

Analysis of Potential Sectors in Determining Development Priorities in Teluk Bintuni Regency

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ARTICLE INFORMATION

Publication information

Research article

HOW TO CITE

Hasyim, A. (2023). Analysis of Potential Sectors in Determining Development Priorities in Teluk Bintuni Regency. *Journal of International Conference Proceedings*, 6(6), 345-355.

DOI:

<https://doi.org/10.32535/jicp.v6i6.2831>

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Received: 07 October 2023

Accepted: 06 November 2023

Published: 04 December 2023

ABSTRACT

Economic development is a process to improve the standard of living and welfare of society. The goal of economic development is to realize better economic growth and absorb a larger workforce. Regional development carried out in an integrated manner through the preparation of spatial plans must be directed at solving the main problems in the region, in terms of welfare and economic growth. This study aims to determine the potential economic sectors to be developed in Teluk Bintuni regency. This research uses the LQ analysis method, Growth Ratio Model analysis, and Klassen Typology. The data used is secondary data in the form of GRDP of Teluk Bintuni regency and West Papua province in 2012-2022 sourced from the Central Statistics Agency (BPS). The analysis was carried out by determining the base sector, then formulating a sector typology using the Klassen Typology, and finally describing potential economic activities or sectors based on the criteria for regional economic structure growth using the Growth Ratio Model.

Keywords: Base Sector, Economic Development, Growth Ratio Model, Klassen Typology, Location Quotient (LQ)

INTRODUCTION

Economic development is a process that means continuous change. Efforts to increase per capita income, and the increase takes place in the long term. As well as improving the institutional system in all fields (e.g., economic, political, legal, social, and cultural). This institutional system can be viewed from 2 aspects, namely: aspects of improvement in the field of organization (institutions) and improvements in the field of regulation (both formal and informal legal) (Arsyad, 2004).

Regional economic development that is carried out without adjusting the potential of each region results in resources being utilized less optimally. This has an impact on regional economic growth into a slow process. Efforts to increase the rate of economic growth are the focus in realizing regional economic development. An area that has the potential for both natural resources and potential sectors is an important factor that becomes an asset for the region to create economic development in the region (Destiningsih et al., 2019). This is supported by Arsyad's opinion (Arsyad, 2004, in Rizani, 2019), which suggests that the success of an area's economic development is determined by an important factor, namely the planning process. The planning is a continuous process and includes policies in the use and management of resources owned by a region to realize certain goals. The identification of potential economic sectors in a region is the initial stage in regional economic development planning activities, which are used as a basis for determining policy directions with the aim that efforts to achieve targets are carried out appropriately (Widodo, 2006, in Rizani, 2019).

Regional economic development aims to reduce the gap in economic growth and community welfare in one region with another (Mahi, 2018, in Sundaro & Sudrajat, 2019). In addition, the objectives of regional economic development are to increase the rate of regional economic growth, increase the availability of employment, and reduce poverty levels, especially in underdeveloped areas. The strategy that can be carried out to realize the objectives of regional economic development is that development must be prioritized on the potential of each region. This is because each region has its own diverse potential and is certainly different between regions so that each region needs to analyze the potential economic sectors in the region so that regional economic development can be carried out optimally (Sjafrizal, 2014, in Sundaro & Sudrajat, 2019). This is in accordance with Hirsman's opinion (Hirsman in Tarigan, 2012, in Sundaro & Sudrajat, 2019), which suggests that each region holds its own potential which is diverse and different from one region to another.

Based on the description of the background above, the study article on the analysis of potential economic sectors as the direction of regional economic development is important to do because the identification of economic potential in each region has the aim of making regional development planning more focused and also becoming the basis for policy making where economic development priorities are focused on optimizing potential economic sectors so as to encourage accelerated economic growth. The purpose of writing this study article is to analyze potential economic sectors that are used as directions for regional economic development by taking a case study of Teluk Bintuni Regency.

LITERATURE REVIEW

Concept of Gross Regional Domestic Product (GRDP)

GRDP can be used as a parameter to assess the rate of economic growth by looking at what sectors or economic activities cause developments in economic growth. GRDP data can also be used to determine potential sectors in a region. In determining the main priorities and planning for economic development in a region, analysis and identification of potential sectors are very important. This is because the activities of production, exports, and employment generated by the potential sector can drive economic activity, then can encourage the potential sector and can drive economic activity. GRDP data can be assumed as the level of wealth of a region; if the greater the GRDP per capita value, the higher the level of regional wealth (Hajeri et al., 2015).

Regional development is part of the integrity of national development and growth based on the principle of autonomy in the region and certain regulated part of the national resource to provide opportunity for democracy and regional performance (Kolinug & Winerungan, 2022). Regional economic development According to Arsyad (2004), regional economic development is defined as a process by which local governments and their communities manage existing resources and form a pattern of partnership between local government and the private sector to create new jobs and stimulate the development of economic activity in the region. In addition, regional economic development can also be interpreted as a process that includes the formation of new institutions, the development of alternative industries, the improvement of the capacity of the existing workforce to produce products and services, identification of new markets, and the development of new firms.

Potential Economic Sectors

The definition of a potential sector is a sector that encourages and accelerates regional economic development and growth based on the characteristics of the sector's contribution rate to GRDP, the sector's ability to absorb labor, the level of exports of goods and services produced, and the level of linkage between the sector and other sectors (Sudirman & Alhudori, 2018).

Regional Economic Development Theory

Regional economic development has a definition, namely efforts and policies carried out with the aim of increasing community welfare, increasing the number of jobs, equitable distribution of community income, increasing regional economic linkages, and seeking changes in the primary economic sector to secondary and tertiary. The results of development can be seen from regional income and the level of welfare of its people (Tarigan, 2005, in Sudirman & Alhudori, 2018).

Basic Economic Theory

Bendavid-Vall in Sirojuzilam (2005) says, in general and simply, the economic base of the region is defined as the economic sectors whose activities cause a region to survive, grow, and develop or the main economic sectors in a region that can support the region and its people. Meanwhile, according to the economic base theory, the growth and development of a region depends on the external demand for the region's production, so that the economy is divided into base or export base sectors and non-base sectors. A base sector that exports its production outside the region is called an economic base. If the demand from outside the region for the base sector increases, then the base sector develops and in turn can generate the growth and development of non-base sectors within the region concerned, resulting in the development of the region concerned.

In terms of economic activity, a regional economy can be divided into two sectors: basic activities and non-basic activities. Basic activities are those activities that export goods and services to places outside the boundaries of the community or that market their goods and services to people coming from outside the boundaries of the community. Non-basic activities are activities that provide goods or services needed by people residing within the boundaries of the economy concerned. These activities do not export finished goods; their scope of production and their market areas are primarily local.

Leading Sector Theory

A leading sector is a sector that currently plays an important role in the economic growth of a region. Regionally, nationally, and world comparisons are the basis for identifying these leading sectors. On a global scale, a sector is considered superior if it is able to compete with other countries in the same industry. On a national scale, a sector is considered a leading industry if it is able to compete with the same sector produced by other regions regionally and nationally. A region will have a leading sector if it is able to compete successfully in the same industry with other regions and create exports.

According to Sambodo, there are four criteria for leading sectors, namely: First, the leading sector has a high economic growth rate. Second, the employment rate of the leading sector is relatively high. Third, the leading sector has a large inter-sectoral linkage both forward and backward. Fourth, the leading sector can produce high added value.

RESEARCH METHOD

The research design used is qualitatively descriptive research, which is a type of research used to analyze data by describing or depicting the data that has been collected or identifying and analyzing social phenomena or facts by describing several variables related to the problem under study. The research design used is descriptively qualitative research, which is a type of research used to analyze data by describing or depicting the data that has been collected or identifying and analyzing social phenomena or facts by describing several variables related to the problem under study. This type of research does not explain the relationship between existing variables, does not aim to draw generalizations that explain a number of interdependent variables that have an impact on a social symptom or fact. Therefore, in a descriptive study, it does not use and does not test hypotheses; this means that it does not intend to build and develop a theoretical treasury. The choice of descriptive research design in this study is based on research that wants to identify and analyze the sectoral economic potential of the regional development of Teluk Bintuni regency.

The data in this study are secondary data from 2012 to 2022, namely data obtained from the Central Statistics Agency (BPS) of Teluk Bintuni regency or the Central Statistics Agency (BPS) of West Papua province. In conducting the analysis, calculations are carried out using:

Analysis Typology Klassen, the Klassen Typology method is used to determine the grouping of economic sectors in Kerinci regency according to their growth structure. By using the Klassen Matrix, four sector groupings can be made by utilizing the growth rate and contribution value.

Table 1. Classification of Klassen Typology Sector Growth Patterns

Quadrant I Developed sector and growing rapidly (developed sector) $S_i > S$ and $S_{ki} > S_k$	Quadrant II Advanced but depressed sector (<i>stagnant sector</i>) $S_i < S$ and $S_{ki} > S_k$
Quadrant III Potential sector or still can develop (developing sector) $S_i > S$ and $S_{ki} < S_k$	Quadrant IV Relatively underdeveloped sector (<i>underdeveloped sector</i>) $S_i < S$ and $S_{ki} < S_k$

Source: Sjafrizal (2008).

Description:

S_i = Growth rate of a particular sector in the regency;

S = Growth rate of a particular sector in the province;

S_{ki} = Contribution of a particular sector to GRDP in the regency;

S_k = Contribution of a particular sector to GRDP in the province.

Location Quotient (LQ) analysis is an analytical technique used to determine the category of a sector included in the base or non-base sector. The formulation of the analysis technique (Hidayat & Darwin, 2017; Sjafrizal, 2014):

$$Lq = \frac{VaJi / Vali}{PDRBJ / PDRBI}$$

Where:

LQ Ji = Location Quotient of sector i in region J;

ValJi = Value added of sector i in region J;

Valli = Value added of sector i at district level;

GRDP J = Gross Regional Domestic Product in region J;

GRDP I = Gross Regional Domestic Product of the regency.

The calculation results obtained can be interpreted in two categories, namely: 1) If the LQ value is smaller or equal to 1, it indicates that the sector is not a basic sector; 2) If the LQ value is greater than 1, it indicates that the sector is a basic sector.

Growth Ratio Model Analysis

MRP analysis is an analytical tool to see the description of potential economic activities or sectors based on the criteria of regional economic structure growth both external and internal (Yusuf, 1999). MRP is divided into two, namely:

Reference Area Growth Ratio (RPr)

In this case, RPr compares the growth of each sector in the context of the reference region (West Papua province) with the GRDP of West Papua province. To do the calculation, the RPr formula is used:

$$RPr = \frac{\Delta Eir / Eir(t)}{\Delta Er / Er(t)}$$

Where:

- RPr = Growth ratio of reference region (West Papua province);
 ΔE_{lr} = Change in income activity i in the reference region;
 $E_{lr}(t)$ = Income of activity i at the beginning of the research period in the reference region;
 ΔER = Change in GRDP in the reference region;
 $\Delta ER(t)$ = GRDP in the beginning of the research in the reference region.

Study Area Growth Ratio (RPs)

In this case, RPs compares the growth of each sector in the context of the study area (Teluk Bintuni regency) with the sector growth of West Papua province. The calculation formula used is:

$$RPs = \frac{\Delta E_{ij} / E_{ij}(t)}{\Delta E_{lr} / E_{lr}(t)}$$

Where:

- RPs = Study Area Growth Ratio;
 Δe_{ij} = Change in income of activity i in the study area;
 $E_{ij}(t)$ = Income of activity i at the beginning of the research period in the study area;
 Δe_{lr} = Change in income of activity i in the reference area;
 $\Delta E_{lr}(t)$ = Income of activity i at the beginning of the research period in the reference area.

MRP classification is divided into 4 classifications, the classifications are as follows. First, classification 1, i.e., the value of RPr (+) and RPs (+) means that the sector has prominent growth both at the provincial and district/city levels. This sector is referred to as growth dominant. Second, classification 2, i.e., the value of RPr (+) and RPs (-) means that the sector has prominent growth at the provincial level but not yet prominent at the district/city level. Third, classification 3, where the value of RPr (-) and RPs (+) means that the sector has growth that is not prominent at the provincial level while at the district/city level it is prominent. Last, classification 4, where the value of RPr (-) and RPs (-) means that the sector has low growth both at the district/city level and at the provincial level.

RESULTS

Typology Klassen Analysis

Klassen Typology Analysis is an analysis used to group economic sectors in Teluk Bintuni regency based on their growth structure. The Klassen matrix is used to group sectors by utilizing growth values and distribution values. Klassen's typology bases the grouping of a sector, subsector, business field, or regional commodity by comparing regional economic growth with regional (or national) economic growth as a reference and comparing the share of sectors, subsectors, business fields, or commodities of a region with the average value at a higher level (reference region or national). The results of the Klassen Typology analysis will show the growth position and share of sectors, subsectors, business fields, or commodities forming the regional variables of a region.

Table 2. Klassen Typology Sectoral Classification Analysis Results

Sectoral Distribution/Sectoral Growth	Si > s	Si < s
Ski > sk	Quadran I - Mining and quarrying - Processing industry	Quadran II
Ski < sk	Quadran III - Electricity and gas procurement - Construction - Insurance service and finance - Real estate - Government administration - Education service - Health service - Other service	Quadran IV - Agriculture, forestry, and fisheries - Water procurement - Wholesale and retail trade - Transportation and warehousing - Drinking water supply - Information and communication - Company service

Source: Analysis 2023.

Loqation Quation Analysis

This analysis is used to select the economic sectors in GRDP that will be classified into the basic sector and non-basic sector in Teluk Bintuni regency. If the LQ value > 1 means that the role of the sector in Teluk Bintuni regency is more prominent than the role of the sector in West Papua and can be used as a pointer that Teluk Bintuni regency has an advantage in that sector. If the sector becomes superior, then Bintuni Bay regency can export goods and services in the sector so that the needs of other regions can be met. Bintuni Bay regency can also get revenue from export activities to other regions. Conversely, if the LQ value is <1, then the role of the sector in Teluk Bintuni regency is smaller than the role of the sector in West Papua. As a result, Bintuni Bay regency must import to fulfill the sector in its region.

Table 3. Loqation Quation Analysis Results

Kategori	Business Field											
A	Agriculture, Forestry, and Fisheries	0,27	0,26	0,26	0,26	0,26	0,26	0,27	0,26	0,25	0,26	
B	Mining and Quarrying	1,67	1,72	1,76	1,79	1,82	1,87	1,86	1,83	1,84	1,81	
c	Processing Industry	1,63	1,64	1,69	1,72	1,76	1,80	1,80	1,79	1,74	1,77	
D	Electricity and Gas Procurement	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,04	0,04	0,04	
E	Water Procurement, Garbage, Waste Management	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	
F	Construction	0,13	0,13	0,12	0,13	0,14	0,15	0,17	0,48	0,48	0,52	
G	Wholesale and Retail Trade, Car Repairs	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	
H	Transportation and Warehousing	0,06	0,06	0,06	0,06	0,06	0,06	0,05	0,05	0,05	0,05	

I	Accommodation and Drinking Food Provision	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,04	0,04
J	Information and Communication	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02
K	Financial Services and Insurance	0,10	0,09	0,09	0,09	0,09	0,10	0,10	0,09	0,11	0,11
L	Real Estate	0,10	0,10	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11
M,N	Company Services	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03
O	Government Adm, Defense & Compulsory Social Security	0,17	0,17	0,18	0,18	0,18	0,19	0,19	0,19	0,19	0,19
P	Education Services	0,09	0,09	0,09	0,09	0,09	0,10	0,10	0,10	0,09	0,10
Q	Health and Social Services	0,08	0,08	0,08	0,08	0,08	0,08	0,08	0,09	0,09	0,09
R.,S,T,U	Other Services	0,01	0,01	0,01	0,01	0,01	0,02	0,02	0,02	0,01	0,02

Source: Analysis 2023.

Growth Ratio Model Analysis

This analysis is carried out to sell a picture of economic activity, especially in the economic structure of a region that emphasizes growth criteria both externally (the preference area of West Papua province) and internally (the study area of Bintuni Bay regency). The results of the Growth Ratio Model analysis in the table below show that sectorally, those included in quadrants 1, 2, 3, and 4 are as follows:

Table 4. Growth Ratio Model Analysis Results

Quadran I:	Electricity and gas procurement, construction, wholesale and retail trade, information and communication, financial and insurance services, retail estate, government administration, educational services, health services and national activities, other services.
Quadran II:	Water supply and wastewater treatment, transportation and warehousing, provision of food and beverage accommodations, corporate services.
Quadran III:	-
Quadran IV:	Agriculture, forestry, and fisheries, mining and quarrying, processing industry.

Source: Analysis 2023.

DISCUSSION

Leading sectors are sectors that play a role in driving economic growth in a region. In addition, to measure the level of contribution to the economy of each region, through comparison with other regions as evidence of the importance of the sector. Methods such as classification typology analysis, Location Quotient (LQ), and Growth Ratio Model can be used in the identification of leading sectors of a particular region with unlimited years (Amri et al., 2023).

Typology Klassen Analysis

The results of the Klassen Typology calculation in Table 2 indicate that the developed sectors are the mining and quarrying sector and the manufacturing industry sector, which explains that these two sectors have a very large contribution to the formation of GRDP in Bintuni Bay regency and will continue to be a growing sector in the future. Meanwhile, those in the potential category are the electricity and gas procurement sector, the construction sector, the financial and insurance services sector, the real estate sector,

the government administration and social security sector, the education services sector, the health services and social activities sector, and the other services sector. While in the classification of relatively underdeveloped sectors are the agriculture, forestry, and fisheries sector, the water procurement, waste management, waste, wholesale and retail trade sector, car repair, the transportation and warehousing sector, the accommodation and food supply sector, the information and communication sector, and the corporate services sector. This shows that there has been no effort from the government to explore and increase the potential of the sector.

Loqation Quation Analysis

Table 3 above shows that there are two economic sectors that have an LQ value > 1 , namely the manufacturing sector and the mining and quarrying sector. This result means that both sectors are basic sectors that have an important role in the economy of Teluk Bintuni regency. This also shows that these sectors are able to meet the needs of Bintuni Bay regency area and tend to be able to export to areas outside the scope of Bintuni Bay regency.

In the agriculture, forestry, and fisheries sector, the electricity and gas supply sector, the water supply, waste management and recycling sector, the construction sector, the wholesale and retail trade sector; repair of cars and motorcycles, the transportation and storage sector, the provision of accommodation and eating and drinking, the information and communication sector, the financial services and insurance sector, the real estate sector, the company services sector, the government administration sector, defense and mandatory social security, the education services sector, the health services sector and social activities, the other services sector have LQ values < 1 , this means that these sectors are non-basic sectors and tend to import from outside the Bintuni Bay Regency area.

From the calculation of the Location Quotient analysis, the results obtained are that the sectors that have an LQ value > 1 are the mining and quarrying sector (LQ = 1.76), the processing sector (LQ = 1.78), as a leading sector and also a sector that is very influential on the economy in Teluk Bintuni regency and has a comparative advantage as a potential sector that is able to meet the needs of its own region and can be exported to areas outside Teluk Bintuni regency.

Growth Ratio Model Analysis

From the calculation results in Table 4, it shows that the economic sectors that have positive Rpr (+) and positive RPs (+) or those in quadrant I are the electricity and gas procurement sector, the construction sector, the wholesale and retail trade sector, the information and communication sector, the financial and insurance services sector, the real estate sector, the government administration sector, the defense and mandatory social security sector, the education services sector, the health services and social activities sector, and other services sectors. These results mean that in the 2012-2022 period, these sectors are the leading sectors, both at the provincial and district levels, because they have growth that stands out from other sectors.

Economic sectors that have RPr (+) and RPs (-) values are the water procurement and waste management sector, the transportation and warehousing sector, the food and drink accommodation sector, and the company services sector. This result means that in the 2012-2022 period, these sectors had prominent growth at the provincial level but not at the district level. Economic sectors that have RPr (-) and RPs (-) values are the agriculture sector, forestry and fisheries sector, mining and quarrying sector, and processing industry sector. This result means that in the 2021-2022 period, these sectors have low growth at both the provincial and district levels. For the RPr (-) and RPs (+)

values in this study, there are no sectors that fall into this category, so that it can be stated that there are no sectors that have prominent growth at the regency level but are not prominent at the provincial level. From the results of the above discussion, there are several plans that can be implemented by the Teluk Bintuni regency. First, emphasis on development and developing and improving basic sectors. This can be achieved by investing in infrastructure, technology, and human resources in these sectors to increase their productivity and competitiveness (Amri et al., 2023).

CONCLUSION

Analysis of potential economic sectors in a region can be done by using several regional economic analysis tools such as class typology analysis, Location Quotient (LQ) analysis, and growth ratio model analysis. From several economic analysis tools that have been used in determining potential sectors, it can be done by assigning weightings to rank each economic sector so that the identification of the most potential sectors can be done and can be used as a direction in regional economic development. From the findings that have been carried out in Teluk Bintuni regency, the most potential sectors are mining and quarrying as well as the processing industry even though in the growth ratio model, they are in quadrant IV or the long-growing sector if the growth ratio model is used, compared to other sectors. However, it is the sector with the most potential for economic growth in Bintuni Bay regency.

In addition, in the findings, there are differences from the results of the analysis using the class typology and the growth ratio model. Where from the results of the classical typology states that the mining and quarrying sector and the processing industry are in quadrant I, while in the calculation using the growth ratio model analysis, the two sectors are in quadrant IV. This difference occurs because the calculation in the methodology or approach used in the classical analysis and the growth ratio model is different. Each model or method has different assumptions and parameters, so this can make the results different. In addition, each model or analysis often depends on certain assumptions; if the assumptions used in the two methods are different, the results can also be different.

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