Analysis of Regional Economic Problems
(Case Study: Mapping Regency / City Leading Sectors in Papua Province in 2020)

Try Agung Prabowo¹, Candra Fajri Ananda², Nugroho Suryo Bintoro³
Economics Department, Faculty of Economics and Business, Universitas Brawijaya, Indonesia¹,²,³
Jl. MT. Haryono No. 165, Malang, 65145, Indonesia
Correspondence Email: agungtry@student.ub.ac.id
ORCID ID: 0000-0002-5082-4193

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Abstract
Each region has its own model of economic growth, different from other regions, so planning the economic development of a region must take into account the economic, social and physical characteristics of the region itself, including its interaction with other regions. Based on data released by the Central Agency of Statistics, Papua is ranked as the province with the highest poverty rate in Indonesia at 26.80%, much higher than the national poverty rate. This study uses the Klassen Typology method and Location Quotient (LQ) analysis to group Papua Regencies/cities into several categories and to know the main sectors of Papua regencies/cities. So that economic development policies can be more targeted according to the potential of each region. In this study, it is known that most regencies/cities in Papua Province are categorized as (relatively) underdeveloped regions and it is also known that the most basic sectors in Papua are agriculture, forestry, and fisheries. Based on these results, it is expected that the Regency / city governments in Papua Province pay special attention, especially to areas in the category of underdeveloped sectors and further optimize the resources or potential sectors that exist in each region.

Keywords:
Poverty, Economic Growth, Klassen Typologi, Location Quotient, Economic base theory
INTRODUCTION

The new direction in the current development process is SDG’s Implementation. In accordance with the eighth goal of sustainable Development to encourage development policies focused on productive activities, employment creation, innovation and creativity, entrepreneurship, and encourage the formation and growth of micro, small and medium enterprises, including through access to capital / financial services, the government continues to strive to accelerate economic growth in all regions of Indonesia, one of which is through regional development. Regional development is an attempt to achieve balanced development. Balanced development is the realization of development potential according to the development capacity of each region or different regions (Murry, 2000).

Each region has its own model of economic growth, different from other regions. Therefore, regional economic development strategies cannot be used for all regions (Jamil, Ananda, & Prasetyia, 2022). Economic growth shows the achievement of economic development from one period to the next. The goal of economic growth is to enhance production capacity to produce more output, which is measured by gross domestic product (GDP) and gross regional domestic product (GRDP) (Ananda, 2020).

On the other hand, when designing strategies for regional economic development, both short-term and long-term, theory of regional economic growth understanding, formulated on the basis of studying the economic growth patterns of different regions, is a factor determining the quality of regional economic development plans.

As a developing country with different wealth for each region, income inequality is not something new for Indonesia, especially for Indonesia’s eastern province, especially Papua. There are various problems that have not been resolved in Papua Province, for example problems in economic growth. While all regions in Indonesia are enjoying prosperity, the people of Papua still have to work hard to survive on a land that has abundant resources. They are still struggling with their lives which are far from sufficient. According to data released by the Central Agency on Statistics in September 2020, Papua is in first place for Indonesia’s province with the highest poverty rate. Papua recorded a poverty rate of 26.80%, or much higher than the national poor population.

Poverty rates in rural Papua are very high, especially in the central highlands. In September 2020, the percentage of poor people in villages was 35.69%, quite high compared to 4.59% in urban areas. The number of poor people in rural areas is still stagnant and there has not been a significant decline since 2015. In fact, the unemployment rate in Papua is relatively low, this is shown by BPS data which places Papua among the 10 provinces with the lowest unemployment rates in Indonesia. This means that the majority of Papuans are already working, but are still below the poverty line.

Social and economic transformation needs to be carried out to increase the productivity of the Papuan society. This transformation must be accompanied by the development of quality human resources. At present, out of 34 provinces throughout Indonesia, it is known that Papua Province has the lowest HDI score in Indonesia with an acquisition of 60.44 and several Regencies/cities in Papua still have a Human Development Index (IPM) in the range of 30.75-49.68. Difficult access to education and health services means that human development in Papua must be further optimized. Long school expectancy or life expectancy is also low. In fact, most Regencys in Papua have both problems. Education and health innovation and services are top priorities for improvement.
Table 1. Ranking of Papua Province compared to Other Provinces in Indonesia

<table>
<thead>
<tr>
<th>No</th>
<th>Variabel</th>
<th>Rangking of Papua</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Poverty Rate</td>
<td>1 of 34</td>
</tr>
<tr>
<td>2</td>
<td>Human Development Index</td>
<td>34 of 34</td>
</tr>
<tr>
<td>3</td>
<td>Gini Ratio</td>
<td>5 of 34</td>
</tr>
<tr>
<td>4</td>
<td>Unemployment rate</td>
<td>10 of 34</td>
</tr>
</tbody>
</table>

Source: Statistics Indonesia, 2020

The results of the Klassen typology analysis conducted by Sari and Pujiyono (2014), Papua is categorized as quadrant IV, that is underdeveloped regions, while when viewed from the results of location quotient (LQ) analysis of 33 provinces in Indonesia, Papua Province has potential in mining and quarrying, the agricultural sector, gas and clean water, electricity, and the building sector.

According to the background and formulation of the problem, this study aims to examine the general picture of the economy in Papua, clustering Regencies / cities based on Klassen typology analysis (based on 2020 economic growth rate data and 2020 per capita income) and find out the leading sectors in Papua Province based on the leading sectors of each Regency / city so that income inequality in Papua becomes lower. The results of this study will add to the treasures of science, especially in regional economics and, regarding the influence of regional economic development indicators on economic development in Papua.

LITERATURE REVIEW

It can be called as a leading sector, if the sector in a region is able to compete with the same sector produced in other regions, both in the national market and in the domestic market (Tambunan, 2001). A region will have leading sectors if the region can win the competition in the same sector with other regions, so that it can produce export products. The leading sector according to Tumenggung (Halawa, 2014) is a leading sector is a sector that has a competitive and comparative advantage compared to similar sector products in other regions and gives more benefits. The leading sectors also provide added value and large-scale production, give a huge multiplier effect on other economic sectors, and have high demand in both local markets and export markets.

As a leading sector, it certainly has the potential for faster growth than other sectors, especially if the supporting factors of the leading sector are capital accumulation, absorbed labor growth, and technological advances. Creating investment opportunities can also be done by optimizing the potential of the leading sector owned by a region. The leading sector in a region is closely related to the GRDP data of the region concerned, because GRDP contains very important information, among others, to see the output of economic sectors (the contribution of each sector) and its growth rate in a region, both provincial and regency / city.
Regional economics is an economic science that emphasizes the spatial aspect of economic analysis. Regional economics, location theory and traditional economics combination, which essentially discusses the sectors that will be the product of regional economics, namely the grouping between sectors.

Gross Regional Domestic Product (GRDP) is an important indicator for determining a region's economic condition over time, both in current and constant prices. GRDP is essentially the sum of the value added created by all economic units in a particular region, or the total value of final goods and services produced by all economic units in the region. GRDP can be distinguished on the basis of current prices and on the basis of constant prices. GRDP at current prices shows the value added of goods and services produced at current year prices. GRDP at constant prices shows the value added of goods and services produced at base year prices. GRDP can be determined using 3 (three) approaches, namely 1) production approach, 2) expenditure approach, and 3) income approach.

In addition, economic growth is observed if the real Gross Regional Domestic Product (GRDP) increases in a region (Arsyad, 2010). In line with Runtunuwu and Kotib (2021) stated that economic growth is the process of increasing the production capacity of an economy in the form of increasing national income. According to Sumitro (1994), economic growth is associated with a development process that is unidimensional and measured by increases in output and income. Differences in economic growth cause each region to form different growth patterns, which can be associated with certain classifications to determine the relative economic potential of a region, which can be seen by analyzing Klassen's typology. Sukirno (in Kolinug & Winerungan, 2022) stated that economic growth is to be able to assess the level of achievement of regional development at one time, what can also be measured is growth GRDP at constant prices. In addition, there are several theories of regional economic growth and development that will be presented, especially theories related to this research, including: (a) Turnpike Theory; (b) Export Base Theory; (c) Growth Center Theory.

Turnpike Theory
Samuelson (1955) described that each region would have to look at sectors or goods that have high potential and can be rapidly developed, either because of natural potential or because the sector has a competitive advantage that needs to be developed. Thus, with the same capital requirements, the sector can provide more added value, can produce products in a relatively short time, and the amount of contribution to the economy is also quite large. To fulfill market needs, the products produced must be exported (outside the region or abroad). The development of this sector will stimulate the development of other sectors, leading to overall economic growth. Sectoral synergy means that the sectors are interrelated and complementary. The combination of accelerated development policies and synergy with other related sectors will allow the economy to grow rapidly (Tarigan, 2012).

Export Base Theory
This theory divides the productive sectors or types of employment in the region into basic activities and service activities, or, as they are more commonly called, non-base sector. Basic activities are exogenous activities, i.e., activities that are not internally connected with the regional economy and, at the same time, serve to stimulate the growth of other types of employment. Meanwhile, non-basic activities are those that serve the needs of people in the region itself, both as buyers and sources of money from the region itself (Tarigan, 2012).
Growth Center Theory
Within an area, there are populations or activities that are concentrated in one place, which is called by various terms such as: city, industrial center, trade center, distribution node, growth center, settlement center, or capital area. Conversely, areas outside the center of concentration are called: hinterland, hinterland, agricultural areas, or rural areas (Tarigan, 2012). An area said to be a growth center must have four characteristics, namely: (1) There is an internal relationship of various activities that have economic value; (2) There is a multiplier effect; (3) There is geographical concentration; and (4) It encourages the growth of the area behind it (Tarigan, 2012).

There is a theory of comparative advantage in regional economic development. According to Tarigan (2005), the term comparative advantage was first introduced by David Ricardo (1917) when discussing trade between two countries. In his theory, Ricardo showed that if two countries trade with each other and each of them focuses on exporting goods that have comparative advantage, both countries will be lucky. The comparative advantage of a good for a country or region is that it is superior to other goods in the region. The definition of advantage in this case is in terms of comparison, not in terms of real value added. Comparative advantage is a relatively more favorable economic activity for regional development. In free trade between regions, the market mechanism encourages each region to move toward those sectors that are the comparative advantage of the region. However, market mechanisms are often slow to change the economic structure of a region. Knowledge of a region's comparative advantage can be used by policymakers to stimulate changes in the structure of the regional economy toward sectors that contain comparative advantages. Thus, if the sectors with comparative advantages for the region are known in advance, the development of these sectors can be accelerated without waiting for the urgency of market mechanisms, which often work slowly.

RESEARCH METHOD
This study uses secondary data sourced by Statistics Indonesia for the 2020 period, namely economic growth data for Papua Province in 2020, data on Regency / City economic growth in Papua Province in 2020, and adjusted per capita income in 2020. The object of this research is 29 regencies / cities in Papua Province. This research is a crosssectional study where the data used is 2020. The analysis method in this study uses descriptive analysis methods using tables and graphs, Klassen Typology, and Location Quotient (LQ) analysis.

This research uses Klassen typology to identify the characteristics and economic growth structure in each region. This analysis basically categorizes regions by two indicators, namely per capita income, and regional economic growth. By defining average per capita income as the horizontal axis and average economic growth as the vertical axis, the observed regions are classified into four classifications, namely: fast developing and fast-growing regions (high growth and high income), developed but depressed regions (high income but low growth), fast growing regions (high growth but low income), and relatively underdeveloped or undeveloped regions (low growth and low income) (Syafrizal, 1997).

Location Quotient (LQ) analysis is used to classify leading business sectors based on their contribution in triggering the economy in a region. This technique has advantages and limitations in its use. The LQ technique is quite easy and simple to use, so the tools needed are only an excel application or calculator if the data is small. The mathematical formula used is:
Where:
\( v_i \) = value addition of sector i at the district level
\( v_t \) = gross regional domestic product (GRP) at the district level
\( V_i \) = value addition of sector i at the provincial level
\( V_t \) = gross regional domestic product (GRP) at the provincial level

The result of the LQ calculation makes three criteria:
- \( LQ < 1 \): Classified as non-basic, production cannot meet its own needs so it needs supply from outside or imports.
- \( LQ = 1 \): Classified as non-basic, has no comparative advantage, production is not able to be exported and only enough to meet the needs of its own region.
- \( LQ > 1 \): Classified as a base or source of growth, comparative production, the results can meet the needs in the region and can also be exported outside the region. (Astasari, Ibrahim, and Harpowo 2018).

RESULTS

In this study, the Klassen Typology is used to analyze the economic conditions of Regencys / cities in Papua Province in 2020. The results of the Klassen Typology analysis can be seen in the following Figure 1.

**Figure 1.** Results of Klassen Typology of Regency / City in Papua Province in 2020

According to Figure 1, it can be seen that most Regencys / cities in Papua Province are in quadrants II (developed but depressed) and IV (relatively underdeveloped). There is only one Regency that is in quadrant I (developed and growing), namely Mimika.
Regency. In full, the distribution of Regencies/cities in Papua Province according to the results of the Klassen Typology analysis is shown in Table 2 below.

### Table 2. Quadrant Distribution of Klassen Typology Results by Regency / City

<table>
<thead>
<tr>
<th>Quadrant</th>
<th>Regency / City</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Mimika</td>
<td>Developed and Fast-growing regions</td>
</tr>
<tr>
<td>II</td>
<td>Kota Jayapura, Boven Digoel, Keerom, Biak Numfor, Kep. Yapen, Jayawijaya, Jayapura, Nabire, Merauke</td>
<td>Developed but depressed regions</td>
</tr>
<tr>
<td>III</td>
<td>-</td>
<td>Potential or developing regions</td>
</tr>
<tr>
<td>IV</td>
<td>Yahukimo, Puncak Jaya, Asmat, Paniai, Waropen, Tolikara, Sarmi, Pegunungan Bintang, Lanny Jaya, Mambremo Raya, Nduga, Supiori, Deiyai, Intan Jaya, Dogiyai, Yalimo, Puncak, Mamberamo Tengah</td>
<td>Relatively lagging regions</td>
</tr>
</tbody>
</table>

Location Quotient (LQ) is used to analyze the basic and non-basic sectors of each regency/city in Papua Province. The following table shows the results of the LQ analysis for each district/city in Papua Province.

### Table 3. Location Quotient (LQ) analysis result

<table>
<thead>
<tr>
<th>Base Sector</th>
<th>Regency / City</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Forestry and Fisheries</td>
<td>Dogiyai, Biak Numfor, Boven Digoel, Jayapura, Jayawijaya, Keerom, Kep. Yapen, Mappi, Merauke, Pegunungan Bintang, Sarmi, Supiori, Tolikara, Waropen, Yahukimo, Puncak Jaya, Asmat, Mamberamo Raya, Yalimo, Puncak, Intan Jaya, Deiyai</td>
<td>25</td>
</tr>
<tr>
<td>Mining and Excavation</td>
<td>Mimika, Paniai</td>
<td>2</td>
</tr>
<tr>
<td>Manufacturing Industry</td>
<td>Biak Numfor, Jayapura, Jayawijaya, Keerom, Kep. Yapen, Merauke, Sarmi, Asmat, Kota Jayapura</td>
<td>10</td>
</tr>
<tr>
<td>Procurement of Electricity and Gas</td>
<td>Biak Numfor, Jayawijaya, Kep. Yapen, Merauke, Supiori, Kota Jayapura</td>
<td>6</td>
</tr>
<tr>
<td>Category</td>
<td>Cities</td>
<td>Count</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Construction</td>
<td>Jayapura, Pegunungan Bintang, Sarmi, Supiori, Nduga, Lanny Jaya, Mamberamo Tengah, Puncak, Kota Jayapura Tolikara, Waropen, Yahukimo, Puncak Jaya, Yalimo, Boven Digoel, Intan Jaya, Asmat, Deiyai, Mamberamo Raya, Jayawijaya, Keerom, Mappi, Merauke, Paniai.</td>
<td>24</td>
</tr>
<tr>
<td>Retail Trade and Wholesale:</td>
<td>Dogiyai, Puncak, Kepulauan Yapen, Merauke, Sarmi, Jayapura, Jayawijaya Nduga, Kota Jayapura, Mamberamo Tengah, Biak Numfor, Mamberamo Raya, Yalimo, Lanny Jaya.</td>
<td>14</td>
</tr>
<tr>
<td>Repair of cars and motorcycles</td>
<td>Biak Numfor, Merauke, Jayapura, Sarmi, Jayawijaya, Nduga, Kepulauan Yapen, Tolikara, Yahukimo, Kota Jayapura</td>
<td>10</td>
</tr>
<tr>
<td>Transport and Warehousing</td>
<td>Biak Numfor, Jayapura, Keerom, Kep. Yapen, Merauke, Mamberamo Raya, Kota Jayapura</td>
<td>7</td>
</tr>
<tr>
<td>Provision of Accommodation and Meals</td>
<td>Biak Numfor, Jayapura, Keerom, Kep. Yapen, Merauke, Mamberamo Raya, Kota Jayapura</td>
<td>7</td>
</tr>
<tr>
<td>Information and Communication</td>
<td>Jayapura, Jayawijaya, Merauke, Kota Jayapura.</td>
<td>4</td>
</tr>
<tr>
<td>Financial Services and Insurance</td>
<td>Biak Numfor, Kep. Yapen, Merauke, Kota Jayapura</td>
<td>4</td>
</tr>
<tr>
<td>Real Estate</td>
<td>Kepulauan Yapen, Sarmi, Waropen, Yahukimo, Nduga, Lanny Jaya, Mamberamo Tengah, Dogiyai, Kota Jayapura</td>
<td>12</td>
</tr>
<tr>
<td>Company Services</td>
<td>Biak Numfor, Jayapura, Jayawijaya, Kep. Yapen, Merauke, Kota Jayapura</td>
<td>6</td>
</tr>
</tbody>
</table>
it can be seen from table that the economic sectors become the most basic sectors in Regencies/cities in Papua Province are agriculture, forestry and fisheries, construction, government administration, health services and education services. This condition indicates that the economic sector that is the mainstay of most Regencies/cities in Papua is the primary business sector.

When viewed in terms of regional policies supported by sectoral economic potential data, there are still several Regencies / cities in Papua that have a very minimal number of basic sectors. Mimika Regency, only has 1 basic sector, mining, and quarrying, even so the economic growth rate in 2020 in this Regency is the highest compared to other Regencies / cities in Papua.

**DISCUSSION**

An overview of the economy of Papua Province at the provincial and Regency / city levels can be seen through the contribution of each business field to the overall total economy of Papua Province and economic growth in each business field. Details are shown in Figure 2 and Figure 3 below.

Figure 2. Distribution of GRDP at Current Prices of Papua Province, 2020

Almost one-third of the economy of Papua Province is supported by the mining and excavation sector. This is made possible by the existence of large-scale mining activities in Papua Province with the ability to export mining products that dominate the export commodities of Papua Province. Data from the Central Agency on Statistic of Papua Province shows that throughout 2020, copper ore and concentrate exports played a role of 95.16 percent of the total export commodities of Papua Province. This phenomenon
can be an indication of the potential of the mining and quarrying sector as an economic motor in Papua Province.

Furthermore, apart from the mining and quarrying business field, the business field that is also a strong contributor to the economy of Papua Province is construction. The contribution of the construction business field was quite large and experienced increased activity in 2020, in connection with various infrastructure developments in Papua Province ahead of the implementation of the XX National Sports Week (PON) in Papua Province. This national-scale event, which will be held in 2021, is expected to have a multiplier effect on other sectors in the economy of Papua Province.

**Figure 3. Growth Rate of GRDP at Constant Prices of Papua Province, 2020**

In line with the situation in various regions in Indonesia, the Covid-19 pandemic that occurred in 2020 has had an impact on the sectoral economic growth rate in each business field in Papua Province, most of which experienced minus growth. The strongest contraction occurred in the transportation and warehousing business field which was directly affected by various mobility restriction regulations by the government as an implication of the Covid-19 pandemic.

Meanwhile, there are still 3 sectors with positive economic growth in Papua Province, that is the mining and quarrying business sector, health services and social activities, and the information and communication business sector. The mining and quarrying business sector, in addition to having the largest economic growth in 2020, is also a major contributor to the overall economy in Papua Province. Therefore, the mining and quarrying sector can be one of the leading sectors that can be optimized in Papua Province.

In addition to knowing the economic picture at the provincial level, Figure 3 below will show the distribution of GRDP by Regency / City in Papua Province in 2020, as follows.
The economy of Papua Province is still concentrated in only 2 Regencies/cities, that is Mimika Regency and Jayapura City. The disparity in the contribution of each Regency/city to the overall GRDP of Papua Province indicates the concentration of economic activity in Mimika Regency and Jayapura City. This phenomenon can be explained by the condition of Mimika Regency, which has high activity in the mining and quarrying sector, which is the concentration of Papua’s economy. Meanwhile, Jayapura City is the capital of the province which is certainly the center of economic activity from various existing business fields.

CONCLUSION

According to the results of the discussion and analysis that were outlined in the previous chapter, the conclusions is in general, most of the economy of Papua Province is supported by 2 regions, namely Mimika Regency and Jayapura City. When viewed sectorally, the 3 main supporting sectors of the Papua Province economy are the mining and quarrying sector, construction, and agriculture, forestry, and fisheries. The Covid-19 pandemic has also had an impact on the economy of Papua Province, causing most of the sectoral growth rates to contract. Based on the Klassen Typology method, most regencies/cities in Papua Province are categorized as (relatively) underdeveloped regions, so special attention and strategies are needed, especially from government agencies in dealing with these conditions. According to result of Location Quotient (LQ) analysis, it can be seen that the most basic sector in Papua is the agriculture, forestry, and fisheries sector with a total of 25 Regencies/cities. In addition, the potential of each
Regency / city’s basic sector can be known, so that economic development policies can be more targeted according to the potential of each region.

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DECLARATION OF CONFLICTING INTERESTS
The purpose of this study is for academic only and there is no personal interest from authors.

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