

## THE ANALYSIS OF LEADING ECONOMIC SECTOR IN NORTH SUMATRA

Monika Karolina Sianturi<sup>1\*</sup>, Evi Deristina Sinaga<sup>2</sup>, Dwi Rayana Siregar<sup>3</sup>  
<sup>1,2,3</sup>Postgraduate, Economic Education, Universitas Negeri Medan, Medan, Indonesia  
Email: \*monika.sianturi26@gmail.com

### *Abstract*

*The economic sector played an important role in national development, in order to have a more advanced national development paradigm shift, Plans or strategies were needed to encourage the economic growth. It was important to explore and to identify the potential development of the regional economic sector which was used as leading sector to provide direction and decision-making material for the parties in creating added value and competitiveness of the leading sector. Therefore, this study aimed to analyze what economic sectors are based on leading sectors or what sectors that played a greater role as a trigger for regional economic development in North Sumatra from 2015 to 2019. The type of data used in this study was secondary data from Gross Regional Domestic Product (GRDP) economic sector of North Sumatra which were obtained from the Central Statistics Agency (CSA) of North Sumatra. The analysis methods used were Location Quotient (LQ) and Shift Share. The results of this study indicated that North Sumatra had five leading sectors, namely agriculture, forestry and fisheries sectors; water supply, waste management, waste and recycling sectors; construction sector; wholesale and retail trade, car, and motorcycle repair sectors; and the real estate sector. The agriculture, forestry, and fisheries sectors were the biggest contributions in North Sumatra from the overall analysis carried out.*

**Keywords:** *Economic Sector, Leading Sector, Location Quotient (LQ), Shift Share*

### 1. INTRODUCTION

In the industrial revolution 4.0 Era, the economic sector played an important role in national development. In order to experience a paradigm shift in a more advanced national development, planning or strategies were needed to encourage economic growth. One of the sources of revenue for each region is obliged to have the advantage of the economic sector to improve people's welfare. The economic sector is an indicator that enters the business field contained in the Gross Regional Domestic Product (GRDP), showing the amount of production that had been created through each economic sector in a certain year. Gross Regional Domestic Product (GRDP) is the gross added value of all goods and services created or produced in the domestic territory of a country arising from various economic activities in a certain period regardless of whether the production factors are resident or non-resident (BPS, 2020b ).

According to Zaini (2019b), knowing more deeply its potential and its opportunities for its development is something that is fundamental in the development planning process, especially for planning in the local context. In other word, without this knowledge, the regional development planning runs without any priorities. Then, the implication of this mistake is that regional development is running stagnant. It is important to explore and to identify the regional sector potential development which is used as a superior item to provide direction and decision-making materials for the parties to create the added value and competitiveness of the leading sector. (Zaini, 2019a).

The North Sumatra Provincial Government as one of the provinces in Indonesia which has a tropical climate and there are hundreds of large and small rivers that were used for

irrigation, tourism, and others. Based on the topography and regional conditions of North Sumatra, the ability to provide a source of income originating from the region is highly dependent on the potential it possesses, especially in the economic sector which is capable of creating regional development and community welfare.

The various economic sectors owned by North Sumatra really need to be developed or determine the advantages of what economic sectors are progressing quickly, besides that it is hoped that the results of determining the advantages of the economic sector which give high contributions can be followed up to be developed, and to follow up other weak sectors in order to have better prospects to develop.

Based on the background of the problems above, the author was interested in analyzing what economic sectors are based on leading sectors or what sectors that played a more important role in triggering regional economic development in North Sumatra. The purpose of this study is to determine the leading economic sector which is very dominant and not dominant in contributing added value to regional income or economic development in North Sumatra.

## 2. HEORITICAL FRAMEWORK

According to Arsyad (Zaini, 2019b), the development of alternative industries, where local governments and communities manage existing resources and form a partnership pattern between the regions and the private sector. The main problem in regional development lies in its emphasis on development policies based on the characteristics of the concerned region, by using the local potential of human, institutional and physical resources which is reflected in the role of the economic sector in the formation of regional economic structures.

According to (Zaini, 2019b), a development strategy by concentrating on leading sectors or key sectors which have strong forward and backward links can encourage other economic sectors. The Growth in one sector will stimulate the growth in other sectors. Therefore, the one sector will become leading for other sectors.

GRDP is defined as the amount of added value generated by all business units in an area or is the total value of the final goods and services produced by all economic units in an area (CSA, 2020b). GRDP is used as an indicator tool for measuring the economic performance of a region in driving economic sectors. Meanwhile, in economic development within the scope of the country can be measured through GDP, where GDP is defined as an indicator to measure the economic performance of a country or as a reflection of the success of a government in driving economic sectors (CSA, 2020a). There are 17 classifications of economic sectors according to GRDP and GDP according to business fields in the 2010 base year (CSA, 2020b), namely:

1. Agriculture, forestry and fisheries sectors
2. Mining and excavation sectors
3. Processing industry sector
4. Electricity and gas supply sector
5. Water supply, waste management, waste and recycling sectors
6. Construction sector
7. Wholesale and retail trade, car and motorcycle repair
8. Transportation and warehousing sectors
9. Accommodation and food and drink sectors
10. Information and communication sector
11. Financial services and insurance sector
12. Real estate sector
13. Corporation service sector
14. Government administration, defense and mandatory social security sectors
15. Education services sector
16. Health services and social activities sectors
17. Other service sectors

In determining the leading sectors, it can be used through the economic sector in North Sumatra based on Gross Regional Domestic Product (GRDP). If the economic sector was classified as a leading sector, it could be developed properly, of course, it has a significant effect on increasing the regional economy or the income of a region. To strengthen the basis of this research, several previous studies that were relevant to this research field were needed. The previous researches were as follows:

1. (Alfira, 2014) in her research entitled "The Influence of the Economic Sector on Local Revenue in Riau ". The results of this study indicated that the economic sector without oil and gas was proven to have a significant effect on Regional Original Income (PAD) of Riau, the higher the value of goods and services produced by the economic sector, the higher the Regional Original Income (PAD) of Riau. Based on this research, it could also be seen that the mining sector, the construction sector, the transportation and communication sector, and the services sector are sectors that had the greater influence on Riau Province's Regional Original Income (PAD) compared to other sectors. Meanwhile, the economic sector with oil and gas is proven to have a significant effect on Regional Original Income (PAD) of Riau Province. Where the higher the value of goods and services produced by the economic sector, the higher the Regional Original Income (PAD) of Riau. Based on this research, it can also be seen that the mining sector, the manufacturing sector, the trade sector, as well as the transportation and communication sector are sectors that have a greater influence on Riau Province's Regional Original Income (PAD) compared to other sectors.
2. (Zaini, 2019b) in her research book entitled " The development of Leading Sector in East Kalimantan". The results of this study indicated that the mining and excavation sectors provided the largest contribution to the formation of GRDP of East Kalimantan, followed by the manufacturing sector, the trade sector, hotels and restaurants, the agricultural sector and the services sector.
3. (Suryandari, 2017) in her research entitled "The Impact of Economic Sector Development on Potential Conflict in KPHP Delta Mahakam and KPHL Sungai Beram Hitam". The results of this study indicated that in the Mahakam Delta, the mining sector was the leading sector and the second largest is fisheries with an LQ value  $\geq 1$ . In Sungai Beram Hitam, the the fishery sector is the leading sector and the mining sector is a non-basis because the value is  $\leq 1$ . The mining and fisheries sectors are the first and second leading sectors in East Kalimantan. These two sectors are also the base sectors for regional economic growth. Meanwhile in Jambi the fisheries and agricultures sectors were the leading sectors and were the basis for regional economic growth. The mining sector in Jambi was not a leading sector because oil and gas companies were relatively new and only dominated by one company. The forestry sector currently managed by FMUs, did not play an important role in the management of these two sectors, therefore forest governance in the two KPH is less effective. However, these two sectors showed considerable natural resource potential.
4. (Hajeri, 2015) in his research entitled "Determination of Leading Economic Sectors Analysis in Kubu Raya Regency". The results of this study indicated that from the results of the overlay analysis (combined) of the three analisis, namely Klassen Typology, Combined LQ and DLQ, and Shift Share, it shows that of all the sectors forming the GRDP of Kubu Raya Regency, it turned out that the transportation and communication sector were the leading sector that met the three analysis criteria that all showed a positive coefficient number. Sectors that have the potential to become leading sectors were the industrial sector and the electricity, gas and water supply sector, as well as the agricultural sub-sector, namely the livestock sector, which was a

sub-sector that had the potential to become a leading sub-sector in Kubu Raya Regency.

### 3. RESEARCH METHOD

This research was conducted in North Sumatra which was traced through the official CSA (Central Statistics Agency) website. The type of data used in this study was secondary data from the CSA data report for North Sumatra and CSA Indonesia. Data collection techniques were carried out through library studies such as the official CSA website. The analysis method used was the Location Quotient (LQ) technique and Shift Share using the Microsoft Office Excel program to determine the leading sectors of a region. The data used were the data based on constant prices in 2010, including: sector added value contained in the Gross Regional Domestic Product (GRDP) in North Sumatra according to business fields. The collected data were based on the time in the form of annual data from 2015-2019 as long as 5 years.

According to CSA, GRDP at constant prices could be calculated by the revaluation method used, if production data were available and prices and deflationary methods were used if it was known that the gross value added data on current prices. After obtaining NTBs from each economic sector, all of these NTB were added up to obtain GRDP at constant prices. After obtaining the GRDP value, the dominant sector could be found using the LQ and Shift Share methods.

### 4. RESULTS

The following were the data on GRDP (Gross Regional Domestic Product) from North Sumatra as well as Indonesia's GDP as comparison materials for Location Quotient analysis. The following were:

**Table 1: Gross Regional Domestic Product at Constant Prices based on Business Field in North Sumatra Province 2015 to 2019 (billion rupiah)**

THE GDRP OF NORTH SUMATRA WITH 2010 CONSTANT PRICES (BILLION RUPIAH)					
SECTOR	Year				
	2015	2016	2017	2018	2019
A. Agriculture, forestry and fisheries sectors	110,066.00	115,179.69	121,300.04	127,202.65	133,726.02
B. Mining and excavation sectors	5,814.94	6,144.99	6,440.54	6,792.01	7,099.76
C. Processing industry sector	86,318.90	90,680.99	92,777.25	96,174.60	97,362.10
D. Electricity and gas supply sector	593.97	622.76	677.08	694.58	728.79
E. Water supply, waste management, waste and recycling sectors	421.96	446.05	475.82	489.61	516.23
F. Construction sector	54,248.91	57,286.44	61,175.99	64,507.11	69,212.03
G. Wholesale and retail trade, car and motorcycle repair	76,697.03	80,702.74	85,436.75	90,652.80	96,936.19
H. Transportation and warehousing sectors	20,165.19	21,390.03	22,961.90	24,372.51	25,786.50
I. Accommodation and food and drink sectors	9,866.78	10,512.20	11,282.16	12,131.74	13,209.12

J. Information and communication sector	11,055.36	11,913.13	12,933.95	14,024.32	15,375.56
K. Financial services and insurance sector	13,957.95	14,531.04	14,601.55	14,854.35	15,138.89
L. Real estate sector	18,119.23	19,187.89	20,637.93	21,740.03	22,792.55
M. Corporation service sector	3,836.94	4,065.41	4,368.69	4,678.85	4,953.49
N. Government administration, defense and mandatory social security sectors	14,642.06	15,083.58	15,463.27	16,409.76	17,746.92
O. Education services sector	8,904.74	9,341.37	9,802.14	10,418.75	10,924.95
P. Health services and social activities sectors	4,066.72	4,366.28	4,699.93	4,977.05	5,207.26
Q. Other service sectors	2,179.19	2,320.88	2,496.24	2,644.92	2,810.24
<b>GDRP</b>	<b>440,955.85</b>	<b>463,775.46</b>	<b>487,531.23</b>	<b>512,765.63</b>	<b>539,526.60</b>

**Table 2: Gross Domestic Product at Constant Prices based on Business Field in the State of Indonesia, 2015 to 2019 (billion Rupiah)**

INDONESIA STATE GDP AT CONSTANT PRICES 2010 (BILLION RUPIAH)					
SECTOR	YEAR				
	2015	2016	2017	2018	2019
A. Agriculture, forestry and fisheries sectors	1,171,445.80	1,210,955.50	1,257,875.50	1,307,025.70	1,354,957.30
B. Mining and excavation sectors	767,327.20	774,593.10	779,678.40	796,505.00	806,206.20
C. Processing industry sector	1,934,533.20	2,016,876.90	2,103,466.10	2,193,266.40	2,276,682.80
D. Electricity and gas supply sector	94,894.80	100,009.90	101,551.30	107,108.60	111,436.70
E. Water supply, waste management, waste and recycling sectors	7,369.00	7,634.60	7,986.10	8,421.80	9,005.50
F. Construction sector	879,163.90	925,040.30	987,924.90	1,048,082.80	1,108,425.00
G. Wholesale and retail trade, car and motorcycle repair	1,207,164.50	1,255,760.80	1,311,762.50	1,376,937.40	1,440,523.20
H. Transportation and warehousing sectors	348,855.90	374,843.40	406,679.40	435,185.30	463,254.80
I. Accommodation and food and drink sectors	268,922.40	282,823.40	298,079.40	314,955.20	333,358.20
J. Information and communication sector	421,769.80	459,208.10	503,420.80	538,874.60	589,435.20
K. Financial services and insurance sector	347,269.00	378,279.40	398,959.30	415,579.10	443,041.60
L. Real estate sector	266,979.60	279,500.50	289,730.40	300,106.70	316,837.10
M. Corporation service sector	148,395.50	159,321.70	172,763.80	187,691.10	206,936.20

N. Government administration, defense and mandatory social security sectors	310,054.60	319,965.00	326,570.70	349,506.60	365,678.20
O. Education services sector	283,020.10	293,887.60	304,762.10	321,083.60	341,328.50
P. Health services and social activities sectors	97,465.80	102,490.20	109,504.10	117,314.90	127,506.60
Q. Other service sectors	144,904.20	156,507.50	170,177.30	185,468.90	204,998.50
<b>GDP</b>	<b>8699535.3</b>	<b>9097697.9</b>	<b>9530892.1</b>	<b>10003113.7</b>	<b>10,499,611.60</b>

The results of calculating LQ for each economic sector in North Sumatra for 5 years period (2015-2019) using the Microsoft Office Excel program were as follows:

**Table 3: Results of LQ Calculation for the Economic Sector in North Sumatra ( 2015-2019)**

SECTOR	Location Quotient					
	2015	2016	2017	2018	2019	Average
A. Agriculture, forestry and fisheries sectors	1.85	1.87	1.89	1.90	1.92	1.88
B. Mining and excavation sectors	0.15	0.16	0.16	0.17	0.17	0.16
C. Processing industry sector	0.88	0.88	0.86	0.86	0.83	0.86
D. Electricity and gas supply sector	0.12	0.12	0.13	0.13	0.13	0.13
E. Water supply, waste management, waste and recycling sectors	1.13	1.15	1.16	1.13	1.12	1.14
F. Construction sector	1.22	1.21	1.21	1.20	1.22	1.21
G. Wholesale and retail trade, car and motorcycle repair	1.25	1.26	1.27	1.28	1.31	1.28
H. Transportation and warehousing sectors	1.14	1.12	1.10	1.09	1.08	1.11
I. Accommodation and food and drink sectors	0.72	0.73	0.74	0.75	0.77	0.74
J. Information and communication sector	0.52	0.51	0.50	0.51	0.51	0.51
K. Financial services and insurance sector	0.79	0.75	0.72	0.70	0.66	0.72
L. Real estate sector	1.34	1.35	1.39	1.41	1.40	1.38
M. Corporation service sector	0.51	0.50	0.49	0.49	0.47	0.49
N. Government administration, defense and mandatory social security sectors	0.93	0.92	0.93	0.92	0.94	0.93
O. Education services sector	0.62	0.62	0.63	0.63	0.62	0.63
P. Health services and social activities sectors	0.82	0.84	0.84	0.83	0.79	0.82

Q. Other service sectors	0.30	0.29	0.29	0.28	0.27	0.28
--------------------------	------	------	------	------	------	------

Based on the table of LQ calculation results, the interpretation of data from each economic sector were obtained as follows:

1. The agricultural, forestry and fisheries sectors were **the basic sectors** because the LQ calculation results in a five-year period showed a value of more than 1, namely 1.88.
2. The mining and excavation sectors were the **non-basic sector** because the results of the LQ calculation in a five-year period showed a value of less than 1, namely 0.16.
3. The manufacturing sector was a **non-basic sector** because the LQ calculation results in a five-year period showed a value of less than 1, namely 0.86.
4. The electricity and gas supply sector were **non-basis sector** because the results of the LQ calculation in a five-year period showed a value of less than 1, namely 0.13.
5. The water supply, waste management, waste and recycling sectors were **the basic sectors** because the LQ calculation results in a five-year period showed a value of more than 1, namely 1.14.
6. The construction sector was **the basis sector** because the results of the LQ calculation in a five-year period showed a value of more than 1, namely 1.21.
7. The wholesale and retail trade, car and motorcycle repair sectors were **the basic sector** because the LQ calculation results in a five-year period showed a value of more than 1, namely 1.28.
8. The transportation and warehousing sectors were **the basic sector** because the results of the LQ calculation in a five-year period showed a value of more than 1, namely 1.11.
9. The accommodation and food and beverage provision sectors were **non-basic sector** because the LQ calculation results in a five-year period showed a value of less than 1, namely 0.74.
10. The information and communication sector was a **non-basic sector** because the results of the LQ calculation in a five-year period showed a value of less than 1, which is 0.51.
11. The financial services and insurance sectors were **non-basic sector** because the results of the LQ calculation in a five-year period showed a value of less than 1, namely 0.72.
12. The real estate sector was a **basic sector** because the results of the LQ calculation in a five-year period showed a value of more than 1, which is 1.38.
13. The corporate service sector was a **non-basic sector** because the results of the LQ calculation in a five-year period showed a value of less than 1, namely 0.49.
14. The government administration, defense and mandatory social security sectors were **non-basic sectors** because the results of the LQ calculation in a five-year period showed a value of less than 1, namely 0.93.\
15. The education services sector was a **non-basic sector** because the results of the LQ calculation in a five-year period showed a value of less than 1, which is 0.63.
16. The health services and social activities sector were a **non-basic sector** because the results of the LQ calculation in a five-year period showed a value of less than 1, namely 0.82.
17. The other service sectors were **non-basis sector** because the results of the LQ calculation in a five-year period showed a value of less than 1, namely 0.28.

The results of LQ calculations for the period 2015-2019, the agricultural, forestry and fisheries sectors; water supply, waste management, waste and recycling sectors; construction sector; wholesale and retail trade, car and motorcycle repair; transportation and warehousing sector; and the real estate sector were the leading sector contribution in North Sumatra Province because it had the potential to become a potential value-added activity or base sector.

Based on data from the GRDP of North Sumatra and the Gross Domestic Product (GDP) of the State of Indonesia on the basis of 2010-2019 Constant Prices, calculations can be made using the Location Quotient (LQ) method to obtain a comparative advantage that the province has compared to the country's economy. In the same way, the economy of the State of

Indonesia would identify the sectors or activities on a basis or on a non-basis. Based on the results of the overall analysis of the four sectors considered to be the basis of North Sumatra from 2015 to 2019, namely:

1. Agriculture, forestry and fisheries sectors had an increase in the LQ value in 2016-2019.
2. The water supply, waste management, waste and recycling sectors had an increase in the LQ value in the 2016-2017 period. However, it also had a decline in the next analysis period, namely in 2018-2019.
3. The construction sector had a decline in the LQ value of 0.01 in 2016 and 0.01 in 2018. Then it increased in 2019 by 0.02.
4. The wholesale and retail trade, car and motorcycle repair sectors had an increase in the LQ value in 2016-2019.
5. The transportation and warehousing sectors had a decline in LQ value in 2016-2019.
6. The real estate sector had an increase in LQ value in the 2016-2017 period. Then it decreased in 2019 by 0.01.

The increase or decrease in the LQ value was due to the economic growth rate of North Sumatra being greater or smaller than the State of Indonesia. In the agricultural, forestry and fishery sectors; and wholesale and retail trade, the value of LQ with the amount of GRDP had always increased steadily without had a decrease in the value of LQ. Therefore, from the seven basic sectors of North Sumatra Province, the agricultural, forestry and fisheries sectors; and wholesale and retail trade were the most stable sectors to serve as base activities in the North Sumatra.

**Table 4. The Calculation Result of Shift Share on Economic Sector in North Sumatra Province 2015-2019**

SEKTOR	PROVINSI SUMATERA UTARA (MILIAR RUPIAH)		NEGARA INDONESIA (MILIAR RUPIAH)		Nij	Mij	Cij	Dij
	2015	2019	2015	2019				
	A. Agriculture, forestry and fisheries sectors	110,066.00	133,726.02	1,171,445.80				
B. Mining and excavation sectors	5,814.94	7,099.76	767,327.20	806,206.20	1,203.21	60.96	990.19	2,254.36
C. Processing industry sector	86,318.90	97,362.10	1,934,533.20	2,276,682.80	17,860.79	3,158.93	(4,223.52)	16,796.21
D. Electricity and gas supply sector	593.97	728.79	94,894.80	111,436.70	122.90	21.42	31.28	175.61
E. Water supply, waste management, waste and recycling sectors	421.96	516.23	7,369.00	9,005.50	87.31	19.39	0.56	107.26
F. Construction sector	54,248.91	69,212.03	879,163.90	1,108,425.00	11,224.99	2,927.16	816.54	14,968.68
G. Wholesale and retail trade, car and motorcycle repair	76,697.03	96,936.19	1,207,164.50	1,440,523.20	15,869.87	3,067.83	5,412.75	24,350.45



H. Transportat ion and warehousing sectors	20,165.1 9	25,786.5 0	348,855.9 0	463,254.80	4,172.5 1	1,368. 27	(991.38 )	4,549.4 0
I. Accommoda tion and food and drink sectors	9,866.78	13,209.1 2	268,922.4 0	333,358.20	2,041.6 0	489.18	978.19	3,508.9 7
J. Information and communicatio n sector	11,055.3 6	15,375.5 6	421,769.8 0	589,435.20	2,287.5 4	909.36	(74.62)	3,122.2 8
K. Financial services and insurance sector	13,957.9 5	15,138.8 9	347,269.0 0	443,041.60	2,888.1 3	796.51	(2,668. 49)	1,016.1 5
L. Real estate sector	18,119.2 3	22,792.5 5	266,979.6 0	316,837.10	3,749.1 7	700.14	1,289.6 2	5,738.9 3
M. Corporation service sector	3,836.94	4,953.49	148,395.5 0	206,936.20	793.93	313.20	(397.09 )	710.03
N. Government administration , defense and mandatory social security sectors	14,642.0 6	17,746.9 2	310,054.6 0	365,678.20	3,029.6 8	543.52	478.08	4,051.2 9
O. Education services sector	8,904.74	10,924.9 5	283,020.1 0	341,328.50	1,842.5 4	379.60	185.64	2,407.7 8
P. Health services and social activities sectors	4,066.72	5,207.26	97,465.80	127,506.60	841.47	259.36	(112.90 )	987.93
Q. Other service sectors	2,179.19	2,810.24	144,904.2 0	204,998.50	450.91	187.00	(272.70 )	365.21
			<b>8699535.</b>					
<b>TOTAL</b>	<b>440,955. 85</b>	<b>539,526. 60</b>	<b>3</b>	<b>10,499,611 .60</b>				

**Description:** ( ) : negative

The largest increases were in the agriculture, forestry and fisheries sectors, the wholesale and retail trade sector, car and motorcycle repair, and the manufacturing sector with real sector growth values of 32,759.92 billion rupiah, 24,350.45 billion rupiah, and 16,796.21 billion rupiah respectively. All sectors in North Sumatra had an increase in real growth and overall positive value, this showed that economic growth in North Sumatra was very good. This was in line with research conducted (Wahyuningtyas et al., 2013) which states that the value of Dij showed that all sectors were positive, which means that the value of income or GRDP of Kendal Regency had increased economic performance.

The increase in GDRP growth in the economic sector in North Sumatra was influenced by several factors, including the influence of GDP growth in the Indonesian Economic Sector (Nij). The growth of the agricultural, forestry and fisheries sectors in North Sumatra Province was influenced by the growth of the agricultural, forestry and fisheries sectors of Indonesia during the 2015-2019 period, which amounted to 22,774.46 billion rupiah. The influence of

the GDP growth in the mining and excavation sectors in Indonesia amounted to 1.203.21 billion rupiah; Processing industry sector amounting to 17,860.79 billion rupiah; The electricity and gas supply sector, amounting to 122.90 billion rupiah; Water supply, waste management, waste and recycling sector amounting to 87.31 million rupiah; The construction sector amounting to 11,224.99 billion rupiah; Wholesale and retail trade sector, car and motorcycle repairs amounting to 15,869.87 billion rupiah; Transportation and warehousing sector amounting to 4,172.51 billion rupiah; The accommodation and food and drink sectors amounting to 2,041.60 billion rupiah; Information and communication sector amounting to 2,287.54 billion rupiah; Financial services and insurance sector amounting to 2,888.13 billion rupiah; Real estate sector amounting to 3,749.17 billion rupiah; Corporate service sector amounting to 793.93 billion rupiah; Government administration, defense and mandatory social security sector amounting to 3.029.68 billion rupiah; Education service sector amounting to 1,842.54 billion rupiah; Health services and social activities sector amounting to 841.47 billion rupiah; and other service sectors amounting to 450.91 billion rupiah.

The positive effect of the industrial mix component (Mij) indicates that the growth rate of the economic sector in North Sumatra had increased. All sectors in North Sumatra Province had growth because the whole had positive values. The agriculture, forestry and fisheries sectors had the highest growth, amounting to 3,567.71 billion rupiah.

Looking from the Cij value (competitive advantage component), it was known that the commodities that had a competitive advantage were agriculture, forestry and fisheries; mining and excavation sectors; electricity and gas supply sector; water supply, waste management, waste and recycling sectors; construction sector; wholesale and retail trade, car and motorcycle repair; the accommodation and food and drink provision sector; real estate sector; government administration, defense and mandatory social security sectors; and the education service sector. The agricultural, forestry and fisheries sectors are the sectors with the highest level of competitive advantage compared to other commodities, amounting to 6,417.76 billion rupiah. While the sectors that did not have a competitive advantage were the manufacturing sector, the transportation and warehousing sector, the information and communication sector, the financial and insurance services sector, the corporate services sector, the health services sector and social activities, and other service sectors.

To determine the leading sector by referring to the two analysis tools that had been carried out, namely the results of the calculation of LQ and Shift Share, it can be done by looking at the combination of the two analysis. The coefficients of the two components must also be equated, where they were marked with a positive (+) and negative (-) sign. Identification of the combination if both were positive (+ +) then it was said that the sector was the leading sector in North Sumatra. The results of the combined analysis can be seen in table 5.

**Table 5. The Results of LQ Analysis and Shift Share of the Economic Sector in North Sumatra 2015-2019**

SECTOR	LQ	SHIFT SHARE	Description
A. Agriculture, forestry and fisheries sectors	+	+	<b>Leading</b>
B. Mining and excavation sectors	-	+	Non leading
C. Processing industry sector	-	-	Non leading
D. Electricity and gas supply sector	-	+	Non leading
E. Water supply, waste management, waste and recycling sectors	+	+	<b>Leading</b>
F. Construction sector	+	+	<b>Leading</b>

G. Wholesale and retail trade, car and motorcycle repair	+	+	<b>Leading</b>
H. Transportation and warehousing sectors	+	-	Non leading
I. Accommodation and food and drink sectors	-	+	Non leading
J. Information and communication sector	-	-	Non leading
K. Financial services and insurance sector	-	-	Non leading
L. Real estate sector	+	+	<b>Leading</b>
M. Corporation service sector	-	-	Non leading
N. Government administration, defense and mandatory social security sectors	-	+	Non leading
O. Education services sector	-	+	Non leading
P. Health services and social activities sectors	-	-	Non leading
Q. Other service sectors	-	-	Non leading

Based on the table, about the LQ and Shift Share analysis, showed that the sectors that met the criteria of the combined analysis, which have a positive coefficient (+ +) of the two analysis tools, were agriculture, forestry and fisheries; water supply, waste management, waste and recycling sectors; construction sector; wholesale and retail trade, car and motorcycle repair; and the real estate sector. This showed that of all the sectors that made up the GRDP of North Sumatra, there were 5 sectors which were the leading sectors that met the two analysis criteria above, namely all show a positive coefficient number. If the economic sector is classified as a leading sector, it can be developed properly, of course, it has a significant effect on increasing the economic income of a region.

Based on the explanation of the results of the analysis in more depth, it could be described that the agricultural, forestry and fisheries sectors are the largest contributions in North Sumatra. This could be said because the LQ value was the largest compared to other sectors and the development of LQ value from year to year had always increased without any decline. Then in the shift share analysis, the agriculture, forestry and fisheries sector represented the largest increase in real growth and the largest GRDP value from other sectors in North Sumatra Province, the largest sector that had the highest growth rate of other sectors, and the commodity sector that has the largest contribution to competitive advantage. So in overall analysis, the agriculture, forestry and fisheries sectors had the most superior and reliable contribution in increasing the economic growth or income of an area which was getting higher in North Sumatra. This was in line with the results of research (Jumiyanti, 2018) stated that the higher the value of goods and services produced by the economic sector, the higher the Regional Original Income (PAD) of Riau.

In the current era, the agriculture, forestry and fisheries sectors still hold the largest contribution in national development which played a role in national economic growth. This was said to be in accordance with the statement of the Indonesian Ministry of Agriculture stated that the government for the last five years had placed the agricultural sector as one of the top priorities. The seriousness of the government in implementing agricultural programs and policies had proven to be able to boost and to contribute to national economic growth. In addition to positive growth, the role of the agricultural sector in national economic growth is also increasingly important and strategic, this could be seen from its increasing contribution.

The Ministry of Agriculture also said that it had carried out a number of breakthroughs so that agricultural exports would increase. One of them, exports no longer had to pass through the transit country, but directly to the destination country. This step was taken so that state income was greater and farmers could immediately feel the benefits (Ministry of Agriculture, 2019).

More clearly, according to (Muta'ali, 2019), the decline in the agriculture, forestry and fisheries sectors in economic growth could not be ignored, especially their role in GDP and labor absorption. Empirical facts showed the increasingly important role of the agricultural sector because of its dynamic nature and broad linkages. The role of agriculture was the basis for the process of structural transformation. The agriculture, forestry and fisheries sectors also have an important effect on economic growth and industrialization, as export commodities and a source of foreign exchange, a source of employment opportunities, and food security. In addition, the agricultural sector deserved to be the mainstay and leading sector in the national economy because it is strategic, articulate, progressive and responsive. Therefore, stagnation in agricultural development was not good for overall economic development, because it could hinder industrial growth and could lead to economic and political instability due to food shortages.

Other leading sectors include water supply, waste management, waste and recycling; construction sector; wholesale and retail trade, car and motorcycle repair; and the real estate sector that specializes in the economic sector with slow / low growth but had good competitiveness and had a better future contribution. This is because this sector is a leading sector that can compete. It was hoped that the Provincial Government of North Sumatra will focus more on the development of the sector so that the contribution of the sector could be even higher each year with the contribution of the rate of economic growth, especially the increase in income of a region and its competitive advantages that were highly competitive, such as in the agriculture, forestry and fisheries sectors. Due to the increasingly advanced economic growth of North Sumatra Province, especially in the industrial era 4.0, many entrepreneurs invest their capital and various economic players who were moving to compete in the world of modern and digital trade and other services in various basic sectors in North Sumatra Province to build construction, build trade commodities, or establishing industry and real estate, and indirectly increasing Regional Income. With the continuous development of the leading sectors of North Sumatra Province, it is possible for the agriculture, forestry and fisheries sectors which as the raw material provider sector to grow, especially if the industry uses local raw materials. With the contribution of North Sumatra to Indonesia's economy which is quite high, it made the leading sector a superior activity that is very good to be developed because of the many positive impacts generated from the leading sectors.

## 5. CONCLUSION

North Sumatra had five leading sectors from seventeen existing economic sectors, namely the agricultural, forestry and fisheries sectors; water supply, waste management, waste and recycling sectors; construction sector; wholesale and retail trade, car and motorcycle repair; and the real estate sector. The agriculture, forestry and fisheries sectors could be developed properly, of course, have the largest contribution to increasing the income of a region. It was hoped that the Provincial Government of North Sumatra will focus more on the development of the sector so that the contribution of the sector could be even higher each year with the contribution of the rate of economic growth, especially the increase in income of a region and its competitive advantages that were highly competitive, such as in the agriculture, forestry and fisheries sectors.

The Provincial Government of North Sumatra also needs to pay attention to other leading sectors, namely the water supply, waste management, waste and recycling sectors; construction sector; wholesale and retail trade, car and motorcycle repair; and the real estate sector because the contribution of North Sumatra Province to the Indonesian economy is quite

high, making the leading sector a superior activity that is very good to be developed because of the many positive impacts generated from the leading sectors. With the continuous development of the leading sectors of North Sumatra, it is possible for the agriculture, forestry and fisheries sectors which as the raw material provider sector to grow, especially if the industry uses local raw materials.

## 6. REFERENCES

- Alfira, R. A. dan D. (2014). Pengaruh Sektor Ekonomi terhadap Pendapatan Asli Daerah Provinsi Riau. In *Pekbis Jurnal* (Vol. 6, Issue 1).
- BPS. (2020a). *Produk DOMestik Bruto Indonesia Triwulanan 2016-2020*.
- BPS. (2020b). Produk Domestik Regional Bruto Provinsi Sumatera Utara Menurut Lapangan Usaha 2015-2019. Badan Pusat Statistik Provinsi Sumatera Utara. In *Badan Pusat Statistik Provinsi Sumatera Utara*. [www.bps.go.id](http://www.bps.go.id)
- Hajeri, E. Y. dan E. D. (2015). Analisis Penentuan Sektor Unggulan Perekonomian di Kabupaten Kubu Raya. In *Jurnal Ekonomi Bisnis dan Kewirausahaan* (Vol. 4, Issue 2). Deepublish Publisher.
- Jumiyanti, K. R. (2018). Analisis Location Quotient dalam Penentuan Sektor Basis dan Non Basis di Kabupaten Gorontalo. In *Gorontalo Development Review* (Vol. 1, Issue 1).
- Kementan. (2019). Pertumbuhan PDB Pertanian RI 2018 Melebihi Target. In *pertanian.go.id*. <https://www.pertanian.go.id/home/?show=news&act=view&id=3726>
- Muta'ali, L. (2019). *Dinamika Peran Sektor Pertanian dalam Pembangunan Wilayah di Indonesia*. Gadjah Mada University Press.
- Suryandari, S. dan E. Y. (2017). Dampak Pengembangan Sektor Ekonomi Terhadap Potensi Konflik Di Kphp Delta Mahakam Dan Kphl Sungai Beram Hitam. In *Jurnal Penelitian Sosial dan Ekonomi Kehutanan* (Vol. 14, Issue 3). <https://doi.org/10.20886/jpsek.2017.14.3.171-190>
- Wahyuningtyas, R., Rusgiyono, A., & Wilandari, Y. (2013). Analisis Sektor Unggulan Menggunakan Data PDRB (Studi Kasus BPS Kabupaten Kendal Tahun 2006-2010). *Jurnal Gaussian*, 2(3), 219-228.
- Zaini, A. (2019a). *Nilai Tambah dan Daya Saing Produk Unggulan di Kutai Barat*. Penerbit Deepublish.
- Zaini, A. (2019b). *Pengembangan Sektor Unggulan di Kalimantan Timur*. Deepublish Publisher.