Analysis of Economic Growth and Income Disparity in North Kalimantan Province

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The purpose of this study is to determine the differences in the economic structure of districts and cities in North Kalimantan Province as measured using Location Quotients, Shift Share Analysis, Klassen Typology and Williamson Index. This research is a type of quantitative research that uses data in the form of numbers. This research was conducted in Tarakan City. The data collection technique uses library research by collecting data from publications on the official website of the relevant agencies/institutions and using periodic series data. The results showed that the Location Quotients and Shift Share analysis were carried out to describe the various basic sectors in each Regency/City in North Kalimantan Province as well as the performance and productivity of sectors in the economy of a region. The results of the Klassen typology analysis divide the regencies/cities in North Kalimantan Province into 3 classifications according to the results of the Klassen typology. (Tarakan City, Malinau Regency and Nunukan Regency are included in the classification of fast developing but not developed regions. Then, Tana Tidung Regency is included in the classification of developed but depressed regions. And finally, Bulungan Regency is included in the relatively underdeveloped region. Meanwhile, of the four classifications above, none of the areas in the Regency/City of North Kalimantan Province are classified as developed and growing fast. The Williamson Index analysis results show that in terms of inequality, it can be seen that the value of the Williamson Index continues to decline from year to year, this indicates that inequality in North Kalimantan Province is very low.

Keywords: Economic Growth, Income Disparity, Location Quotient, Shift Share, Klassen Typology, Williamson Index.
INTRODUCTION

The essence of a development plan is to create an increasingly prosperous and just society. Policy in development is expected to achieve high economic growth by utilizing existing potential and resources. However, sometimes the results of development cannot be felt evenly and there are still gaps between the regions.

Each existing region has advantages or superior sectors that make it different from other regions. So that in the planning or design process it is necessary to have special treatment and precise calculations so that each sector can optimize its contribution to Regional Original Income (PAD) and Gross Regional Domestic Product (GRDP).

North Kalimantan Province has 4 regencies and 1 city which have different regional potentials. Regencies and cities in North Kalimantan Province are required to have facilities and infrastructure that support regional development. Optimization of development and resources is supported by the North Kalimantan provincial government through legislation Number 01 of 2017 (UU No. 1 Tahun 2017) concerning Regional Spatial Planning in article 63, which contains the determination of strategic areas. The strategic areas referred to in Article 65 are areas that have strategic values ranging from the economic, social, cultural, environmental functions and carrying capacity, as well as high technology.

North Kalimantan's economy in the fourth quarter of 2019 compared to the previous quarter (q-to-q) grew by 4.04 percent. The growth was mainly due to the growth in the Construction Business Field of 9.98 percent. Growth also occurred in the Wholesale and Retail Trade Business Fields; Car and Motorcycle Repair by 5.37 percent; Health Services and Social Activities by 5.01 percent; Financial and Insurance Services by 4.97 percent; Government Administration, Defense and Social Security by 4.88 percent; Provision of accommodation and food and drink by 4.76 percent; Transportation and warehousing by 4.26 percent and Agriculture, Forestry and Fisheries by 4.11 percent. While the rest are contributions from other business fields (BPS, 2019).
Through the description above, the author is interested in conducting research on "Analysis of Economic Growth and Income Disparities in North Kalimantan Province" using the Location Quoestion approach, Shift Share Analysis, Klassen Typology, and the Williamson Index. Based on the above background, the formulation of the problem in this study is to see whether there are differences in the pattern of Economic Structure between Regencies/Cities in North Kalimantan Province.

LITERATURE REVIEW

Economic growth
The ability of an area to grow rapidly and sustainably is largely determined by various economic factors which are interrelated with each other. The determinants of regional economic growth need to be known in detail along with their characteristics. In addition, it is also necessary to examine how big the influence and contribution of each of these determinants is in encouraging the overall regional economic growth. The results of this analysis will later be very important, meaning as one of the inputs for the regional government and related parties authorized in formulating regional development policies or preparing the relevant regional development plans (Sjafrizal, 2018).

Income Distribution
The elimination of poverty and the growing inequality of income distribution are at the core of the development process. Although our focus on the problem of inequality is often focused on the problem of unequal distribution of income and assets, this is only a small part of the inequality problem that exists in the NSB. For example, inequality of power, prestige, status, job satisfaction, working conditions, level of participation, freedom to choose, and others.

Gross Regional Domestic Product
Gross regional domestic product 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 the factors, production owned by resident or non-resident. The preparation of GRDP can be done through 3 (three) approaches, namely the production, expenditure, and income approaches which are presented on the basis of current prices and constant prices (BPS, 2018).

RESEARCH METHODS

Research design
This research is a quantitative research, which uses data in the form of numbers. This method is called the positivistic method because it is based on the philosophy of positivism. This method is a scientific method because it has complied with scientific principles, namely concrete/empirical,
objective, measurable, rational and systematic. This method also developed various new science and technology. This method is called quantitative because the research data is in the form of numbers and the analysis uses statistics (Sugiyono, 2018).

**Object, Research Location, and Research Time**
The object of this research is the factors that influence economic growth and income disparity in North Kalimantan Province. This research was conducted in North Kalimantan, because it looks at the youngest province in Indonesia and is in the stage of development and development in each region. The time of research and data collection was carried out in April 2021 to August 2021.

**Data Types and Sources**
The data used in this study is secondary data obtained from publications on the official website of the relevant agencies/institutions and using Time Series data, or aligned for 7 (seven) years from 2013 to 2019. This data was obtained sequentially. indirectly through the intermediary media of the official website of the Central Statistics Agency of the Republic of Indonesia.

**Data collection technique**
Library Research or Library Research is a technique of collecting data or information concerning the problem under study by studying and reviewing books, papers, newspapers or magazines and other forms of writing that have to do with the problem under study.

**Shift-Share Analysis**
The main idea of Shift Share analysis is that the economic growth of a region is determined by three main elements, namely Regional Share (National Component), Proportionality Shift and Differential Shift.

The following is the formula for each component of the Shift Share model as follows:
Regional Share (National Component) is a component of regional economic growth caused by external factors, namely an increase in regional economic activity due to national policies that apply to all regions. This component can be estimated using the following equation:

\[
RS = \sum_{i=1}^{n} [y_i \left( \frac{Y_t}{Y^0} - 1 \right)]
\]

where \( y_i \) is the added value of sector \( i \) at the regional level at the beginning of the period, \( Y^0_t \) is the added value of sector \( i \) at the national level at the beginning of the period, and \( Y_t \) is the added value of sector \( i \) at the national level at the end of the period.
Proportionality Shift (Mixed Shift)
It is a component of regional economic growth caused by a good regional economic structure or potential, namely specializing in fast-growing sectors such as the industrial sector. This component can be estimated using the following equation:

$$PS = \sum_{i=1}^{n} [yi(Y^i_t - Y^i_0) - (Y^t - Y^0)]$$  \hspace{1cm} (2)

Differential Shift (Competitive Shift)
It is a component of regional economic growth that arises due to specific competitive regional conditions. This element of growth is a regional competitive advantage that can encourage export growth in the region concerned.

$$DS = \sum_{i=1}^{n} [yi(Y^i_t - Y^i_0) - (Y^t_t - Y^t_0)]$$  \hspace{1cm} (3)

Where $y_i$ is the added value of sector $i$, $y_i^0$ is the added value of sector $i$ at the regional level at the beginning of the period and $y_t^i$ is the added value of sector $i$ at the regional level at the end of the period.

Location Quotient (LQ) Analysis
According to Tarigan (2007: 82) analysis of Location Quotient (LQ) is one simple indicator that shows the "strength" of the size of the sector in an area compared to the same sector in a wider area. The formula used in determining the base sector or leading sector is:

$$LQ = \frac{E_{ij}}{E_j} \div \frac{E_{in}}{E_n}$$  \hspace{1cm} (4)

Information:
LQ = Location Quotient District/City
Eij = GRDP of the Regency/City sector
Ej = Total GRDP of Regency/City
Ein = Provincial sector GRDP

Klassen Typology
Klassen Typology Analysis is used to describe the structure of regional economic growth. By using this analytical tool, four growth classifications for each region can be obtained, namely rapid growth regions, retarded regions, the area is developing (growing growth), the area is relatively backward (relatively backward region), (Sjafrizal, 1997).
Williamson Index

One of the usual indicators and is considered quite representative to measure the level of income inequality between regions (regional) is the regional inequality index proposed by Jeffrey G. Williamson (1965). Williamson proposed the $V_w$ (weighted index or weighted index to population) and $V_{uw}$ (un-weighted index) models to measure the level of inequality of income per capita of a country at a certain time.

The following is the formulation of the regional inequality index proposed by Jeffrey G. Williamson:

$$y_{i1}^d > y_{in}^n$$  Developed and fast growing area  
$$y_{i1}^d < y_{in}^n$$  Developed but depressed area  
$$y_{in}^n$$  Relatively underdeveloped area  

Information:

$\eta_i^d$: Regency/city growth rate $i$

$\eta_i^n$: North Kalimantan Province's total GRDP growth rate

$y_i^d$: Regency/city income per capita $i$

$y_i^n$: North Kalimantan Province's per capita income.

Table 1. Sector Indices

<table>
<thead>
<tr>
<th>No</th>
<th>Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Agriculture, forestry and fisheries</td>
</tr>
<tr>
<td>2</td>
<td>Mining and excavation</td>
</tr>
<tr>
<td>3</td>
<td>Processing industry</td>
</tr>
<tr>
<td>4</td>
<td>Electricity and gas supply</td>
</tr>
<tr>
<td>5</td>
<td>Water supply, waste management, waste and recycling</td>
</tr>
<tr>
<td>6</td>
<td>Construction</td>
</tr>
<tr>
<td>7</td>
<td>Wholesale and retail trade, repair of cars and motorcycles</td>
</tr>
</tbody>
</table>

\[199\]
\[ V_w = \sqrt{\frac{\sum (Y_i - Y)^2 f_i}{n}} \], where \( 0 < V_w < 1 \) 

where: 
\( V_w \) : Williamson Index 
\( Y_i \) : Provincial level per capita income 
\( Y \) : national income per capita 
\( f_i \) : population at the provincial level 
\( n \) : national population

**RESULTS AND DISCUSSION**

This study aims to determine the differences in the structure of the economy in North Kalimantan Province as well as the inequality that occurs in North Kalimantan Province measured through Location Quotients and Shift Share Analysis, and Klassen Typology.
Tarakan City

Based on the LQ analysis of the leading sectors in Tarakan City during the 2013-2019 period of 17 (seventeen) economic sectors in the Gross Regional Domestic Product (GRDP) of Tarakan City, there are 14 (Fourteen) sectors that have an average LQ> 1 or leading sectors. (potential) & based on LQ analysis in Tarakan City during the period 2013-2019 of the 17 (seventeen) economic sectors in the Gross Regional Domestic Product (GRDP) of Tarakan City, there are 3 (three) sectors that have LQ<1 or less superior sectors.

Bulungan County

Based on the LQ analysis of the leading sectors in Bulungan County during the 2013-2019 period of 17 (seventeen) economic sectors in the Gross Regional Domestic Product (GRDP) of Bulungan
County, there are 8 (eight) sectors that have an average LQ> 1 or leading sectors (potential) & then based on the LQ analysis in Bulungan County during the 2013-2019 period of 17 (Seventeen) economic sectors in the Gross Regional Domestic Product (GRDP) of Bulungan County there are 9 (Nine) sectors that have LQ<1 or less superior sectors.

Nunukan County

Based on the LQ analysis of the leading sectors in Nunukan County during the 2013-2019 period of the 17 (seventeen) economic sectors in the Gross Regional Domestic Product (GRDP) of Nunukan County, there are 2 (Two) sectors that have an average LQ> 1 or leading sectors (potential) & based on LQ analysis in Nunukan County during the 2013-2019 period of 17 (Seventeen) economic sectors in the Gross Regional Domestic Product (GRDP) of Nunukan County 15 (fifteen) sectors that have LQ<1 or less superior sectors.

Tana Tidung County

Based on the LQ analysis of the leading sectors in Tana Tidung County during the 2013-2019 period of the 17 (seventeen) economic sectors in the Gross Regional Domestic Product (GRDP) of Tana Tidung County, there are 4 (four) sectors that have an average LQ> 1 or sectors that leading (potential) & based on LQ analysis in Tana Tidung County during the 2013-2019 period of 17 (Seventeen) economic sectors in the Gross Regional Domestic Product (GRDP) of Tana Tidung County 13 (Thirteen) sectors that have LQ<1 or sectors that are less superior.

Malinau County

Based on the LQ analysis of the leading sectors in Malinau County during the 2013-2019 period of the 17 (seventeen) economic sectors in the Gross Regional Domestic Product (GRDP) of Malinau County, there are 6 (six) sectors that have an average LQ> 1 or leading sectors (potential) & based on LQ analysis in Malinau County during the 2013-2019 period of 17 (Seventeen) economic sectors in the Gross Regional Domestic Product (GRDP) of Malinau County 11 (Eleven) sectors that have LQ<1 or less superior sectors.

Shift Share Analysis

In providing an overview of the developing sectors in increasing the economic potential of the Regency/City compared to the economic development of the Province of North Kalimantan, the Shift-Share analysis tool is used. To find out the results of the Shift Share analysis can be seen in the table below:
### Table 3. Shift Share Analysis Result

<table>
<thead>
<tr>
<th>No</th>
<th>Shift Share Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tarakan</td>
</tr>
<tr>
<td>1</td>
<td>0.450</td>
</tr>
<tr>
<td>2</td>
<td>-0.121</td>
</tr>
<tr>
<td>3</td>
<td>0.251</td>
</tr>
<tr>
<td>4</td>
<td>1.436</td>
</tr>
<tr>
<td>5</td>
<td>0.312</td>
</tr>
<tr>
<td>6</td>
<td>0.773</td>
</tr>
<tr>
<td>7</td>
<td>0.556</td>
</tr>
<tr>
<td>8</td>
<td>0.785</td>
</tr>
<tr>
<td>9</td>
<td>0.883</td>
</tr>
<tr>
<td>10</td>
<td>1.203</td>
</tr>
<tr>
<td>11</td>
<td>0.354</td>
</tr>
<tr>
<td>12</td>
<td>0.214</td>
</tr>
<tr>
<td>13</td>
<td>-0.214</td>
</tr>
<tr>
<td>14</td>
<td>0.571</td>
</tr>
<tr>
<td>15</td>
<td>0.983</td>
</tr>
<tr>
<td>16</td>
<td>1.241</td>
</tr>
<tr>
<td>17</td>
<td>1.116</td>
</tr>
</tbody>
</table>

Based on the table above, it shows the value of Shift Share Analysis for each Regency/City in North Kalimantan Province for each sector. For the first highest Shift Share value, it is in Tarakan City with a value of 10.793 percent, this is supported by 15 Economic Sectors of Tarakan City which have positive values. Second, Located in Nunukan Regency with a value of 10.460 percent, this is supported by 16 Economic Sectors of Nunukan Regency with Positive Value. Third, Located in Bulungan Regency with a value of 10.457 percent, this is supported by 16 Economic Sectors of Bulungan Regency with Positive Value. Fourth, Located in Malinau Regency with a value of 8.507 percent, this is supported by 15 Economic Sectors of Malinau Regency with Positive Value. Fifth, Located in Tana Tidung Regency with a value of 8.028 percent, this is supported by 15 Economic Sectors of Tana Tidung Regency with Positive Value.

**Williamson Index**

Based on the results of the Williamson Index, there are income disparities between regencies/cities in the province of North Kalimantan in 2013-2019. To find out the results of the Williamson Index can be seen in the table below:

| Williamson Index | 10,793 | 10,457 | 10,460 | 8,028 | 8,507 |
Tarakan City

Based on the calculation of the Williamson Index for 7 years (2013-2019) the Williamson Index value of Tarakan City continues to decline every year. This means that Tarakan City is able to control the level of disparity in the area. as evidenced by the Williamson Index value of Tarakan City in 2013 which was 0.20 to 0.07 in 2019.

Bulungan County

Based on the calculation of the Williamson Index for 7 years (2013-2019) the Williamson Index value of Bulungan Regency continues to decline every year although there are in several years the value is the same as the previous year as in 2014 and 2015 where the Williamson Index value is 0.14, then in 2017, 2018 and 2019 where the Williamson Index value was 0.12. This means that Bulungan Regency is able to control the level of disparity in the area. it is evident from the Williamson Index value of Bulungan Regency in 2013 which was 0.16 to 0.12 in 2019.

Nunukan County

Based on the calculation of the Williamson Index for 7 years (2013-2019) the Williamson Index value of Nunukan Regency continues to decline every year even though in 2013 and 2014 the Williamson Index value has the same value of 0.10 but in the following years it continues to show a decline in the Williamson Index. This means that Nunukan Regency is able to control the level of disparity in its area. as evidenced by the value of the Williamson Index of Nunukan Regency in 2013 which was 0.10 to 0.02 in 2019.

Tana Tidung County

Based on the calculation of the Williamson Index for 7 years (2013-2019) the Williamson Index value of Tana Tidung Regency continues to decline every year although there are several years where the Williamson Index value is the same as in 2013 and 2014 with a value of 0.08, then in 2015, 2016 and 2017 with a value of 0.07 and in 2018 and 2019 with a value of 0.06 even though...
Malinau County

Based on the calculation of the Williamson Index value of Malinau Regency continues to decline every year even though there are in several years the value is the same as in 2014, 2015 and 2016 with a Williamson Index value of 0.03 and in 2017, 2018 and 2019 with a Williamson Index value of 0.02. This means that Malinau Regency is able to control the level of disparity in its area. This is evident from the Williamson Index value of Malinau Regency in 2013 which was 0.05 to 0.02 in 2019.

Klassen Typology

<table>
<thead>
<tr>
<th>Growth Rate</th>
<th>GRDP Per capita</th>
<th>$y_{1d}^i &gt; y_{1n}^i$ (+)</th>
<th>$y_{1d}^i &lt; y_{1n}^i$ (-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$r_{1d}^i &gt; r_{1n}^i$ (+)</td>
<td>-</td>
<td>- Tarakan</td>
<td>- Malinau</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Nunukan</td>
</tr>
<tr>
<td>$r_{1d}^i &lt; r_{1n}^i$ (-)</td>
<td>- Tana Tidung</td>
<td>- Bulungan</td>
<td></td>
</tr>
</tbody>
</table>

Based on the data in the table above, we can divide Regencies/Cities in North Kalimantan Province into 3 classifications according to the results of the Klassen typology (See Figure 5). Tarakan City, Malinau Regency and Nunukan Regency are included in the classification of fast developing but not developed regions. Then, Tana Tidung Regency is included in the classification of developed but depressed regions. And lastly, Bulungan Regency is included in a relatively underdeveloped area. Meanwhile, from the four classifications above, there is not a single area in the Regency/City of North Kalimantan Province which is in the classification of developed and fast-growing regions. This shows that none of the regencies/cities in North Kalimantan Province has a high per capita income and a high rate of economic growth.

Conclusion

Based on the results of the research and discussion above, it can be concluded as follows: The inter-regional economic pattern in the Regency/City in North Kalimantan Province forms 3 classifications based on the results of the Klassen Typology. Tarakan City, Malinau Regency and Nunukan Regency are included in the classification of fast developing but not developed regions.
(Quadrant II). Then, Tana Tidung Regency is included in the classification of developed but depressed regions (Quadrant III). And finally, Bulungan Regency is included in a relatively underdeveloped area (Quadrant IV). Meanwhile, from the four classifications above, there is not a single area in the Regency/City of North Kalimantan Province which is in the classification of developed and fast-growing regions (Quadrant I). This shows that none of the regencies/cities in North Kalimantan Province has a high per capita income and a high rate of economic growth.

Based on the results of the LQ analysis from 2013-2019 the pattern of economic sectors between regencies/cities in North Kalimantan Province shows the diversity of the leading sectors in each region. This shows that each Regency/City in North Kalimantan Province has a different Economic Pattern based on each leading sector.

Based on the Shift Share Analysis from 2013-2019 between Regencies/Cities in North Kalimantan Province, it shows that there is growth in economic sectors. this is evidenced by the results of the Shift Share analysis in each Regency/City which almost all of them have a positive value.

Based on the results of the Williamson Index, the value of the Williamson Index continues to decline in each region, this explains that every Regency/City in North Kalimantan Province is able to control and minimize the number of disparities.

**Suggestions**

Based on the research results obtained, it can be put forward some suggestions that can be considered by the Regency / City Government and North Kalimantan Province:

In order for the economy of North Kalimantan to grow well, the Government, both Regency/City and Provincial Governments, must be able to determine development priorities based on economic potential through optimizing leading sectors. There needs to be a change in the pattern of the economy in several regions in North Kalimantan, so as not to rely too much on the mining sector North Kalimantan has a variety of potential sectors, this can be used as one way to reduce poverty and unemployment through employment in these sectors.

**Research Limitations**

Based on the results of the research obtained, the researcher feels that there are still limitations in this study, namely: Data limitations are caused by the lack of data updates on the official website of the Central Statistics Agency of North Kalimantan and the Central Statistics Agency in the Regency / City of North Kalimantan Province.
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