

## THE COMPARISON OF LEADING SECTOR ANALYSIS OF MEDAN CITY AND NIAS REGENCY (CASE STUDY 2017-2021)

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### ABSTRACT

The specific skills discussed in the research are the leading sectors in the economic system. Medan City and Nias Regency are two areas within the jurisdiction of North Sumatra Province. The two regions have differences in geographical location, making them both have differences in the economy's structure. In terms of economic growth, the two regions showed differences where Medan City is superior in percentage growth. A significant difference between the two regions is the significant difference in the status of the Regional Fiscal Capacity Index. This study aims to identify the leading sectors owned by Medan City and Nias Regency in the 2017-2021 observation period. The method used is descriptive quantitative by using analytical tools in the form of LQ and DLQ analysis, Klasen Typology, Shift-Share Analysis, and Overlay Analysis. The results showed that Medan City does not have a leading sector at all and Nias Regency has one leading sector in the form of the mining and quarrying sector. This study provides recommendations for the Medan City Government and Nias Regency Government to re-evaluate economic policies, especially related to sectors experiencing a slowdown, progressive sectors, and leading sectors in their respective regions.

**Keywords:** Basic Sector, Leading Sector, Prospective Sector, Regional Economics

**JEL Classification:** O01, O11, R58

### INTRODUCTION

Economic development cannot be separated from economic growth where economic development will encourage economic growth and good economic growth will facilitate regional development (Mangilaleng et al., 2015). Economic growth is the main criterion for looking at regional development and is an indicator in the analysis and evaluation of economic development. The development process of regions or districts/cities can be seen from the value of the rate of Gross Regional Domestic Product (GRDP) at a constant price. Regional development requires appropriate programs and strategies because of each region's differences, such as the rate of economic growth or the specific skills that a region has (Salakory and Matulesy, 2020). The development process of the region or regency/city can be seen from the value of the gross regional domestic product (GRDP) rate at a constant price (Patar and Manalu, 2021). Regional development requires appropriate programs and strategies because of each region's differences, such as the rate of economic growth or the specific skills that a region has (Nurfadilah et.

al., 2022). The specific expertise discussed in this study is the leading sector owned by a region. The economic growth of a region can grow well if it maximizes the leading sector where the sector has a comparative advantage and has a role in the economic development system in the area. In conclusion, the focus in the form of appropriate policies and support provided to a region's leading sector can accelerate the region's economic growth (Mahaesa and Huda, 2022).

Medan City and Nias Regency are two areas that are geographically within the jurisdiction of North Sumatra Province. The city of Medan itself is on the island of Sumatra, while Nias Regency is on Nias Island, located in the west of Sumatra Island. In addition to differences in geographical location, the two regions turned out to have several differences, one of which was Regional Fiscal Capacity (RFC). The Minister of Finance Regulation Number 116/2021 concerning the Regional Fiscal Capacity Map provides a definition of RFC in the form of the financial capabilities of each region which is reflected through regional revenues minus predetermined revenues and certain expenditures. Meanwhile, the RFC Map is an overview that shows a financial picture of the regions grouped by index. The RFC index is categorized into 5 (five): Very Low, Low, Medium, High, and Very High. In The Minister of Finance Regulation Number 116/2021, Medan City has an RFC index with a Very High category, while Nias Regency has an RFC index with a Very Low category. The RFC index is also a picture of the region's financial independence level. The lower the RFC index, the greater the dependence of a local government on the central government, which is reflected in the amount of central to regional transfers (Lisnawati, 2018).

In terms of economic growth rate, there are differences in the economic growth of Medan City and Nias Regency as shown in Table 1. The economic growth of Medan City has increased successively from 2017 by 5.81% and then increased in 2018 by 5.92% until it rose again in 2019 by 5.93%. The slowdown in growth occurred in 2020 to -1.98% and again in 2021 by 2.62%. Nias Regency itself experienced a fairly volatile growth where in 2017 it was 5.01% then fell in 2018 to 4.95% and again rose in 2019 by 5.04%. The economic slowdown in 2020 also occurred in Nias Regency where economic growth fell to 1.80% and crawled back up to 2.21% in 2021. In general, the economic growth of Medan City is better than Nias Regency in 2017, 2018, 2019, and 2021, except in 2020. This is inseparable from the fact that Medan City is the capital of North Sumatra Province which is the center of government and economic activities of the people of North Sumatra Province.

**Table 1. Economic Growth of Medan City and Nias Regency (%)**

Year	Medan City	Nias Regency
2017	5,81	5,01
2018	5,92	4,95
2019	5,93	5,04
2020	-1,98	1,80
2021	2,62	2,21

Source: Central Statistics Agency of Medan City and Nias Regency

Several previous studies have found a positive and significant relationship between economic growth and GRDP and RFC. Priyanka and Urip (2018) found that economic growth in Papua Province from 2010-2016 had a positive effect on

the fiscal independence of Papua Province. The study emphasized that economic growth has dynamics in the same direction as the level of fiscal independence. These results were supported by Sapparman et al. (2022) who found that economic growth had a significant positive effect on fiscal capacity in regencies/cities in Riau Province from 2011-2020. This is because economic growth encourages an increase in income and the production of goods and services which are one of the sources of regional revenue in the form of levies and regional taxes.

## METHOD

This study uses a quantitative descriptive method using secondary data in the form of GRDP data on constant prices from the Central Statistics Agency of North Sumatra Province, the Central Statistics Agency of Medan City, and the Central Statistics Agency of Nias Regency, all of which are data from 2017-2021. GRDP on constant prices is used because the value of the GRDP is not influenced by the inflation rate and reflects the additional production of economic sectors so it is more appropriate to describe economic growth in real terms (Silvia et. al., 2013). GRDP consists of seventeen economic sectors and the greater the contribution made by each economic sector can promote better economic growth (Prishardoyo, 2008).

In determining which sector is the leading sector, Location Quotient (LQ) and Dynamic Location Quotient (DLQ) analysis, Klassen Typology, and Shift-Share Analysis were carried out with the following details.

### 1. Location Quotient (LQ) dan Dynamic Location Quotient (DLQ)

LQ analysis is a tool to find out the contribution of a region whether as a supplier or importer (Schaffer, 2010 in Personal and Nurbiyanto, 2021) and become an indicator to determine the leading sector in the area (Basuki and Mujiraharjo, 2017). LQ analysis is used to find out whether the sector is a base sector or not. The basic sector is a sector that is able to meet the needs of an area and export outside the area (Priyadi and Nurbiyanto, 2021). The  $LQ > 1$  coefficient indicates that the sector is the basic sector in the district/city or is a sector with a faster growth rate than the same sector at the reference level or in this case a province. In contrast, the  $LQ < 1$  coefficient indicates that the sector is not a basic sector in the area. The formula for calculating LQ is:

$$LQ = (X_{ij}/RV_j)/(X_i/RV)$$

LQ = Location Quotient coefficient of sector i in city/district j,

$X_{ij}$  = GRDP sector i in city/district j,

$RV_j$  = total GRDP in city/district j,

$X_i$  = GRDP sector i at the provincial level of the city/regency j,

$RV$  = total GRDP in city/regency provinces j.

DLQ analysis is the development of LQ analysis by observing the growth rate of a sector in a certain period (Nugroho, 2010) and is used to see the ability of a sector to become a basic sector in the future or be a prospective sector (Priyadi and Nurbiyanto, 2021). The  $DLQ > 1$  coefficient indicates that the sector is a prospective sector that is able to become or remain a basic sector in the future. In

contrast, the  $DLQ < 1$  coefficient indicates that the sector is non-prospective or not a basic sector in the future. The formula for calculating DLQ is:

$$DLQ = \left( \frac{(1+g_{ij})}{(1+g_j)} \right) / \left( \frac{(1+g_{ip})}{(1+g_p)} \right)^t$$

DLQ= sector i DLQ coefficient in city/district j,

$g_{ij}$ = average GRDP growth sector i in city/district j,

$g_j$ = average growth of total GRDP in city/district j,

$g_{ip}$ = average GRDP growth sector I in city/regency province j,

$g_p$ = average growth of total GRDP in city / regency province j,

t= number of years.

## 2. Klassen typology

Klassen typology is a method of combining LQ and DLQ coefficients as a basis for grouping economic sector activities where there are four quadrants that indicate the categories of economic sectors in an area (Pribadi and Nurbiyanto, 2021). The quadrant division can be seen in Table 2.

**Table 2. Division of the Quadrant of the Klassen Typology**

	<b>DLQ&gt;1</b>	<b>DLQ&lt;1</b>
<b>LQ&gt;1</b>	Quadrant I, Base and Prospective Sector (PRIME)	Quadrant II, Base and Non-Prospective Sector (POTENTIAL)
<b>LQ&lt;1</b>	Quadrant III, Non-Base and Prospective Sector (DEVELOPING)	Quadrant IV, Non-Base and Non-Prospective Sector (LAGGING)

## 3. Shift-Share Analysis

Shift-Share analysis is an analysis that compares the economic growth rate of a region against the economic growth rate of a wider region (Pribadi and Nurbiyanto, 2021). Pribadi and Nurbiyanto (2021) explained that in conducting the Shift Share analysis, there are 3 (three) components in the form of National Growth (NG) or regional growth that is wider than the observed area, Proportional Growth (PG) which looks at regional economic growth in a certain time, and Regional Share Growth (RSG) which measures the rate of economic growth of a region compared to other regions. Furthermore, the accumulation of PG and RSG values will result in a Net Shift (NS) value which is an indicator that a sector is a progressive sector or not. The  $NS > 0$  value indicates that the sector is a progressive sector, and vice versa if the  $NS < 0$  value is not a progressive sector.

The formula for calculating all components in the Shift Share analysis is:

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

Ra= GRDP ratio at the provincial level,

$\Delta Yp'$ = total provincial GRDP in the final year of observation,

$\Delta Yp$ = total provincial GRDP in the year of observation base,

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

Ri= sector i GRDP ratio in the province,

$Yip'$ = sector i in the province in the final year of observation,

$Yip$ = sector i in the province in the initial year of observation,

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

rij= sector i GRDP ratio in city/district j,

$Yij'$ = sector i in city/district j at the end of the year of observation,

$Yij$ = sector i in the city/kabupaten j at the beginning of the year of observation,

$$NGij = Ra \times Yij$$

NGij= economic growth of sector i in the city/regency province j,

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

PGij= proportional growth of sector i in the city/district j,

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

RSGij= growth of sector i regional share in city/district j, and

$$NSij = PGij + RSGij$$

NSij= net shift of sector i in cities/districts j.

#### 4. Overlay Analysis

Overlay analysis is a combination of the acquisition of LQ and DLQ coefficients, Klassen Typology, and Shift Share analysis results (Mahaesa and Huda, 2022). Measurement of all such components is carried out by giving a "+" or "-" sign. In the combination of LQ and DLQ coefficients, the "+" sign is only given to sectors with  $LQ > 1$  and  $DLQ > 1$  coefficients. In the Klassen Typology, the "+" sign is only given to sectors that fall into Quadrant I. Then in the Shift Share analysis, the "+" sign is only given to sectors with a  $NS > 0$  value. The sector that has all three combinations that show a "+" is the leading sector in the area.

## RESULTS AND DISCUSSION

### LQ and DLQ Analysis of Medan City and Nias Regency

**Table 3. Comparison of LQ and DLQ Analysis of Medan City and Nias Regency**

Sector	Interpretation	
	Medan City	Nias Regency
A. Agriculture, Forestry, and Fisheries	Non-Basic, Non-Prospective	Basic, Non Prospective
B. Mining and quarrying	Non-Basic, Prospective	Basic, Prospective
C. Processing Industry	Non-Basic, Non-Prospective	Non-Basic, Prospective
D. Electricity and Gas Procurement	Non-Basic, Non-Prospective	Non-Basic, Prospective
E. Water Procurement, Waste Management, Waste and Recycling	Basic, Non-Prospective	Non-Basic, Non-Prospective
F. Construction	Basic, Non-Prospective	Non-Basic Non Prospective
G. large trade and retail; Car and motorcycle repair	Basic, Non-Prospective	Non-Basic, Prospective
H. Transportation and warehousing	Basic, Non-Prospective	Non-Basic, Prospective
I. Provision of accommodation and drinking meals	Basic, Non-Prospective	Non-Basic, Prospective
J. Information and communication	Basic, Non-Prospective	Non-Basic, Non-Prospective
K. Financial Services and Insurance	Basic, Non-Prospective	Non-Basic Prospective
L. Real Estate	Basic, Non-Prospective	Non-Basic, Non-Prospective
M,N. Company Services	Basic, Non-Prospective	Non-Basic, Prospective
O. Government Administration, Defense and Compulsory Social Security	Non-Basic, Non-Prospective	Basic, Non-Prospective

P. Education Services	Basic, Non-Prospective	Non-Basic, Non-Prospective
Q. Health Services and Social Activities	Basic, Non-Prospective	Non-Basic, Prospective
R,S,T,U. Other Services	Basic , Non-Prospective	Non-Basic, Non-Prospective

Source: Data processed by the author

Based on Table 3, the LQ analysis of Medan City is in line with Hutapea et al. (2020) where there are twelve sectors that are included in the base category, namely the company service sector, information and communication sector, other service sectors, financial and insurance services sector, water procurement sector, *real estate* sector, health service sector and social activities, construction sector, trade sector, education service sector, the transport and warehousing sector, and the accommodation and dining supply sector. The results of the LQ analysis also show that there are three basic sectors ( $LQ > 1$ ) in Nias Regency, namely the agriculture, forestry, and fisheries sector, the mining and quarrying sector, and the government administration sector. This shows that Medan City has more base sectors that are able to produce a product that meets the needs within its territory and exports outside its territory than Nias Regency.

The merger of LQ and DLQ analysis of Medan City shows that there is not a single basic sector in Medan City that will remain a basic sector in the future. However, there is one non-basic sector that in the future has the potential to become a basic sector, namely the mining and quarrying sector. Meanwhile, Nias Regency has a mining and quarrying sector which is the only prospective basic sector or remains the basic sector in the future. Then, there are eight non-basic sectors that have the opportunity to become basic sectors in the future, namely the processing industry sector, the electricity and gas procurement sector, the large trade and retail sector, the transportation and warehousing sector, the accommodation and food and beverage supply sector, the financial and insurance services sector, the company services sector, as well as the health services sector and social activities. This condition can be an opportunity for the Nias Regency Government to develop these sectors through policy support.

### Klassen typology

**Table 4. Klassen Typology of Medan City and Nias Regency**

Sector	Medan City	Medan City
A. Agriculture, Forestry, and Fisheries	Lagging	Potential
B. Mining and Quarrying	Developing	Prime
C. Processing Industry	Developing	Developing
D. Electricity and Gas Procurement	Developing	Developing
E. Electricity and Gas Procurement	Prime	Lagging
F. Construction	Prime	Lagging
G. Large Trade and Retail; Car and Motorcycle Repair	Potential	Lagging
H. Transportation and Warehousing	Prime	Developing
I. Provision of Accommodation and Food and Drink	Potential	Developing
J. Information and Communication	Prime	Lagging
K. Financial Services and Insurance	Potential	Developing



L. Real Estate	Prime	Lagging
M,N. Company Services	Prime	Developing
O. Government Administration, Defense and Compulsory Social Security	Developing	Potential
P. Education Services	Prime	Developing
Q. Health Services and Social Activities	Prime	Developing
R,S,T,U. Other services	Prime	Lagging

Source: Data processed by the author

Based on the analysis of the Klassen Typology in Table 4, it shows that Medan City has nine prime sectors and Nias Regency has one prime sector. Medan City has excellent sectors in the form of water procurement, waste management, waste, and recycling, construction sector, transportation and warehousing sector, information and communication sector, *real estate* sector, company service sector, education service sector, health service sector and social activities, and other service sectors. Meanwhile, Nias Regency has a prime sector in the form of the mining and quarrying sector.

### Shift Share Analysis

**Table 5. Shift Share Analysis of Medan City (in billion rupiah)**

Sector	GNij	PGij	RSGij	NSij
A. Agriculture, Forestry, and Fisheries	186.39	66.57	(395.92)	(329.35)
B. Mining and Quarrying	0.01	(0.00)	1.81	1.81
C. Processing Industry	2,448.41	(1,346.13)	56.71	(1,289.42)
D. Electricity and Gas Procurement	19.15	6.50	4.57	11.07
E. Water Procurement, Waste Management, Waste and Recycling	29.99	10.57	20.83	31.40
F. Construction	3,396.98	(188.90)	286.05	97.15
G. Large Trade and Retail; Car and Motorcycle Repair	4,480.15	1,100.32	(234.70)	865.62
H. Transportation and warehousing	1,056.14	(1,535.62)	165.84	(1,369.79)
I. Provision of Accommodation and Drinking Meals	437.72	(246.81)	(130.77)	(377.58)
J. Information and communication	1,107.43	1,983.88	313.80	2,297.68
K. Financial Services and Insurance	1,106.10	(236.02)	(69.25)	(305.28)
L. Real Estate	1,328.78	284.66	340.12	624.78
M,N. Company Services	403.23	(146.94)	104.44	(42.50)
O. Government Administration, Defense and Compulsory Social Security	279.15	117.73	87.71	205.44
P. Education Services	506.21	175.48	44.27	219.74
Q. Health Services and Social Activities	262.31	(84.83)	111.08	26.25
R,S,T,U. Other Services	183.80	(35.94)	88.57	52.63
Gross Regional Domestic Product	17,232.15	0.00	717.71	717.71

Source: Data processed by the author



**Table 6. Shift Share Analysis of Nias Regency (in billion rupiah)**

Sector	GNij	PGij	RSGij	NSij
A. Agriculture, Forestry, and Fisheries	143.26	51.17	(6.23)	44.94
B. Mining and Quarrying	25.40	(5.30)	15.29	9.99
C. Processing Industry	0.61	(0.34)	0.26	(0.08)
D. Electricity and Gas Procurement	0.28	0.09	0.11	0.20
E. Water Procurement, Waste Management, Waste and Recycling	0.00	0.00	0.00	0.00
F. Construction	33.20	(1.85)	(20.03)	(21.87)
G. Large Trade and Retail; Car and Motorcycle Repair	23.07	5.67	11.14	16.81
H. Transportation and warehousing	4.20	(6.10)	4.93	(1.18)
I. Provision of Accommodation and Drinking Meals	4.92	(2.78)	5.61	2.84
J. Information and communication	0.70	1.26	(0.17)	1.09
K. Financial Services and Insurance	3.78	(0.81)	3.13	2.32
L. Real Estate	5.55	1.19	(2.08)	(0.89)
M,N. Company Services	0.19	(0.07)	0.09	0.02
O. Government Administration, Defense and Compulsory Social Security	34.85	14.70	(16.00)	(1.30)
P. Education Services	3.94	1.36	0.04	1.40
Q. Health Services and Social Activities	2.16	(0.70)	1.30	0.60
R,S,T,U. Other Services	0.58	(0.11)	(0.00)	(0.11)
Gross Regional Domestic Product	286.71	0.00	55.14	55.14

Source: Data processed by the author

The results of the Shift-Share analysis of the GN components in Table 5 and Table 6, the GRDP of North Sumatra Province influenced an increase of IDR 17,231.94 billion for the GRDP of Medan City and IDR 286.71 billion for the GRDP of Nias Regency during 2017-2021. In Medan, the large trade and retail sectors contributed the most to the increase in GRDP, amounting to IDR 4,480.15 billion. Meanwhile, in Nias Regency, the agriculture, forestry, and fisheries sectors contributed the most to the increase in Nias Regency's GRDP of IDR 143.26 billion. This means that the large trade and retail sectors in Medan City as well as the agriculture, forestry, and fisheries sectors in Nias Regency will be strongly influenced by policies or factors that affect the GRDP of North Sumatra Province.

The Medan City PG component shows that the total PP component is worth minus IDR 75.48 billion. This shows that in aggregate the GRDP sector of Medan City specializes in sectors whose growth is slow or tends to decline in North Sumatra Province. The sector with the largest PP value in Medan City is the information and communication sector with a value of Rp1,983.88 billion. The PP component in Nias Regency with a value of Rp57.39 billion (NS>0) shows that in aggregate the GRDP sector of Nias Regency specializes in the fast-growing sector in North Sumatra Province. The largest pp value in Nias Regency is in the agriculture, forestry, and fisheries sectors.

In the PPW component, the competitiveness of medan city sectors in the aggregate increased by Rp795.15 billion or has good competitiveness compared to sectors at the North Sumatra Province level. The sector with the highest competitiveness in the city of Medan is the real estate sector and the least competitive is the agriculture, forestry, and fisheries sector minus IDR 395.92

billion. Then, the competitiveness in Nias Regency in the aggregate amounted to minus IDR 2.63 billion or experienced a decrease in competitiveness compared to sectors at the North Sumatra Province level. The sector that has the highest competitiveness in Nias Regency is the mining and quarrying sector of IDR 15.29 billion, while the least competitive sector ( $RGS < 0$ ) is the construction sector minus IDR 20.03 billion.

In the Net Shift (NS) component, in the aggregate, it can be seen that all sectors in Medan City are included in the progressive sector where there are a total of eleven sectors with  $NS > 0$ . This is shown by the NS value of IDR 719.66 billion. The sector with the fastest growth in Medan is the information and communication sector with an NS value of Rp2,297.68 billion and the sector with the slowest growth is the transportation and warehousing sector with an NS value of minus Rp1,369.79 billion. Meanwhile, sectors in Nias Regency are included in the progressive or fast-growing sector group with a total of ten sectors with a value of  $NS > 0$ . This is shown by the NS value of IDR 54.76 billion. The sector in Nias Regency with the fastest growth is the agriculture, forestry, and fisheries sector with a value of Rp44.94 billion, while the sector with the slowest growth ( $NS < 0$ ) is the construction sector with a value of minus Rp21.87 billion.

## Overlay Analysis

**Table 7. Overlay Analysis of Medan City**

Sector	LQ and DLQ	Klassen Typology	Shift Share	Interpretation
A. Agriculture, Forestry, and Fisheries	-	-	-	Non-Leading Sector
B. Mining and Quarrying	-	-	+	Non-Leading Sector
C. Processing Industry	-	-	-	Non-Leading Sector
D. Electricity and Gas Procurement	-	-	+	Non-Leading Sector
E. Water Procurement, Waste Management, Waste and Recycling	-	+	+	Non-Leading Sector
F. Construction	-	+	+	Non-Leading Sector
G. Large Trade and Retail; Car and Motorcycle Repair	-	-	+	Non Leading Sector
H. Transportation and warehousing	-	+	-	Non Leading Sector
I. Provision of Accommodation and Drinking Meals	-	-	-	Non Leading Sector
J. Information and communication	-	+	+	Non-Leading Sector
K. Financial Services and Insurance	-	-	-	Non-Leading Sector
L. Real Estate	-	+	+	Non-Leading Sector
M,N. Company Services	-	+	-	Non-Leading Sector
O. Government Administration, Defense and Compulsory Social Security	-	-	+	Non-Leading Sector
P. Education Services	-	+	+	Non-Leading Sector

Q. Health Services and Social Activities	-	+	+	Non-Leading Sector
R,S,T,U. Other Services	-	+	+	Non-Leading Sector

Source: Data processed by the author

**Table 8. Overlay Analysis of Nias Regency**

Sector	LQ and DLQ	Klassen Typology	Shift Share	Interpretation
A. Agriculture, Forestry, and Fisheries	-	-	+	Non-Leading Sector
B. Mining and Quarrying	+	+	+	Leading Sector
C. Processing Industry	-	-	-	Non-Leading Sector
D. Electricity and Gas Procurement	-	-	+	Non-Leading Sector
E. Water Procurement, Waste Management, Waste and Recycling	-	-	-	Non-Leading Sector
F. Construction	-	-	-	Non-Leading Sector
G. Large Trade and Retail; Car and Motorcycle Repair	-	-	+	Non-Leading Sector
H. Transportation and warehousing	-	-	-	Non-Leading Sector
I. Provision of Accommodation and Drinking Meals	-	-	+	Non-Leading Sector
J. Information and communication	-	-	+	Non-Leading Sector
K. Financial Services and Insurance	-	-	+	Non Leading Sector
L. Real Estate	-	-	-	Non Leading Sector
M,N. Company Services	-	-	+	Non Leading Sector
O. Government Administration, Defense and Compulsory Social Security	-	-	-	Non Leading Sector
P. Education Services	-	-	+	Non Leading Sector
Q. Health Services and Social Activities	-	-	+	Non-Leading Sector
R,S,T,U. Other Services	-	-	-	Non-Leading Sector

Source: Data processed by the author

The results of the LQ and DLQ overlay analysis, Klassen Typology, and Shift-Share Analysis in Table 7 and Table 8 show that Medan City does not have a single leading sector and Nias Regency has one leading sector, namely the mining and quarrying sector. This is not in line with Surbakti et al. (2021) which stated that Medan City has twelve leading sectors. This difference is due to the fact that the study by Surbakti et al. (2021) did not include DLQ analysis in their research.

## CONCLUSION

Based on the results and discussion above, it was concluded that Medan City does not have a single leading sector while Nias Regency has one leading sector, namely the mining and quarrying sector. Some of the recommendations that can be submitted regarding these conclusions are:

1. The Medan City Government pays more attention to the large trade and retail sectors because in addition to being the sector that has the largest contribution

- to the GRDP of Medan City and includes the progressive sector. In addition, there is the information and communication sector that has the fastest growth. This is inseparable from the development of the digital era and the increasing public need for information and communication technology. The Medan City Government can develop the quality of human resources, develop technology, infrastructure, and policies that support sectors such as ease of handling business licenses, creating a good investment climate, and cooperation with other parties, especially in the development of telecommunications infrastructure;
2. The Medan City Government should evaluate the growth of the transportation and warehousing sector and several other sectors that have experienced a slowdown in growth. Given the importance of the flow of goods in the economy, of course, this sector should immediately receive special attention and quick actions such as upgrading and improving infrastructure;
  3. The Nias Regency Government pays more attention to the agriculture, forestry, and fisheries sectors because it is the sector that has the largest contribution to the GRDP of Nias Regency, the sector that absorbs the most labor, and includes the progressive sector. This can be in the form of developing the quality of human resources, developing technology, and policies that support sectors such as fertilizer subsidies, price stability, ease of handling business licenses, and export-oriented policies. In addition, there are leading sectors in the form of mining and quarrying that can be supported by technology development, natural resource quality, and policies that make it easier for investors; and
  4. The governments of Nias Regency and Medan City are more serious in launching programs and policies to support progressive sectors so that they grow faster and have a good impact on the economy. Sectors that are currently included in the base sector category should still be a concern without reducing the focus for development in other sectors so that the base sector does not experience a slowdown in growth and become a sector that does not have good potential in the future.

The limitation of this study is that the data used is historical and excludes various other variables that are not reflected in the GRDP data. Policy changes that occur in the period before and after this research is carried out may have an impact in the form of the results of subsequent studies that show differences with the results of this study. In addition, there is still little research on similar topics and loci. Further research related to identifying leading sectors in Medan City and Nias Regency can be carried out with different time periods to test the results of this study.

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