Analysis of Economic Growth Centers in Bengkulu Province

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ABSTRACT

This research aims to find out and analyze which districts/cities can become centers of economic growth in Bengkulu Province. This research uses secondary data obtained from the Central Statistics Agency of Bengkulu Province and various related literature. The analytical tools used in this research are Schalogram Analysis and Marshall Centrality Index. Based on the results of the scalogram analysis and Marshall centrality index analysis that has been carried out, the center of growth in Bengkulu Province is based on the availability of service facilities, namely Bengkulu City with a total of 23 service facilities out of 23 available service facilities so that the city deserves to be in hierarchy I. Based on the results of the gravity analysis it is known that the district/city with the highest interaction magnitude is in Central Bengkulu Regency. Central Bengkulu Regency has interactions with Bengkulu City with an interaction size of 1,610,888.07.

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1. Introduction

Economic growth is one of the indicators that assess the success of a country's economic development. Hakim (2009) states that the essence of economic development is the existence of economic growth. According to Pratiwi and Kuncoro (2016) development is not only shown by the achievements of economic growth achieved, but beyond that, because development has a broad perspective. The economic growth that every country aspires to is sustainable growth, ideally economic growth is able to realize welfare equally in all regions of a country. According to Kuncoro (2004) the progress of economic development in a region is one of the indicators also reflected in the economic growth achieved by the region. This economic growth is influenced by various aspects. Not only resource endowment (natural resources owned by a region), demographic advantages, regional economic performance, but spatial aspects (territoriality) also influence. These differences in the factors that influence economic growth result in differences in development between regions or development gaps between regions.

One of the government policies in improving development and economic growth is through regional development. Regional development is a development effort to equalize regional growth and reduce gaps between regions by using various natural resources (SDA), humans, institutions, technology and physical infrastructure effectively,optimal, and sustainable. The regional development development strategy can be carried out by determining certain cities or regions to become growth centers (growth pole). Growth centers are one of the ways to drive and stimulate development to improve people's welfare (Tarigan, 2006).

According to Dobrescu & Dobre (2014), growth centers will overflow into surrounding areas and participate in the economic growth process of the surrounding region. An economic growth center is an urban or industrial area that becomes a concentration of growth and has a relationship with other industries or regions.

Regional autonomy under Law No. 32 of 2004 gives regions the authority to regulate economic growth. This has motivated development planning studies that refer to the potential of each region's base sector. Regions with a good economic base have the potential to continue to dominate economic growth so that it will realize the inequality of prosperity between regions over a certain period of time. This is the case in Bengkulu Province, which is one of the provinces in Indonesia consisting of 10 regencies/cities. Income inequality between regencies can be seen using the Gini Ratio. The Gini coefficient (Gini Ratio) is one of the most commonly used measures to gauge the overall level of income inequality (BPS, 2013). The Gini coefficient is a measurement tool or indicator that explains the distribution of actual income, expenditure of

actual income, consumption expenditures or other variables related to the distribution in which each person receives an equal or identical share (Bappenas, 2002).

Table 1 Gini Ratio of Regency / City in Bengkulu Province for the Period 2018-2022

region	Gini Ratio of Regency / City in Bengkulu Province					
	2018	2019	2020	2021	2022	mean
Bengkulu Selatan	0,36	0,32	0,31	0,3	0,3	0,31
Rejang Lebong	0,33	0,3	0,29	0,35	0,3	0,31
Bengkulu Utara	0,35	0,3	0,28	0,31	0,28	0,3
Kaur	0,31	0,29	0,32	0,28	0,28	0,29
Seluma	0,31	0,3	0,29	0,25	0,29	0,28
Mukomuko	0,37	0,29	0,25	0,26	0,26	0,28
Lebong	0,29	0,31	0,28	0,27	0,27	0,28
Kepahiang	0,3	0,27	0,31	0,28	0,3	0,29
Bengkulu Tengah	0,29	0,26	0,26	0,25	0,24	0,26
Kota Bengkulu	0,39	0,36	0,37	0,38	0,37	0,37

Source: Bengkulu Central Bureau of Statistics, 2023.

The table above shows the average gini ratio for each district/city in Bengkulu province over the last 5 years. The highest average Gini Ratio is Bengkulu City, followed by South Bengkulu and Rejang Lebong districts with an average of 0.31, below which is North Bengkulu district 0.30, in 5th place is Kabupaten Kaur 0.29, and the lowest is Kabupaten Bengkulu Tengah with an average of 0.26. The difference between the highest and lowest gini ratio is >0.5. According to Todaro (2003), the distribution of income for developing countries is

According to Todaro (2003), income distribution for developing countries is considered very unequal if the Gini ratio is between 0.5 and 0.7, moderate if the Gini ratio is between 0.3-0.5, and relatively equal if the Gini ratio is between 0.2 and 0.3. So it can be said that the level of inequality between districts in Bengkulu Province really needs to be emphasized, this situation is of particular concern to the Bengkulu Provincial government and related parties to find the right solution.Apart from the Gini ratio in Bengkulu Province, inequality in regional development can be seen from differences in the number and type of service facilities contained in the area. Striking differences in the availability of service facilities can indicate that there are areas that have experienced less growth both socially and economically. Inadequate service facilities will encourage the slow growth of a region.

Table of Population in Bengkulu Province by Regency/City for the Period 2018-2022

region	Population in Bengkulu Province by Regency/City				
	2018	2019	2020	2021	2022
Bengkulu Selatan	376,48	385,10	393,60	378,60	2060,09
Rejang Lebong	156,93	158,40	159,70	167,98	170,09
Bengkulu Utara	259,94	260,90	261,80	278,79	281,28
Kaur	304,39	310,00	315,50	299,39	302,83
Seluma	119,95	121,20	122,50	127,95	129,66
Mukomuko	191,91	193,80	195,60	210,50	213,75
Lebong	189,67	193,90	198,10	193,19	196,57
Kepahiang	114,79	116,60	118,40	106,76	107,24
Bengkulu Tengah	136,10	137,20	138,20	151,64	153,99
Kota Bengkulu	113,15	114,70	116,40	118,10	119,81
Bengkulu Province	**1963,30**	**1991,80**	**2019,80**	**2032,94**	**2060,09**

Source: Bengkulu province in figures, 2023

The increase in population in each district/city is also a factor that affects inequality in a region. The Provincial Government of Bengkulu will continue to work on equalization efforts to overcome inequality between regions Bengkulu. One of the government policies or solutions taken to narrow inequality between regions is the determination of economic growth centers.

The high number of poor people is one of the main problems in economic growth. In research (Rudy & Indah, 2020) revealed that economic growth has a significant impact on the poverty rate, an increase in economic growth due to the large number of jobs that can attract workers, eventually the poverty rate can be reduced.Bengkulu Province has the second highest percentage of poor people in Sumatra. The following table shows the percentage of poor people on the island of Sumatra from 2018-2022

2. Literature Review

Theory of Economic Growth

The theory of economic growth can be interpreted as an explanation of what factors determine the increase in output per capita in the long term, and an explanation of how these factors so that growth processes occur (Boediono, 1992: 2).According to Simon Kuznet in M.L Jhingan (2002: 57) economic growth is an increase in the ability of a country (region) to provide economic goods for its population, which is realized by a continuous increase in national output accompanied by technological progress and the adjustment of institutions, attitudes and ideologies needed.

Economic growth is related to the process of increasing the production of goods and services in the economic activities of society, growth concerns developments that are single-dimensional and measured by the increasing production of goods and services that prevail in a country, such as the increase in the number of industrial goods production, infrastructure development, service sector development and real national development of a country (Arsyad, 2010).

Economic growth is influenced by several important factors as follows (Arsyad, 2010):

1.Capital Accumulation

Capital accumulation is including all new investments that materialize land (land), fiscal equipment and human resources (human resources) will occur if there is part and current income that is saved and then invested for economic growth.is saved and then invested to increase output in the future. Capital accumulation will increase existing resources.

2.Population Growth

Population growth and matters related to the increase in the labor force are considered positive factors in stimulating economic growth, but the ability to stimulate economic growth depends on the ability of the prevailing economic system to absorb and employ the existing workforce productively.

Determination of Development Areas

According to Haggett (1977) in Tarigan (2009) there are three types of regions, namely homogenous regions, nodal regions, planning or programming regions. According to Hanafiah (1982) in Tarigan (2009), regions can also be divided into absolute and relative concepts. The absolute concept is based on physical conditions, while the relative concept, besides paying attention to physical factors, also pays attention to the socio-economic functions of the space (Tarigan, 2009).

There are several ways to determine a region. Territory when viewed from above is dividing a large area. Territory groups several small areas into one unit. A region can be classified based on the purpose of forming the region itself. The basis of regionalization can be distinguished as follows (Tarigan, 2009):

1. Based on the government administrative area.
2. Based on the similarity of conditions (homogeneity), the most common is physical similarity.
3. Based on economic sphere of influence.
4. Based on the planning/program area.

The second part, “Literature Review” investigates the gap that will be exposed and solved. The flow of all the ideas are required to be clear, linked, well-crafted and well developed. It serves as the

source of the research question and especially the base or the hypotheses that respond to the research objective. We advise using current and primary sources from trusted international references (top tier-journals).

In order to establish and develop a growth center in a well-directed manner, a number of interrelated steps and activities are required. Therefore, the implementation needs to be done sequentially from the first activity to the last.Sjafrizal (2008) states that the first step is to determine the location of the growth center by taking into account the various locational advantages of the region concerned. In this case, the first concern should be the availability of a road network that can reach the entire coverage area. The second step is to examine the economic potential of the region and the leading commodities it already has and/or has the potential to develop. The third step examines the input-output linkages of each industry and potential activities to be developed in the growth center. The fourth step determines the type of infrastructure needed to develop the growth center. The fifth and final step is to establish an organization that will manage and coordinate the industrial complex or growth centre.

Regional Hierarchy

Regional hierarchy is the ranking or order of cities based on population size or functional hierarchy. The hierarchy of cities is usually based on population and service facilities. The regional hierarchy system reflects the hierarchy (level) of cities, specialization of functions, and the system of linkages (service, production, distribution, movement orientation) (Muta'ali, 2015).

Regional hierarchy and service centers in general always refer to the center place theory developed by Christaller Losch and his followers. Two main concepts underlie the service center theory, namely (Muta'ali, 2015):

1. The range of good, which is the distance that can still be tolerated for a particular type of goods or services. In addition to the element of distance, the determination of choice by users is also influenced by the type, quality, and price of goods or services offered.
2. The threshold value, which is the minimum number of people or resources needed to create sufficient demand for the goods and services offered.
3. The threshold value also determines the type, quantity, and price of goods or services offered in the central region.

The determination of the hierarchical level of regions and service centers is based on indicators that determine the concentration and object of population movement, which include

population and service facilities. Service centers according to range of services can be divided into four parts, namely:

- Hierarchy I, Regional Center, is a node with the most complete facilities and infrastructure, economic center, primary, with the widest service radius and the largest population served.
- Hierarchy II. District Center, a center lower in hierarchy than a regional center. This center is the largest rural center, and is the link between the surrounding area and the regional center (city).
- Hierarchy III, Sub-District Center, is a center below the district center that connects the local center with higher hierarchy areas. It is the hinterland of the two hierarchies above it.
- Hierarchy IV. Local Center, with the narrowest radius of coverage, this form of service center is usually characterized by a periodic type of service center. The lower the center, the smaller the population served and the narrower the area of influence.

According to the National Urban Development Strategy (2000) in Muta'ali (2015), another form of regional hierarchy is in the form of a hierarchy of cities based on population, namely small cities (<100,000), medium cities (100,000 500,000), large cities (500,000 1,000,000) and metropolitan (>1,000,000). (500,000 1,000,000) and metropolitan (>1,000,000). The higher the hierarchy of the region, the wider the influence and becomes the center of movement orientation with a high level of linkage and connectivity. The level of regional development is high and has the potential to become a regional center (growth center).Interregional Interaction Interregional interaction or spatial interaction is a reciprocal relationship that mutually affects two or more areas that can cause new symptoms, appearances or problems. The strength of the interaction is strongly influenced by three main factors, namely the existence of complementary regions (regional complementary), the opportunity to invest (intervening opportunity), and the ease of transfer or transfer in space (spatial transfer ability) (Respati in Farida 2017).

Transportation and inter-regional interactions of a particular region depend on other regions. Likewise, other regions have dependence on certain regions. Among these areas, there are certain areas that have advantages over others so that these areas have several facilities that are able to serve the needs of residents in a wider radius, so that residents in a certain radius will come to the area to get the necessary needs.Morlok (2005) argues that due to differences in the level of resource ownership and the limited ability of the region to support the needs of a region's population, there is an exchange of goods, people and services between regions.

According to Santosa (2005), so that accessibility planning runs well and can be optimally utilized, guidelines can be used, among others:

1. The planning is integrated by considering all aspects of household needs, both daily living needs, economic. and social needs.
2. The planning is based on a careful data collection system.
3. Using the household as the focus of the planning process.
4. Develop a comprehensive set of information on all aspects of rural infrastructure.
5. Identify intermediate interventions for the improvement of the local transportation system (roads and local transportation services) and for the location of the most suitable services.
6. The plan is easy to apply.
7. The plan uses a pure bottom-up planning approach.

3. Method, Data, and Analysis

Scalogram Analysis and Centrality Index Scalogram Analysis is an analytical tool used to determine the ability of a region to provide services to the community. The services referred to in this case are the availability of facilities in the area such as facilities related to economic activity, social activity and government. Scalogram analysis can determine the regions or sub-districts that can be used as growth centers. The sub-district that has the highest completeness of facilities can be determined as a growth center growth center. (Rodinelli in Ermawati, 2010: 47)

The formula used to find many hierarchies in each sub-district as a growth center is as follows,

$k = 1 + 3.3 \log n$

Description:

k = many hierarchies

n = many districts / cities

4. Result and Discussion

Scalogram analysis of all service facilities is given a value (1) if available and a value (0) if the facility is not available. For more details, see the following table

Table Scalogram Analysis Based on Service Facilities by Regency / City in Bengkulu Province

No	district	Total Resident	service facilities																						JF
			F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F1	F14	F15	F16	F17	F18	F19	F20	F21	F22	F23	
1	Bengkulu Selatan	170.093	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	22
2	Rejang Lebong	281.281	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	21
3	Bengkulu Utara	302.833	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	21
4	Kaur	129.661	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	0	19
5	Seluma	213.755	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	0	19
6	Muko-Muko	196.571	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	21
7	Lebong	107.248	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	0	18
8	Kepahiang	153.995	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	0	19
9	Bengkulu Tengah	119.814	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	20
10	Kota Bengkulu	384.841	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
	TF	2.060.09210	10	10	1	10	10	10	10	10	10	10	10	7	10	3	10	7	10	10	10	10	10	5	203	

Source: Analysis results, 2024

Based on table 4.8, it is known that the number of facilities in districts / cities in Bengkulu province after weighting the assessment. The most complete number of facilities is in Bengkulu city with 23 units of facilities available. The regency with the least number of facilities is Lebong regency with a total of 18 units of facilities available.The number of errors based on scalogram analysis is 4. To test the results of the scalogram calculation, the formula is used (Bruce, 2018).

$$COR = 1 - \frac{E}{JF \times JD}$$

Description :
E = Error
JF = number of facilities
JD = number of regions

$$COR = 1 - \frac{E}{JF \times JD}$$

$$COR = 1 - \frac{4}{23 \times 10}$$

$$COR = 0{,}9$$

From the calculation of the error value, which is 0.9, the calculation of the scalogram analysis is considered valid because the error value is not less than 0.9. From the calculation of scalogram analysis in identifying the distribution of service facilities, it is known that the hierarchy or ranking of areas based on the type and number of facilities there are 4 (four) hierarchies formed, namely:

- Hierarchy I is Bengkulu City which has the completeness of 23 facilities out of 23 available facilities
- Hierarchy II does not exist, because based on the results of the study there are no intervals of 270-314
- Hierarchy III is Rejang Lebong Regency, North Bengkulu, Muko-muko, which has 21 out of 23 available facilities, and South Bengkulu which has 22 out of 23 available facilities.

- Hierarchy IV is the regency with the least service facilities, namely Central Bengkulu Regency, which has 20 out of 23 facilities available. Kaur, Seluma, Kepahiang districts have 19 out of 23 facilities author needs to report the results in sufficient detail so that the reader can see which statistical analysis was conducted and why, and later to justify their conclusions.

The "Discussion and Analysis" part, highlights the rationale behind the result answering the question "why the result is so?" It shows the theories and the evidence from the results. The part does not just explain the figures but also deals with this deep analysis to cope with the gap that it is trying to solve.

Based on the results of the gravity analysis above, it is known that the regency/city with the highest amount of interaction is located in Bengkulu Tengah Regency. Central Bengkulu has an interaction with Bengkulu City with an interaction magnitude of 95,267,230.52. The magnitude of this interaction is due to the close distance between the two regencies/cities, which is 22km. Meanwhile, the regency that has the smallest interaction with a total interaction size of 1,610,888.07 is in Kaur Regency.

5. Conclusion and Suggestion

Conclusion

Based on the results of the analysis and discussion of the analysis of the determination of growth centers in the regencies / cities of Bengkulu Province, the conclusions resulting from this study are as follows:

1. Based on the results of the scalogram analysis and the analysis of the Marsall centrality index that has been carried out, the growth center in the regencies / cities in Bengkulu province based on the availability of service facilities is Bengkulu City with a total of 23 facilities out of 23 available facilities so that the city deserves to enter hierarchy I. 2.
2. Based on the results of the gravity analysis, it is known that the regency / city that is the center of growth is Bengkulu City by being in hierarchy I, then Rejang Lebong, North Bengkulu, Muko-Muko, and South Bengkulu regencies occupy hierarchy three as growth centers, while Central Bengkulu Regency,Kepahiang, Kaur and Lebong are in hierarchy four.

Suggestions

Based on the research results, suggestions that can be given in this study are as follows:

1. It is hoped that there will be additional facilities for regencies that have a long distance from Bengkulu City, so that there can be more and more equitable facilities in each regency in Bengkulu province, so that in the future it can support development in these areas.
2. Local governments need to establish development policies for the improvement or repair of facilities and prioritize the leading sectors in each district / city to reduce inequality between regions in Bengkulu province.

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