

Regional Economic Transformation Through The Establishment of A New Industrial Growth Center In Riau Islands Province In 2020

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Abstract

The Kepulauan Riau Province, despite its significant industrial potential, faces economic disparity between regions due to its archipelagic geography. This study aims to identify strategies for establishing new industrial growth centers that can attract investment and reduce regional disparities. The approach employed includes the analysis of Gross Regional Domestic Product (GRDP) and the application of several analytical methods, namely Shift-Share, Location Quotient (LQ), and Multiplier Effect. The results of the analysis indicate that establishing an industrial growth center in Natuna Regency, which possesses abundant natural resources, particularly in the fisheries and energy sectors, is a strategic step to stimulate economic growth and reduce regional disparities. The selection of this growth center location also aligns with the principles outlined by François Perroux regarding the characteristics of growth poles

Keywords

Economy, Regional, Industry, Growth, Development

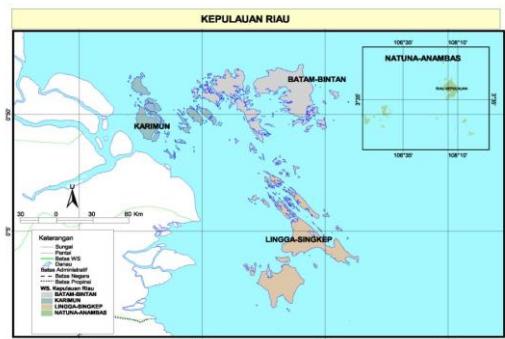
INTRODUCTION

The Riau Islands Province is one of the provinces in Indonesia, administratively inaugurated on July 1, 2004. Tanjungpinang, a city located on Bintan Island, is the capital of this province. The Riau Islands Province within Indonesia has its own unique characteristics. Located between Peninsular Malaysia and Sumatra, the province has a long history associated with trade and a rich maritime culture. This has affected the strategic location of this province in the geopolitical and economic context. Geographically, the Riau Islands Province is situated between 4°15' N and 0°45' S, and 103°11' and

109°10' E, making it a key location on the map of Indonesia. Its location is adjacent to the Strait of Malacca, whose shipping lanes are relatively busy. This makes it very strategic in international trade. The islands in the province also share direct borders with Malaysia and Singapore, further adding to the geopolitical and economic complexity of the region. The Riau Islands Province comprises five districts, namely Bintan, Karimun, Natuna, Lingga, and Anambas Islands, as well as two cities, Batam and Tanjungpinang. The existence of Batam City, a renowned industrial and free trade zone, makes this province one of the crucial international trade gateways

for Indonesia. These geographical and administrative conditions have had a significant impact on economic growth and infrastructure development in the region.

Figure 1. Map of Riau Islands Province



Source: Map of the Region | BPK RI Representative of Riau Islands Province

The Riau Islands Province is one of Indonesia's provinces with significant economic potential, particularly in the industrial sector. In 2020, the province's economy experienced several significant developments, particularly in terms of industrial growth, notably in Batam City. The city has successfully attracted various investments in the manufacturing and electronics sectors. Port facilities and free trade zones have supported the growth of this industry, making Batam City a key manufacturing hub in the global supply chain. The industrial sector in the Riau Islands Province has experienced rapid growth, with numerous national and international companies operating in the region. Investment in industries such as electronics, electrical, automotive, and manufacturing has been a key factor driving economic growth in the province. This certainly has a positive impact on labor absorption while

increasing the income of the local community. In addition to Batam City, other areas in the Riau Islands Province also experienced significant industrial growth. The city of Tanjungpinang, for example, hosts a diverse range of industries, including food and beverage production and shipbuilding. This reflects the diversification of the industrial sector that can support sustainable economic development throughout the province.

The Riau Islands Province has unique geographical characteristics, including islands spread across the Malacca Strait. Although this region has great economic potential, there is significant regional inequality. Regional inequality refers to the disparity in the equitable distribution of development across different parts of a province, which can impact the level of population welfare, access to basic services, and economic growth. Based on calculations using the Klassen Typology method with the 2020 database, the Riau Islands Province still faces considerable regional inequality. One of the factors contributing to this inequality is the uneven distribution of natural resources across various districts and cities. Several areas, such as Batam City and Bintan, continue to experience rapid economic growth. Meanwhile, inland regions and remote islands experience the opposite, which of course makes for greater development challenges. Additionally, accessibility is a crucial factor in regional inequality in the Riau Islands Province. Areas with good transportation infrastructure, such as ports and airports, have easier access to markets and

investments. On the other hand, remote islands that are difficult to reach face obstacles in developing the economic and infrastructure sectors. Regional inequality is also reflected in the significant differences in per capita income between urban and rural areas within the province. Cities such as Batam and Tanjungpinang tend to have higher per capita incomes compared to more remote districts. This shows that there is an inequality in the distribution of economic growth benefits.

Table 1. ICOR Analysis of Riau Islands Province

No	Kabupaten / Kota	Investasi	
		2016	2020
1	Karimun	10801,80	13551,02
2	Bintan	16589,24	20734,76
3	Natuna	-585,68	-581,06
4	Lingga	4032,68	5270,60
5	Kepulauan Anambas	-8576,08	-7468,25
6	Batam	123243,96	152329,95
7	Tanjungpinang	10397,96	11981,82

Source: BPS, 2021 (Processed)

Regional inequality through the economic sector can also be seen based on the amount of regional investment needs. The calculation of the value of regional investment needs is carried out using the analysis method or the Incremental Capital-Output Ratio (ICOR). The results of ICOR are obtained by comparing additional capital or capital with increased output. This concept describes the relationship between the investment made and the annual income generated from the investment. The amount of ICOR becomes an important factor when a consistent analysis is carried out between economic growth and capital increase

(Munifah, et. al., 2019). Based on the results of the analysis using the ICOR method, it can be seen that Anambas Islands Regency is the region that has the lowest investment value both in 2016 and 2020, namely -8,576.08 for 2016 and -7,468.25 for 2020. The opposite happened in Batam City which had the highest investment value, namely 123,243.96 for 2016 and 152,329.95 for 2020. Based on the results of the analysis, the reason why Batam City needs a high investment value is because of activities to improve the trade, hotel, and restaurant sectors due to high demand and people's purchasing power which encourages an increase in production. Moreover, considering the accessibility of Batam City which is very easy and close to the State of Singapore. So, the influence of development from Singapore will certainly have an impact on Batam City. Meanwhile, Anambas Islands Regency with quite difficult access and low purchasing power value of the community causes this area to require a not too high investment value. Following up on the problems that have been conveyed above, it is necessary to build a growth center in an area that can be used as an attraction for investors to invest in the region. Of course, this aims to reduce regional inequality in the Riau Islands Province. Although these efforts will be difficult, it takes reality and the right movement so that it can target the Riau Islands to transform the use of industrial centers contained in it.

LITERATURE REVIEW

GDP

Gross Regional Domestic Product (GDP) is the total value of various outputs obtained by an economy at the regional level (Todaro, 2000). Based on data from the Central Statistics Agency (2015), GDP is the total gross accumulation obtained by a business unit in a certain domestic area or the total value of final goods and services obtained from economic activities in a certain region as a whole. GDP is classified into two types, namely based on constant prices and prevailing prices (BI, 2014). GDP is also divided into three categories of approaches, namely the income approach, the expenditure approach, and the production approach (Prishardoyo, 2008). Some of the benefits obtained through GDP include as basic data for regional economic analysis and policy determination, as an indicator of economic growth levels, and visualizations of past economies and future predictions. The production approach is divided into 17 business fields based on their production units, namely: agriculture, mining including quarrying, industry, electricity and gas, water supply and waste management, building construction, wholesale and retail trade, transportation and logistics, accommodation and food-beverage, information and communication, financial services, real estate, corporate services, government administration, educational services, health services, and other services.

Analisis Location Quotient (LQ)

Location Quotient (LQ) analysis is an analysis that serves to find out more about the extent of specialization of economic sectors in a region, using the base sector or leading sector (Jumiyanti, 2018). According to Muta'ali (2015), Location Quotient (LQ) is a method of regional economic analysis that is used to determine the base sector in a certain region with its ability to be exported outside the region in the regional economy. In analyzing the base economic model, the use of LQ techniques is common. This is used as a first step to understand the sectors of activity that can stimulate growth. LQ helps measure relative concentrations in other words the extent of specialization of economic activities through a comparative approach. If the LQ value is less than 1, then the sector is a non-basis, not specialized, and has not been able to serve the market within and outside the region. The LQ value equal to 1 indicates that the sector is a sector that is balanced with the reference area and is non-export, but has been able to serve the market within the region. Finally, an LQ value of more than 1 indicates that the sector is a basic, specialized sector, and is able to serve the market inside and outside the region. The base sector is a sector that has great potential to encourage comprehensive development in an area, while the non-base sector functions as a supporting sector in the development process. Base activities refer to activities that are oriented towards exporting goods and services outside the relevant economic area, as this sector is already able to meet the needs within the region.

On the other hand, non-base activities are activities that provide goods and services needed by the community within the boundaries of the economic area, without exporting, because the ability of this sector to meet local needs is still limited (Hutapea, et. al., 2020).

Shift Share Analysis

The Shift Share analysis method is needed in analyzing the economic structure of the region. This method is used to analyze statistical data at the regional level with the aim of observing the regional economic structure and its changes descriptively (Hutabarat, 2020). The development of a regional economic sector compared to the wider region can be identified and grouped based on the classification of the 4 growth quadrants. According to Sjafrizal (2002) in Muta'ali (2015), said that the three main components that make up the Shift Share analysis method include: N_{ij} (Regional Share), M_{ij} or P_{ij} (Proportional Shift), and C_{ij} or PW_{ij} (Differential Shift).

Analysis Multiplier Effect

The calculation of LQ results in a classification of base and non-base sectors that are the basis for conducting the Multiplier Effect analysis. The multiplier effect is the effect caused by the expansion of welfare caused by the emphasis on superior sectors. Basically, the occurrence of economic growth in a region is influenced by the multiplier effect of the repurchase of income obtained from the sale of goods and services (Budiharsono, 2005 in Zulfi & Wijayanto, 2014). Leading sectors, can be identified as having a greater economic

growth rate as a result of increased exports. High exports have a very high Multiplier Effect. The multiplier impact, according to Chotimah (2012), is explained as the impact resulting from an increase in demand for a certain sector. The interpretation of the Multiplier Effect in a region indicates that there is a large variance of the base sector so that it affects the increase in the performance of export activities, the increase in production, income and employment, and the demand for the commodities produced. So from the high Multiplier Effect, it can be concluded that the growth of the region is high.

New Growth Center Theory

Within the framework of the central theory of economic growth, the concept of the center of growth has been introduced by economists such as François Perroux and Albert O. Hirschman. Perroux emphasized the importance of development focused on specific areas, while Hirschman proposed the establishment of growth centers to increase income. This theory emphasizes that economic growth is limited to certain areas that have a positive influence on the surrounding area. This concept also distinguishes between "Leading Industries" which are newly developed sectors that can create positive economic effects, and "Propulsive Industries" which dominate other sectors and have high innovation capabilities. The implementation of this theory involves increasing the economic linkage between the growth center and the surrounding area, as well as infrastructure development and local

community empowerment to maximize the positive impact of economic growth. According to Hirschman, in order to achieve a higher level of income, it can be realized by building several economic power centers within a country's territory or what are called growth centers. Economic growth and development are spread in the centers of growth through a system of regional hierarchies from urban centers to hinterland. The hinterland area functions to support the growth center by providing the resources needed by the growth center, such as raw materials and labor, then the regional center will grow sustainably if supported by the high demand from the hinterland area for the products produced by the growth center

DISCUSSION

The development of a country can develop by going through a comprehensive and long process until it becomes a developed country. According to Prishardoyo (2008), economic growth is one of the indicators that has the most significant influence on the development of a country. Maslow (1994) stated that economics is a field of study that focuses on solving problems for basic human life needs through mobilizing various available economic resources based on certain principles and theories in an economic system that is considered efficient and effective. The economic dynamics that occur in a region can also be referred to as regional economies. Tarigan (2005), defines regional economics as a part of the economy that describes the elements of differences in

the potential resources owned by one region compared to another.

Regional Analysis Engineering is one of the branches of science in the field of regional geography studies. In a sense, Regional Analysis Techniques are a technique on how to manage, process, and analyze regional information data. This is so that later the data can be compiled as a planning product. In the study of Regional Analysis Techniques, there are various kinds of quantitative techniques and models that are used in development planning (Muta'ali, 2015). Based on the branch of the study of Regional Analysis Techniques, the analysis of economic components and conditions in a region can be described into two studies, namely the regional economic structure and the economic gap between regions. Each study has its own discussion components and indicators in accordance with the focus of the study and the field being studied. The interpretation of each component represents circumstances that can certainly have implications for the economic condition of a region.

Development inequality has been an important issue for a long time and continues to be a concern of the government to this day. Every development process in an area is often accompanied by the problem of inequality. If this inequality is not handled seriously, it can cause various problems related to population, politics, social, economic, and environmental, and result in losses for development that other regions want to achieve (Widiyastama, 2021). According to Todaro (2000), development inequality

occurs when a country's national income and expenditure are unbalanced, on the other hand, capital or investment factors deteriorate. In this paper, a number of methods are used to determine the amount of equity and regional inequality based on GDP data. The methods used are Shift Share Analysis, Location Quotient Analysis, and Multiplier Effect Analysis.

Table 2. Shift-Share Analysis of Riau Islands Province

No.	Sektor	Tabel Analisis Shift-Share tiap sektor Provinsi Kepulauan Riau antara tahun 2016-2020		Perubahan PDRB Provinsi Kepulauan Riau	Perubahan PDRB Nasional	
		2016	2020			
1. Pertanian	7.729,47	8.011,29	1.671.597,4	2.115.986,1	331,82	
2. Perdagangan dan pengeluaran	33.010,63	28.191,33	89.004,63	99.314,9	-4.646,70	
3. Industri	80.842,35	105.497,71	2.545.201,6	2.545.201,6	25.057,36	
4. Energi dan gas	2.404,68	2.007,01	142.944,4	177.474,6	35.370,28	
5. Pengeluaran dan pendapatan sumber	252,52	281,46	8.999,4	11.302,8	26,24	
6. Kebutuhan Rangsangan	84.048,43	77.121,72	1.200.000	1.000.000	20.000,00	
7. Pendapatan besar dan ekspor	17.755,69	21.825,97	1.635.494,4	1.596.470,1	3.845,27	360.695,70
8. Pendapatan dan pengeluaran	4.051,59	4.011,95	64.079,59	67.967,67	-2.841,08	44.796,80
9. Migrasi dan pendidikan	4.386,14	3.201,54	36.010,54	36.429,59	-384,46	31.375,49
10. Infrastruktur dan komunikasi	5.900,12	6.485,54	61.108,7	61.819,93	2.514,42	5.641,51
11. Ibu Kecamatan	5.890,41	4.991,38	320.268,4	69.046,55	1.139,97	175.856,70
12. Real estate	3.115,44	3.195,51	394.482,9	437.869,9	63,07	105.297,76
13. Rusa Pemerintahan	10,30	5,68	211.276,4	294.255,3	-4,29	82.981,98
14. Administrasi pemerintahan	5.106,64	7.267,20	674.093,9	501.752,2	2.246,06	305.684,70
15. Ibu Pendidikan	2.105,37	3.896,18	417.544,8	503.765,3	964,31	132.051,70
16. Ibu Kesehatan	1.862,21	2.277,94	132.005,3	201.409,0	95,00	69.048,80
17. Ibu Lainnya	980,77	476,25	211.479,9	302.562,8	-544,52	91.140,70
Total	256.897,66	254.211,29	12.401.728,29	10.434.351,69	36.245,61	3.052.425,76

Source: BPS, 2021 (Processed)

Based on the results of the calculation using the Shift Share Method shown in table 2, it is known that the highest GDP change value in Riau Islands Province occurred in the industrial sector, which was 25,057.36, while the least change value occurred in the mining and quarrying sector with a change of -4,646.70. This is in accordance with what has been explained previously that the value of the base sector in the industrial sector in the Riau Islands Province has seen a significant increase in the economic condition of the region. Ease of accessibility and also its proximity to international hubs such as Singapore have a huge impact on the industrial development of Riau Islands Province. On the other hand, the mining sector will be eroded over time due to its

dredging power which will be depleted and irreplaceable. Meanwhile, the changes that occurred at the national level in total occurred the most in the Information and Communication sector with a change achievement of 646,650.40 while the least changes occurred in the industrial sector with a value of 0. This means that industrial activities in the Riau Islands Province and the National are very opposite. Nevertheless, such an evaluation is necessary in optimizing potential sectors to increase national competitiveness.

Table 3. Location Quotient Analysis of Riau Islands Province

No.	Kota	Tabel Location Quotient (LQ) setiap per kota/kabupaten Riau di Provinsi Riau antara tahun 2016-2020												Persegi Kepulauan Riau									
		Kategori Sumber			Kategori Basis			Kategori Nasional			Kategori Luar Negeri				Kategori Asing			Jenis Sumber		Jenis Tujuan			
2016	2018	2019	2016	2018	2019	2016	2018	2019	2016	2018	2019	2016	2018	2019	2016	2018	2019	2016	2018	2019	2016	2018	2019
1. Batam	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	
2. Tanjungpinang	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
3. Lingga	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
4. Sekinchan	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
5. Tanjungpinang Raya	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
6. Batam Selatan	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
7. Tanjungpinang Barat	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
8. Tanjungpinang Utara	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
9. Tanjungpinang Timur	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
10. Tanjungpinang Raya Selatan	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
11. Tanjungpinang Raya Utara	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
12. Tanjungpinang Raya Tengah	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
13. Tanjungpinang Raya Selatan	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
14. Tanjungpinang Raya Utara	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
15. Tanjungpinang Raya Tengah	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
16. Tanjungpinang Raya Selatan	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
17. Tanjungpinang Raya Utara	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00
Total	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	1.000,00	

Source: BPS, 2021 (Processed)

The next analysis is to use the Location Quotient method. Based on the calculation results shown in table 3, it can be seen that each region has its own base and non-base sectors. Each region tends to have different advantages. This difference in general is caused by the influence of location and the dynamics of socioeconomic behavior tendencies of the community in it. This causes differences in the base sectors owned between cities/districts so that later the development policies will also differ from one to another. The statement is in accordance with the results that show the disparity of the base sector in Riau Islands Province. Regencies whose

notabene is based on small and coastal islands such as the Anambas Islands and the Natuna Islands have a tendency to base sectors in the field of natural resource management. The Anambas and Natuna Islands have the potential for very abundant water resources (Anwar, 2014). Not only in a qualified aquatic ecosystem, the largest producer of mining goods in the form of bauxite in Riau Islands Province is found in the Anambas Islands (Rahmat, et. al., 2021). Therefore, natural conditions greatly affect the size of GDP and also the determination of the base sector of a region.

In contrast to archipelago and coastal areas, districts with large land areas tend to have sectors based on industrial components and also trade. The area in question includes Karimun Regency, Bintan Regency, Lingga Regency, and Tanjung Pinang City. The four administrative areas have a tendency to excel in the fields of industry, trade, transportation, communication, and services. The emergence of this tendency is due to the ease of accessibility between regions. This certainly strongly supports the definition of the base sector that can be used for export activities. In addition, ease of accessibility will also improve existing technology in the community. Revealed by Williams in Suyanto (2005), technology is all components that are able to help produce, manipulate, store, communicate, and convey information. So that through it, communication can be easier between fellow humans. As mentioned earlier, the base sector is not only able to meet internal but also

external needs, so of course the distribution and transportation sectors are also increasing. Batam City showed a different thing again. Batam City is an area that is classified as an economic center. This has an impact on the lack of trends in agriculture, mining and is indicated by the high value of LQ in the industrial, building, trade, hotel, restaurant, and financial and corporate services sectors. The dominance of the non-agricultural sector makes it an area that is considered to visualize urban characteristics and also occurs due to the widespread effect of urban sprawl.

Table 4. Analysis of the Multiplier Effect of Riau Islands Province

No.	Sektor	Provinsi Kepulauan Riau			Nasional			Sektor Basa			Sektor Non Basa			ME
		2016	2020	2016	2020	2016	2020	2016	2020	2016	2020	2016	2020	
1	Pertanian	7.726,47	8.041,29	1.673,197,8	2.110,064,1	21.983,60	20.790,42	29.113,13	34.442,71	-1,36	-1,30			
2	Pertambangan dan pengolahan	33.038,03	28.391,35	886.880,3	993.049,1	17.321,29	12.020,30	13.316,74	16.367,03	0,89	1,36			
3	Industri	10.644,35	10.895,71	2.245,307,6	2.343,070,6	36.311,41	23.977,30	44.331,20	41.079,76	1,21	0,66			
4	Energi dan gas	2.463,49	2.035,10	142.344,4	179.716,1	10,81	37,76	2.479,29	2.900,90			291,35	4,27	
5	Pengelola air dan pengelolaan sampah	252,52	291,46	8.039,1	11.302,8	97,34	95,26	135,13	160,20			1,59	1,91	
6	Konstruksi Binaan	38.845,85	49.317,12	1.287,892,9	1.652,891,9	16.425,17	22.267,79	22.425,60	27.224,00	1,27	1,23			
7	Transportasi dan komunikasi	1.011,40	1.151,30	1.100,000,0	1.100,000,0	11.300,00	11.300,00	20.000,00	22.000,00	0,65	0,71			
8	Transporasi dan pengolahan	6.915,59	4.111,35	644.915,2	649.367,1	4.280,62	7.240,78	11.234,21	11.361,73	-2,62	-3,37			
9	Alokasi modal-makuan	3.463,14	3.391,34	363.083,3	392.809,3	1.977,40	3.102,99	6.323,18	6.404,33	-3,26	-2,69			
10	Informasi dan komunikasi	3.909,12	6.483,54	49.108,7	69.839,1	3.112,31	4.979,31	6.956,75	11.428,83	0,28	2,30			
11	Ibu Keringanan	3.809,61	6.991,36	320.206,8	406.015,3	3.260,32	4.473,20	9.066,73	11.466,30	-2,78	3,56			
12	Real estate	3.116,44	3.195,11	300.488,2	433.769,1	2.073,20	2.420,21	7.473,50	10.704,64	-2,05	1,71			
13	Ibu Perusahaan	10,40	5,82	21.021,2	29.723,5	3.275,46	4.482,51	3.685,30	4.847,50	-1,00	1,00			
14	Ibu Kesehatan dan kesejahteraan sosial	1.000,64	1.161,30	4.000,00	4.000,00	2.200,00	2.200,00	2.200,00	2.200,00			4,24		
15	Ibu Pendidikan	2.033,37	3.856,18	47.544,8	549.765,3	4.337,71	5.116,26	7.269,12	9.050,66	-1,68	-1,76			
16	Ibu Keseharian	1.062,15	2.277,84	132.380,3	201.049,0	418,72	1.055,77	2.380,47	3.513,41	-5,30	3,20			
17	Ibu Lainnya	980,77	436,25	211.427,0	302.508,2	2.701,78	3.548,08	3.682,35	4.194,31	-1,36	-1,10			
	Total	216.007,66	254.253,29	12.401.726,50	15.434.151,60									

Source: BPS, 2021 (Processed)

Data processing and also understanding the non-base sector are certainly the basis for determining the multiplier effect. As mentioned earlier, the highest base sector in Riau Islands Province is held by the agricultural sector, but when reviewed through the Multiplier Effect in accordance with table 4, the results show that the highest ME acquisition is held by the water procurement and waste management sector with a value of 1.59 in 2016 and 1.95 in 2020. This indicates that although the value is not as high as the main base sector, namely agriculture, the sector over time is able to have a massive and

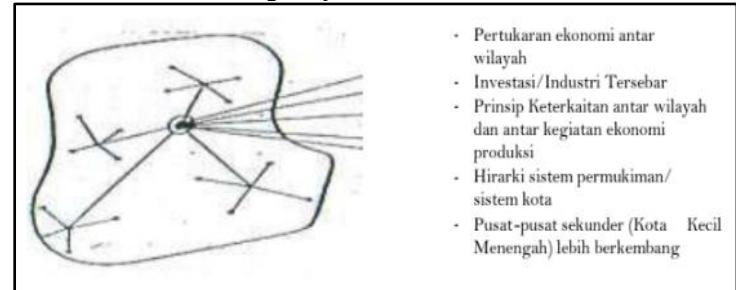
significant impact. However, the focus of attention is the size of the base and non-base sectors held by the Industrial sector. As an industry grows, it creates an increase in the number of jobs in the sector. However, the multiplier effect only applies when the growth of this industry affects other sectors, such as transportation, logistics, and the supply and demand for goods and services. This resulted in increased revenue and consumption in the regions associated with the industry. For example, as the manufacturing industry grows, the demand for raw materials, labor, and transportation services will increase, which in turn creates additional employment opportunities and broader economic growth. Thus, the existence of the industrial sector, which is the highest in both the base and non-base sectors, plays an important role in stimulating economic growth, creating job opportunities, and improving the overall welfare of the community through the multiplier effect.

Problem Solving

Based on the complexity of the problems caused by economic inequality between regions in the Riau Islands Province, it is necessary to apply a theory presented by Francois Perroux. The theory states that the establishment of new economic growth centers is necessary which encourages us to understand the importance of the right location for these growth centers. The ideal growth center must have adequate Natural Resources (SDA) to support sustainable economic development. In addition, new growth centers must be ready to receive large investments, which

can create jobs and drive economic growth.

Figure 2. The New Growth Center Concept by Perroux



Source: (Muta'ali, 2015)

Natuna Regency, which is a remote and isolated archipelago, is a great choice to be considered as a potential location for a growth center. Gross Regional Domestic Product (GDP) data using the Location Quotient (LQ) method can support this claim, suggesting that Natuna has the potential to become a base for significant industrial activities. In an effort to create a new growth center, the selection of Natuna as a potential location has a strong reason. First, Natuna Regency has abundant Natural Resources (SDA), especially in the fisheries and energy sectors. Not only that, the GDP data also explains that the Natuna Islands have a comparative advantage in the mining and quarrying sector. This natural resource is a strong foundation to support sustainable economic growth.

In addition, Natuna must also be prepared and able to receive large investments, which can create jobs and stimulate economic growth. The investment can later be in the form of appropriate infrastructure support, including strategic ports and airports. It is stated that because based on ICOR's

analysis, investment needs in Natuna Regency have a negative value, which causes investment inefficiency in the region. This is then further analyzed due to the limited regional infrastructure that can support economic activities. Through these facilities and infrastructure, Natuna has the potential to attract investment in key sectors.

The selection of Natuna as the center of growth is also supported by Gross Regional Domestic Product (GDP) data through the Location Quotient (LQ) method, which shows that Natuna has the potential to become a base for significant industrial activities. By choosing Natuna, we can form a new system that relies on a system of village-urban interaction, with the fulfillment of thresholds and wider use of hinterland. In addition, with the availability of natural resources in the form of mining materials, excavations, and also marine products, of course it will simplify the production process by minimizing transportation costs because there is no need to bring it to Batam first before processing. This will create an environment that supports sustainable and equitable economic growth, reduces regional inequalities, and brings benefits to the people of Natuna and the surrounding area. The selection of Natuna as the center of growth is a strategic step in achieving the goal of inclusive and sustainable economic development.

Conclusion

Based on the results of the analysis using various methods such as ICOR, Shift Share, and Location Quotient (LQ),

it can be concluded that the establishment of a new industrial growth center in Riau Islands Province in 2020 has had a significant positive impact on overcoming economic inequality between regions. ICOR indicates that investments made in this region are able to produce more efficient economic growth. Shift Share analysis shows that Riau Islands Province has a strong ability to allocate resources and labor to sectors that have high growth potential. In addition, the Location Quotient (LQ) reveals that new sectors emerging in the region have an increasingly important role in contributing to the regional economy. All this shows that this strategic step has succeeded in changing the face of the regional economy and stimulating more equitable economic growth in the Riau Islands Province.

The industrial sector plays a key role in the economic growth of Riau Islands Province. The highest GDP change value occurred in the industrial sector, indicating a significant improvement in the region's economic conditions. The advantages of location and accessibility to international hubs such as Singapore contribute greatly to the development of the industry in the province. On the other hand, the industrial sector has a central role in creating jobs. Therefore, the establishment of new industrial growth centers is a relevant strategy to reduce economic inequality. The selection of Natuna Regency as a potential location for the growth center is supported by abundant Natural Resources (SDA), especially in the fisheries and energy sectors. Natuna Regency must be ready

to receive large investments, especially in infrastructure. These investments can create jobs, reduce economic inequality, and promote inclusive economic growth. Infrastructure support, such as ports and airports, is key to maximizing investment potential in Natuna.

The selection of Natuna as the center of growth is also supported by GDP data using the LQ method, which shows that Natuna has the potential as a base for significant industrial activities. With the development of a village-city interaction system and the abundant use of natural resources, Natuna can become a motor of equitable and sustainable economic growth. In order to achieve the goal of inclusive and sustainable economic development, the establishment of a new industrial growth center in Natuna Regency is a strategic step. With strong natural resource potential and the right infrastructure support, this step can bring great benefits to the people of Natuna and the surrounding area, as well as reduce regional inequality in the Riau Islands Province.

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