own businesses, such as processing food and beverages for resale (Wahyuti, 2022). This has led to the growth of the manufacturing industry sector.

5. CONCLUSION

Based on the combination analysis of LQ and DLQ, Batu City has 5 leading sectors, namely other services sector; agriculture, forestry, and fisheries sector; water supply, waste management, waste, and recycling sector; real estate sector; and construction sector. Based on the shift-share analysis, Batu City has 1 leading sector, which is the Manufacturing Industry sector. From the two analyses, the Batu City's Government should prioritize policy-making towards the development of these 6 leading sectors. This approach will enhance competitiveness, stimulate growth, and maximize the potential of these sectors.

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