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MAPPING OF LEADING ECONOMIC SECTORS IN LAMPUNG PROVINCE 2018-2022

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Abstract: A country or region certainly has the potential of each that is different. This potential has a large contribution to the economy in the region. Assessment of economic conditions is needed to determine the right strategy for the development of potential economic sectors so as to strengthen regional economic growth. Lampung Province needs to make improvements in the economic sector because it has a low growth rate and has a lower growth rate than Indonesia in the last two years. The purpose of this study is to show the leading sectors in the economy to be prioritized and given more attention in assisting regional development and to map the condition of each sector at the district/city level in Lampung Province. From the identification of leading sectors using Location Quotient and Shift Share, the Agriculture, Forestry and Fishery sectors; Water Procurement, Waste Management, Waste and Recycling; Construction; Wholesale and Retail Trade; Car and Motorcycle Repair; Transportation and Warehousing; Information and Communication; Real Estate is a leading sector in Lampung Province. Meanwhile, the mapping of sector conditions resulted in 5 sectors that experienced changes in the distribution of districts/cities in Lampung Province. In general, the leading sector in 2018 will be the agricultural sector, while in 2022 it will be the agricultural and processing sector.

Keywords: *basis sector, economic growth, LQ, Shift Share, Leading Sector*

INTRODUCTION

A certain country or region has its own potential. This potential has a large contribution to the economy in the region. Income owned by a region is through transactions that take place in every sector in that region. This process which is converted into numbers will become a measuring tool or economic indicator. The development of a region or the level of economic growth can be seen using these indicators. The success of state development is the success of regional development. In the regional environment, economic management is under the authority of the regional government, which is in accordance with the principles of fiscal and economic decentralization. According to Oates (1993), tax decentralization has become an important reference for increasing regional economic growth. In other words, this decentralization gives autonomy to regional governments to manage the economy in their own regions. The economy benefits from regional autonomy because it encourages regions to mobilize their various resources (Kembar & Budhi, 2019). Assessment of economic conditions is needed to determine the right strategy for the development of potential economic sectors so as to strengthen regional economic growth.

Lampung Province is the fourth province with the largest GRDP on Sumatra Island for the last five years. However, the GRDP growth rate for Lampung Province is slow and in the last two years it has been in last place on the island of Sumatra. The economic growth rate of Lampung Province in 2019 and 2020 is above the national growth rate. However, in the last two years, conditions have changed, namely the economic growth rate of Lampung Province is lower than the national growth rate.

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The added value that will be obtained by a region through GRDP will depend on all the potentials that exist in the region, including human resources, natural resources, and factors of production. Lampung Province is recorded as having an area of 33,575.41 km^2 and a population of 9,176,546 people. The productive age population, namely 15-64 years in the 2020 period, is 615,970 people and is projected to increase in the following year (BPS, 2023). Therefore, Lampung Province needs to improve and increase GRDP growth. One strategy to achieve this is to pay more attention to the leading sectors in the economy in Lampung Province.

Based on this background, this study aims to determine the leading sectors in the economy in the province to be prioritized and given more attention in assisting regional development. In addition, this study also aims to map the condition of each sector at the district/city level in Lampung Province.

LITERATURE REVIEW

According to Kartiasih (2019a; 2019b) and Kusumasari & Kartiasih (2017), there are several vital indicators to describe the economic development of a region, one of which is economic growth. Between development and growth are certainly not the same. Economic growth is one of many conditions for development progress. While development covers a wider area, economic growth only records how much the total production of goods and services increases nationally. Acceleration of regional economic expansion is one of the objectives of regional economic development.

Economic growth is one of the long-term problems faced by the economy. According to financial experts such as John Stuart Plant, David Ricardo, Adam Smith, and Thomas Robert Malthus, there are four factors that can affect economic growth: population, amount of available capital products, land area, and technological innovation (Sukirno, 2006). Neo-classical thinkers developed a pattern of growth, saying that economic growth was due to investment and an increase in the amount of plants available for use.

The process of increasing an end result (output) per capita in a long period is referred to as economic growth (Audina et al., 2024; Yuliana et al., 2024). GRDP contribution is one of the important indicators in estimating the welfare and financial progress of a region. GRDP measures the production of goods and services in a region, and provides an illustration of how much the region contributes to development finance in the region and in general (Kamal et al., 2024; Pemayun et al., 2024; Pramesthy et al., 2024). In the context of globalization and global competition, the contribution of GRDP is becoming increasingly important.

However, the GRDP contribution is not the only factor that needs to be considered in measuring economic progress. In advancing the economy, we must also pay attention to social, environmental and equity aspects in the distribution of income. We must guarantee that the economic development that is taking place is comprehensive and supported, so that people at all levels can benefit from it (Hawari & Kartiasih, 2017; Subian et al., 2024).

The way to detect leading sectors is by identifying them by comparing certain aspects at various levels of administrative areas. If a region can compete with other regions in the same industry to be able to export, then it can be categorized as a *leading sector* in the national economy. Leading sectors are identified by looking at the ability of a region to export (Silalahi, 2011). After the leading sectors are identified, policy makers can see and set good strategies for these areas to encourage even better economic growth. Regional development planning must always pay attention to the selected leading sectors. The following are the criteria for leading sectors;

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(1) Has a relatively high rate of economic growth. (2) Has a relatively high employment rate. (3) It has high linkages between sectors. (4) Able to generate high added value.

LQ analysis is considered as an initial approach in seeing which sectors play a role in the economic growth of a region. In LQ analysis, we can measure the degree of relative specialization or concentration of economic activity through a comparative approach. This approach is useful for identifying specializations in economic activity and determining leading sectors as milestone sectors in industrial activity. Typically, LQ techniques emphasize income and labor objects. Even though the results of the analysis cannot immediately provide *a statement* that a sector is a leading sector, these results can provide an initial picture of the ability of a region to fulfill these sectors. Therefore, LQ analysis is the right choice of method to be used as a reference in making policy strategies that can spur development of the right sector.

The following is the formula for calculating the *Location Quotient value:*

$$LQ = \frac{\boldsymbol{Vi/Vt}}{\boldsymbol{Yi/Yt}}$$

Where, V_i is GRDP value of a sector at a lower regional level; V_t is GRDP value of all sectors at the lower regional level; Y_i is GRDP value of a sector at the national level; Y_t is total GRDP of all sectors at the national level. The calculation results from the *Location Quotient method* produce two categories, namely:

1. LQ > 1, which means that it is classified as basic (B), which means that the commodity has the ability to meet the needs of outside its territory because a sector can meet the needs of its own region and can meet the needs of outside its region.
2. LQ ≤ 1, which means that it is classified as non-base (NB), which means that the commodity does not have the ability to meet the needs of outside its region because a sector cannot meet the needs of its own region so that it requires supplies from outside its territory to meet the needs of its region.

Shift Share is a way to analyze economic growth rates and compare them between administratively higher regions. In this analysis, there are three concepts of growth components, including Proportional Growth (PP), National Growth (PN), and Regional Share Growth (PPW). The following is the formula for calculating the Shift Share *value.*

$$Ra = \frac{\Delta Yp' - \Delta Yp}{\Delta Yp}$$

$$Ri = \frac{Yip' - Yip}{Yip}$$

$$rij = \frac{Yij' - Yij}{Yij}$$

$$PNij = Ra \times Yij$$

$$PPij = (Ri - Ra) \times Yij$$

$$PPWij = (rij - Ri) \times Yij$$

$$PBij = PPij + PPWij$$

$$PBij = PPij + PPWij$$

where

Ra = GDP ratio in Indonesia

$\Delta Yp'$ = Indonesia's total GDP in the 2022 period (1)

ΔYp = Indonesia's total GDP in the 2018 period

Ri = GDP ratio of a sector in Indonesia

Yip' = A sector in Indonesia in the 2022 period

Yip = A sector in Indonesia in the 2018 period

rij = GRDP ratio of a sector in Lampung province

Yij' = A sector in Lampung province in the 2022 period

Yij = A sector in Lampung province in the 2018 period

$PNij$ = Indonesia's economic growth in a sector in Lampung province

$PPij$ = Proportional growth of a sector in Lampung province

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PPWij = Growth in the share of a sector in the province of Lampung
PBij = Net shift of a sector in Lampung province

Calculation results from PPij produce two categories:

1. PP $_{ij}$ < 0, which indicates a sector in Lampung province whose growth is slow.
2. PP $_{ij}$ > 0, which indicates a sector in Lampung province that is growing fast.

Calculation results from PPWij produce two categories:

1. PPW $_{ij}$ < 0, which indicates that a sector in Lampung province does not have good competitiveness compared to the same sector in Indonesia.
2. PPW $_{ij}$ > 0, which indicates that a sector in Lampung province has good competitiveness compared to the same sector in Indonesia.

The results of calculations from PBij produce two categories:

1. PB $_{ij}$ < 0, namely the growth of a sector in Lampung province is slow.
2. PB $_{ij}$ > 0, namely the growth of a sector in Lampung province belongs to the progressive (advanced) group.

The following is a grouping of sectors based on the results of the analysis obtained.

Table 1. Sector Grouping with *Shift Share*

Ppij PPWij	PPij > 0	PPij < 0
PPWij > 0	Fast growth, Competitive	Slow growth, Competitive
PPWij < 0	Fast growth, Not competitive	Slow growth, Not competitive

METHOD

Three analytical techniques were used in this study, namely Location Quotient, and Shift Share. The Location Quotient is used to evaluate the regional economic base based on the contribution of certain sectors to the regional economy. Shift Share is used to compare economic performance between a region and a region that is one level higher above it administratively (Arsyad, 2015). By combining these two analytical techniques, this research can provide an overview of the regional economic structure that has the potential to be improved and which contributes the most to economic growth in Lampung Province.

RESULT AND DISCUSSION

Based on Figure 1, it can be shown that the LQ value < 1 or the red color and the LQ value > 1 or the light brown color in the agricultural sector in 2018 and 2022 in the area in Lampung Province has not changed, or it can be said that the base and non-base sectors, namely the agricultural sector in the Lampung Province in 2018 and 2022 have not changed or can be said to be the same. There are around 12 regions in Lampung Province which have a base sector or superior sector, namely the agricultural sector in both 2018 and 2022. Overall, it can be said that the agricultural sector in Lampung Province is classified as a base sector because most of its areas are brown (LQ>1).

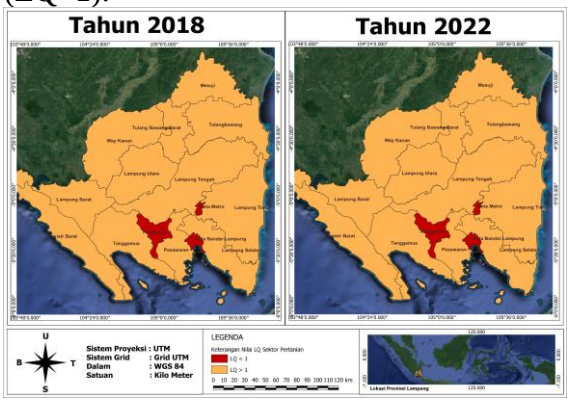

Figure 1. Spatio Temporal Map of the LQ value of the Agricultural Sector in 2018 & 2022

Based on Figure 2 , it can be shown that the LQ value < 1 or the red color and the LQ value > 1 or the light brown color in the mining sector in 2018 and 2022 in the area

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in Lampung Province has changed, or it can be said that the base and non-base, namely the mining sector in the region of Lampung Province in 2018 and 2022 has changed or it can be said to be different where the mining sector in 2018 in Pesisir Barat Regency is classified as a non-base sector, but in 2022 the mining sector is classified as a base sector. Overall it can be said that the mining sector in Lampung Province is classified as a non-base sector because most of the area is red (LQ<1).

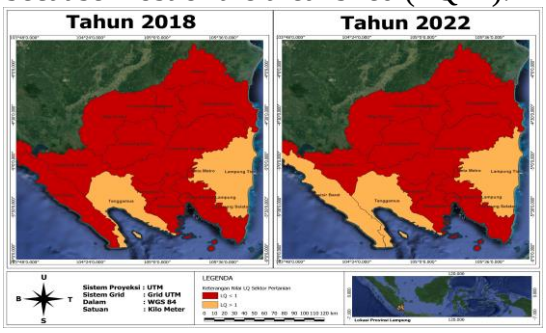

Figure 2. Spatio Temporal Map of Mining Sector LQ value in 2018 & 2022

Based on Figure 3, it can be shown that the LQ value < 1 or the red color and the LQ value > 1 or the light brown color in the processing industry sector in 2018 and 2022 in the area of Lampung Province has not changed, or it can be said that the basic and non-base sectors, namely the manufacturing industry sector in the Lampung Province, both in 2018 and 2022 have not changed or can be said to be the same. There are around 7 regions in Lampung Province which have a base sector or superior sector, namely the manufacturing sector both in 2018 and 2022. Overall, it can be said that the manufacturing industry sector in Lampung Province is classified as a base sector and also non-base because in the region it has a high proportion. quite a balance between brown and red.

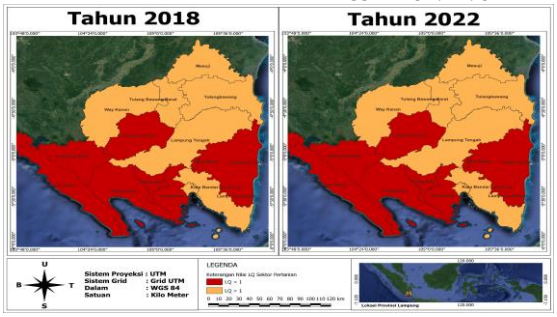

Figure 3. Map of the Spatio Temporal LQ value of the Manufacturing Industry Sector in 2018 & 2022

Based on Figure 4, it can be shown that the LQ value < 1 or the red color and the LQ value > 1 or the light brown color in the electricity supply sector in 2018 and 2022 in the areas in Lampung Province have not changed, or it can be said that the base and non-base sectors, namely the electricity procurement sector in the Lampung Province, both in 2018 and 2022 have not changed or can be said to be the same. There is around 1 area in Lampung Province which has a base sector or superior sector, namely the electricity procurement sector both in 2018 and 2022, namely East Lampung Regency. Overall, it can be said that the electricity supply sector in Lampung Province is classified as a non-base sector because most of the area is red (LQ<1).

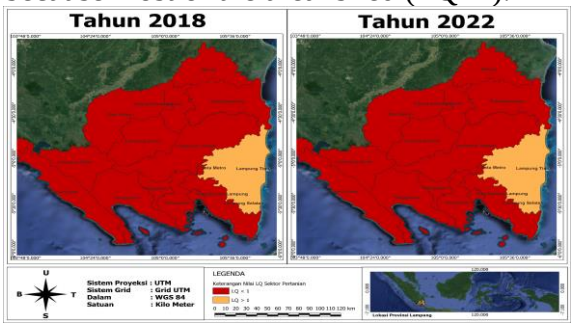

Figure 4. Spatio Temporal Map of the LQ value of the Electricity Procurement Sector in 2018 & 2022

Based on Figure 5, it can be shown that the LQ value < 1 or the red color and the LQ value > 1 or the light brown color in the water supply sector in 2018 and 2022 in areas in Lampung Province have changed, or it can be said that the base and non-base sectors, namely the water supply sector in the Lampung Province area in 2018 and

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2022 will experience changes or it can be said to be different where the water supply sector in 2018 in West Lampung Regency is classified as the base sector, but in 2022 the water supply sector is classified as the non base. Overall, it can be said that the water supply sector in Lampung Province is classified as a non-base sector because most of the area is red (LQ<1).

Figure 5. Spatio Temporal Map of the LQ value of the Water Supply Sector in 2018 & 2022

Based on Figure 6, it can be shown that the LQ value < 1 or the red color and the LQ value > 1 or the light brown color in the construction sector in 2018 and 2022 in the area of Lampung Province has not changed, or it can be said that the base and non-base sectors, namely the construction sector in the Lampung Province in 2018 and 2022 have not changed or can be said to be the same. There are around 5 regions in Lampung Province which have a base sector or superior sector, namely the construction sector both in 2018 and 2022. Overall it can be said that the construction sector in Lampung Province is classified as a non-base sector because most of its areas are colored red (LQ<1).

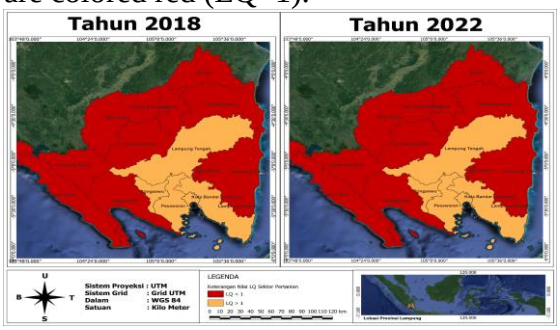

Figure 6. Map of the Spatio Temporal LQ value of the Construction Sector in 2018 & 2022

From the results of the calculation of the *Location Quotient value* as can be seen in Table 3, it can be concluded that the business sector that has a value of LQ> 1 is the basis sector, namely: Agriculture, Forestry and Fisheries Sector, Water Procurement Sector, Waste Management, Waste and Recycling, Construction Sector, Transportation Sector and Warehousing, and the Real Estate Sector. This shows that in the region of Lampung Province, these sectors have a comparative advantage or in other words, *the output* of these sectors besides being able to meet the needs of the region can also be exported to meet the needs of other regions.

Table 2. *Location Quotient* Calculation Results in Lampung Province in 2018-2022

Business Field Code	Year					Average	Category
	2018	2019	2020	2021	2022		
A	2.30	2.24	2.21	2.18	2.20	2.23	B
B	0.77	0.78	0.76	0.70	0.65	0.73	NB
C	0.88	0.92	0.90	0.91	0.88	0.90	NB
D	0.17	0.17	0.18	0.16	0.16	0.17	NB
E	1.23	1.21	1.20	1.24	1.26	1.23	B
F	0.98	0.98	0.99	1.03	1.06	1.01	B
G	0.92	0.94	0.91	0.95	1.05	0.96	NB
H	1.23	1.25	1.38	1.38	1.40	1.33	B
I	0.48	0.49	0.52	0.50	0.50	0.5	NB
J	0.93	0.91	0.89	0.89	0.84	0.89	NB
K	0.52	0.50	0.50	0.50	0.48	0.5	NB
L	1.06	1.05	1.01	1.00	1.03	1.03	B
M, N	0.08	0.07	0.08	0.08	0.08	0.08	NB
O	0.92	0.91	0.96	1.00	0.98	0.95	NB
P	0.92	0.93	0.94	0.96	0.99	0.95	NB
Q	0.86	0.84	0.84	0.79	0.78	0.82	NB
R,S,T,U	0.52	0.50	0.50	0.48	0.56	0.51	NB

Description : B = Basis, NB = Non Basis
Source: Author calculated

In addition, there are also business sectors that have an LQ value of <1, meaning that these sectors are classified as non-basis sectors, namely: the Mining and Quarrying Sector, the Manufacturing Industry Sector, the Electricity and Gas Procurement Sector, the Wholesale and Retail Trade Sector; Car and Motorcycle Repair, Accommodation

and Food and Drink Provision Sector, Information and Communication Sector, Financial Services and Insurance Sector, Corporate Services Sector, Government Administration, Defense and Compulsory Social Security Sector, Education Services Sector, Health Services and Social Activities Sector, and Other Services Sector (see Table 2). This shows that in the Lampung Province these sectors cannot be fulfilled independently, so that the role of other regions as importers is needed to meet the needs of sectors that are still classified as non-base.

The National Growth Value (PNij) shows the impact of Indonesia's GDP on the Lampung Province's GRDP. If it is positive, the impact will have a positive impact on growth in the economic sector in Lampung Province. The economic sectors in Lampung Province that were most affected by economic growth were the Agriculture, Forestry and Fisheries Sectors and the sector with the smallest impact is the Water Procurement, Waste Management, Waste and Recycling Sector.

Table 3. Components of National Growth and Proportional Growth in Lampung Province in 2018 – 2022

Business Field Code	PNij		PPij	
	Billion	%	Billion	%
A	8247653.41	12.32	-1662367.11	-2.48
B	1686040.97	12.32	-626993.46	-4.58
C	5324810.22	12.32	-1320274.95	-3.05
D	48969.20	12.32	7965.81	2.00
E	28422.68	12.32	21131.10	9.16
F	2808922.16	12.32	-1141770.42	-5.01
G	3480747.40	12.32	-341324.90	-1.21
H	1470448.20	12.32	-57528.42	-0.48
I	413705.85	12.32	-63343.96	-1.89
J	1372217.79	12.32	3002575.11	26.96
K	589436.23	12.32	78119.83	1.63
L	868049.65	12.32	57551.38	0.82
M N	39648.21	12.32	6142.94	1.91
O	877348.78	12.32	-384756.77	-5.40
P	808047.93	12.32	-163050.24	-2.49
Q	277102.60	12.32	567579.78	25.24
R,S,T,U	263080.85	12.32	132773.70	6.22

Source: Author calculated

Proportional Growth Component (PPij) shows that there are 9 sectors that experience slow growth, namely sectors with a negative value (PPij < 0). These sectors include (1) Agriculture, Forestry and Fishery, (2) Mining and Quarrying, (3) Processing Industry, (4) Construction, (5) Wholesale and Retail Trade; Car and Motorcycle Repair, (6) Transportation and Warehousing, (7) Provision of Accommodation and Food and Drink, (8) Government Administration, Defense, and Compulsory Social Security, and (9) Education Services. Meanwhile, other sectors experienced rapid growth (see Table 3).

Regional Share Growth Component (PPWij). If PPWij > 0 or has a positive sign, the sector has competitiveness against the same sector at the top level. The economic sectors in Lampung Province that do not have competitiveness include (1) Agriculture, Forestry and Fisheries, (2) Mining and Quarrying, (3) Processing Industry, (4) Procurement of Electricity and Gas, (5) Information and Communications, (6) Financial Services and Insurance, (7) Real Estate, (8) Health Services and Social Activities.

Net Shift (PBij). This component shows progressive growth, namely sectors that have positive growth, namely 11 sectors, including (1) Water Procurement, Waste Management, Waste and Recycling, (2) Construction, (3) Wholesale and Retail Trade; Car and Motorcycle Repair, (4) Transportation and Warehousing, (5) Provision of Accommodation and Food and Drink, (6) Information and Communication, (7) Company Services, (8) Government Administration, Defense, and Compulsory Social Security, (9) Education Services, (10) Health Services and Social Activities, (11) Other Services. While other sectors have a slow growth because of a negative value (see Table 4).

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Table 4. Components of Market Share Growth and Net Shift in Lampung Province in 2018-2022

Business Field Code	%PP	Category %PP	%PPW	Category %PPW
A	-2.48	Slow Growth	-6.21	Not Having Competitiveness
B	-4.58	Slow Growth	-17.72	Not Having Competitiveness
C	-3.05	Slow Growth	-1.52	Not Having Competitiveness
D	2.00	Fast Growth	-6.72	Not Having Competitiveness
E	9.16	Fast Growth	1.21	Have Competitiveness
F	-5.01	Slow Growth	8.02	Have Competitiveness
G	-1.21	Slow Growth	13.87	Have Competitiveness
H	-0.48	Slow Growth	13.69	Have Competitiveness
I	-1.89	Slow Growth	4.47	Have Competitiveness
J	26.96	Fast Growth	-14.81	Not Having Competitiveness
K	1.63	Fast Growth	-9.00	Not Having Competitiveness
L	0.82	Fast Growth	-4.13	Not Having Competitiveness
M N	1.91	Fast Growth	7.44	Have Competitiveness
O	-5.40	Slow Growth	5.78	Have Competitiveness
P	-2.49	Slow Growth	7.23	Have Competitiveness
Q	25.24	Fast Growth	-14.60	Not Having Competitiveness
R,S,T,U	6.22	Fast Growth	8.04	Have Competitiveness

Source: Author calculated

CONCLUSION

Based on the results of the research that has been done, it can be concluded that:

1. Based on the results of the leading sector analysis from a combination of the three descriptive analysis methods, namely Location Quotient and Shift Share, it is identified that the leading sectors of Lampung Province are the Agriculture, Forestry and Fishery sectors; Water Procurement, Waste Management, Waste and Recycling; Construction; Wholesale and Retail Trade; Car and Motorcycle Repair; Transportation and Warehousing; Information and Communication; Real Estate.
2. There are 5 sectors out of 17 sectors that have experienced changes in the distribution of districts/cities in Lampung province seen from the visualization of the spatio-temporal map, namely the mining sector, procurement water, wholesale trade, transportation, other services. Then as a whole the regencies and cities in Lampung Province in 2018 the base/leading sector is dominated by the agricultural sector while in 2022 the base/leading sector is dominated by the agricultural and processing sectors.

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