



## The Analysis of Interaction for Center of Economic Growth

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### Abstract

*This study aims to analyze the districts that are the center of economic growth in East Bali; the interaction of the center of economic growth in East Bali with the surrounding areas in the Province of Bali; the position of the economy in each district in East Bali based on the growth rate; base sector and non-base sector in each district in East Bali. This research uses quantitative research. The data used in this research is secondary data. Methods of data analysis using Scalogram Analysis and Marshal Centrality Index; Gravity Analysis; Klassen Typological Analysis; Location Quotient (LQ) analysis. The results showed that Karangasem Regency is the center of economic growth in East Bali and has the strongest interaction with Klungkung Regency, while the weakest interaction is with Jembrana Regency; Karangasem Regency, Klungkung Regency, and Bangli Regency; The agricultural, forestry, and fishery sectors, the mining and quarrying sector, the government administration sector, defense and compulsory social security, and other service sectors are the basic sectors in East Bali.*

**Keywords:** Growth Center, Growth Center Interaction, Klassen Typology, Base Sector

### Abstrak

Penelitian ini bertujuan untuk menganalisis kabupaten yang menjadi pusat pertumbuhan ekonomi di Bali Timur; dan interaksi pusat pertumbuhan ekonomi di Bali Timur dengan daerah sekitarnya di Provinsi Bali; Penelitian ini menggunakan jenis penelitian kuantitatif. Data yang digunakan dalam penelitian ini adalah data sekunder. Metode analisis data menggunakan Analisis Skalogram dan Indeks Sentralitas Marshal; Analisis Gravitasi; Analisis Tipologi Klassen; Analisis Location Quotient (LQ). Hasil penelitian menunjukkan bahwa Kabupaten Karangasem merupakan pusat pertumbuhan ekonomi di Bali Timur serta memiliki interaksi yang paling kuat dengan Kabupaten Klungkung, sedangkan interaksi yang paling lemah dengan Kabupaten Jembrana; Kabupaten Karangasem, Kabupaten Klungkung, dan Kabupaten Bangli; Sektor pertanian, kehutanan dan perikanan, sektor pertambangan dan penggalian, sektor administrasi pemerintahan, pertahanan, dan jaminan sosial wajib, dan sektor jasa lainnya merupakan sektor basis di Bali Timur.

**Kata Kunci:** Pusat Pertumbuhan, Interaksi Pusat Pertumbuhan, Tipologi Klassen, Sektor Basis

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## INTRODUCTION

Indonesia has become the 10th largest economy in the world in the last decade and is capable of generating high rates of economic growth (Kurniawan & Managi, 2018). The government carries out a development process to balance regional development and national development. Regional development can develop because of national development that supports and encourages the success of the regional development process, with increasing regional development will strengthen national development and create a dynamic national economic structure (Adisasmita, 2013, p. 22). Indonesia is a developing country that conducts economic development, one of which is the regional development approach that focuses on location; development is done no longer centrally, but the development in each region (Bappenas, 2008).

Decentralization implemented by the Province of Bali as stated in the Bali Provincial Regulation No. 1 of 2008. The Affairs of the Regional Government of Bali Province. The implementation of government activities becomes the authority of the local government by exercising autonomy to manage and manage government affairs. The local government is responsible for organizing related essential services /facilities that support the sustainability of life for the community, such as education, health, places of worship, roads, bridges. The local government has the authority to develop the area based on the potential owned in each district/city.

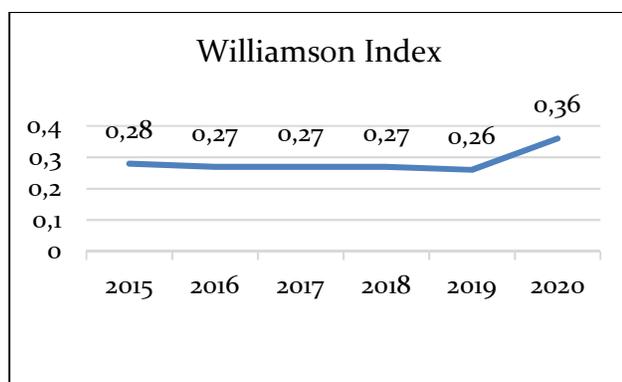
Bali Province has 8 districts and 1 city namely Jembrana Regency, Tabanan Regency, Badung Regency, Gianyar Regency, Klungkung Regency, Bangli Regency, Karangasem Regency,

Buleleng Regency, and Denpasar City. Each district/city has a difference in potential, there are districts/cities that are superior, and some are still left behind. Differences in potential result in differences in economic growth in each district/city. According to the Central Bureau of Statistics (BPS), to measure economic growth, one of the indicators used is Gross Regional Domestic Product (GDP).

Table 1 shows the Gross Regional Domestic Product (GDP) of districts/cities based on Constant Price (ADHK) 2010, 2015 – 2020 in Bali Province. The Regency/city with the average GDP from 2015 - 2020 the highest is Badung regency reached 32.9 trillion IDR, far above the average and followed by districts/cities that have above average GDP - the average of Bali Province, namely Denpasar City has a GDP of 32.3 trillion IDR. Buleleng Regency has a GDP of 21.3 trillion IDR, and Gianyar Regency has 17.1 trillion IDR.

The districts/cities with a below-average acquisition - the average GDP of Bali Province in 2015 - 2020, namely Tabanan Regency, which has a GDP of 14.3 trillion IDR, followed by Karangasem Regency has a GDP of 10.1 trillion IDR. Jembrana Regency has a GDP of 8.6 trillion IDR, Klungkung Regency has a GDP of 5.4 trillion IDR, and Bangli Regency has a GDP of 4.2 trillion IDR. Regency/city in Bali Province has a considerable difference PDRB. This condition indicates a gap between districts/cities located in the Province of Bali.

Economic inequality can be measured through the Williamson Index, with indicators if the value of the Williamson Index approaching the number 0 indicates that the gap level is getting lower. However, if the Williamson Index value is close to the number 1 suggests that the gap rate is higher (Sjafrizal, 2008).



**Figure 1.** Bali Provincial Williamson Index 2015 – 2020

Source : BPS Bali Province, 2021

Williamson Index value in Bali Province in 2020 has increased considerably from the previous year in 2019. The increase in the value of the Williamson Index by 0.1, whereas in 2019, the value of the Williamson Index was 0.26. In 2020 there was a relatively high increase in inequality from previous years, even becoming the highest Williamson Index value for the last 13 years, which is 2009 based on previous research according to Kurniawan & Huda (2020) Williamson index value Bali Province in 2009 of 0.33.

**Table 1.** PDRB Regency/ City of Bali Province on the Basis of Price Konstan 2010, 2015 - 2020 (Trillion IDR)

District/City	PDRB Regency/City ADHK Bali Province (Trillion Rupiah)						Average District/City
	2015	2016	2017	2018	2019	2020	
Jembrana District	7,6	8	8,5	8,9	9,4	9	8,6
Tabanan District	12,6	13,4	14,1	15	15,8	14,8	14,3
Badung District	29,2	31,2	33,1	35,3	37,3	31,2	32,9
Gianyar District	15,2	16,1	17	18	19	17,4	17,1
Klungkung District	4,8	5,1	5,4	5,7	6	5,6	5,4
Bangli District	3,7	3,9	4,1	4,4	4,6	4,4	4,2
Karangasem District	9	9,5	10	10,6	11,1	10,6	10,1
Buleleng District	18,8	20	21	22,2	23,4	22,1	21,3
Denpasar City	28,4	30,3	32,1	34,2	36,2	32,7	32,3
Total Province of Bali	129,1	137,3	144,9	154,1	162,8	147,5	146
Average Province of Bali	14,4	15,3	16,1	17,1	18,1	16,4	16,2

Source: BPS Bali Province, 2021

The gap between districts/cities in Bali Province, seen through the Williamson Index, proves uneven economic growth. The variable growth rate can be seen through Gross Regional Domestic Product (GDP) as one of the indicators to measure economic growth. There are five districts with low GDP acquisition, which is below the average PDRB Bali province,

dominated by communities located in East Bali, among others Karangasem Regency, Klungkung Regency, and Bangli Regency. This condition indicates that there is a gap between the districts located in East Bali and other regencies/cities in the Province of Bali.

The gap between districts in East Bali and other regencies/cities in Bali Province is due to

sector differences, especially in districts/cities that have potential in the tourism sector and that do not have potential in the tourism sector (Yuendini et al, 2019). The tourism sector is the most significant contributor of GDP in Bali Province, as evidenced by the high contribution of the sector of providing accommodation and drinking food with an average in 2015 - 2020 of 22.4%. Districts/cities with potential tourism sectors have a high GDP that exceeds the average PDRB Bali Province.

Meanwhile, districts/cities with no potential in the tourism sector have a low GDP below the average PDRB Bali Province. The regency located in East Bali has a low GDP because the tourism sector is not the leading sector in the region in the formation of GDP. The gap between districts/cities is due to the differences in sectors, namely the tourism sector as the largest sector in the formation of GDP and does not have potential in the tourism sector that still has a low GDP.

Based on this, to improve the community's welfare, appropriate development policies are needed to reduce inequality. The Provincial Government of Bali has a strategy of developing spatial structures through the Bali Provincial Regulation No. 3 of 2020 concerning Amendments to Regional Regulation No. 16 of 2009 concerning Spatial Plan of Bali Province year 2009 - 2029. The policy of the spatial structure is the development of the center of economic growth of the region that is propositional, equitable, and hierarchical.

This policy focuses on developing an urban system that supports the development of the areas based on geographical location and the region's leading infrastructure network structure. There are four regional systems of urban services, including The West Bali Urban

System, South Bali Urban System, East Bali Urban System, and North Bali Urban System.

East Bali has three Regencies: Klungkung Regency, Bangli Regency, and Karangasem Regency. The three districts belong to five districts in Bali Province that have an average GDP in 2015 - 2020 into a low category. The low GDP occurred because the tourism sector was not the leading sector in forming GDP in East Bali. There needs to be special attention in addressing inequality by increasing economic growth and equalization of development in areas that do not have potential in the tourism sector.

The main focus of the central development and interaction to the surrounding area (hinterland) and economic potential owned districts in East Bali is to increase growth and equalization development to reduce inequality in East Bali. This study aims to identify and analyze the districts that are the center of economic growth in East Bali and investigate the interaction of economic growth centers in East Bali.

## RESEARCH METHODS

This research uses quantitative research that uses data in figures and analysis using statistics (Sugiyono, 2011, p. 14). The data research technique in this study is a library study method with secondary data sources obtained through the Central Bureau of Statistics (BPS). Skalogram analysis aims to determine the service center based on the number and type of service facility availability units in each area.

If an area has the highest ranking, it can be designated as a growth center. The process of Skalogram analysis by recording the number of facilities in an area, by writing the number 1 if

there is a facility and writing the number 0 if there is no facility in an area (Rondinelli, 1985, p. 115). The center of economic growth uses scalogram analysis and marshal centrality index using weighting techniques.

Marshal centrality index analysis has similar functions with scalogram analysis, which aims to know the structure/hierarchy of economic growth centers in an area conducted by calculating the number of functions, types of functions, and how large the frequency of a function in one regional unit (Riyadi and Bratakusumah, 2003, p. 118). Procedure for calculating scalogram analysis and centrality index: Fields (1 and 2) are filled with sequence numbers for the region (district/city) and the name of the district/city in the area concerned.

The next field is filled with functions (facility type). Column type of function is filled with a value of 1 if there are facilities and filled 0 if there are no facilities in an area. Column "number type of function/ facility" is filled by summing each function in each district/city (each row). The row "total function" is filled by summing the entire district/city (each column). The row "total centrality" in each column/row has the same value, which is 100. Last line (weight value), calculated based on the total value of the centralitas divided by the number of functions of each column. Formula indeks marshal centrality (Rondinelli, 1985, p. 125) :

$$C = t/T \dots\dots\dots(1)$$

Where :

C = Function Weight

t = total centrality value, i.e. 100

T = Total number of functions

This weight value number indicates that the higher the frequency of the existence of a function, the smaller the weight value, and vice versa, the lower the frequency of existence of a function, the higher the weight value. The Process of Multiplying the importance of facility weight with each district/city facility's function (each column). Sum several weight values of each district/city (based on rows/horizontal). The centrality index value will appear after the summation is done. The value centrality index can determine the hierarchy of district-level economic growth centers in East Bali and aims to determine the district as the center of growth.

Growth center with the surrounding area, see how much the center of economic growth can influence and interact with the surrounding areas affected by the size and distance between regions. To identify the magnitude of attraction in a region is using gravitational models. Gravity models are used to see the availability of public facilities in the correct location. The gravity model is also intended as an ideal location for constructing new facilities. Gravitational models have a dual function: location theory and a tool in planning (Tarigan, 2005, p. 148). The formula of Gravity in general is as follows (Tarigan, 2004, p. 140):

$$I_{ij} = \frac{k P_i P_j}{d_{ij}^b} \dots\dots\dots(2)$$

The gravity formula can be simplified to the following :

$$I = \frac{P_1 \times P_2}{d^2} \dots\dots\dots(3)$$

information:

- I = The amount of interaction between regions
- P = Population (thousands)
- d<sub>2</sub> = Distance between regions (km)

Klassen Typology analysis is used to determine the structure of economic growth in an area associated with the economy at a higher rate. Klassen's Typology analysis uses variable economic growth rates and per capita income. The area is divided into four classifications (Sjafrizal, 2008): Developed and fast-growing areas. This area has GDP Per capita and higher growth than the reference area; Developed but depressed areas, this area has a higher GDP Per Capita than the reference area, but the rate of economic growth is lower than the reference area; The area is growing fast, this area has a smaller GDP per capita than the reference area, but the rate of economic growth is greater than the reference area; Relatively disadvantaged areas, this area has GDP Per Capita and a lower economic growth rate than its reference area.

Location Quotient (LQ) analysis is used to determine the sector of a region's economic base. LQ analysis can evaluate the level of specialization of the base or flagship sector in an area. The variables used are Gross Regional Domestic Product (Tarigan, 2005). LQ analysis measures the concentration of economic activity in a region by comparing its role in the regional economy with the role of economic activity in the same wider scope (regional or national). LQ formula as follows (Tarigan, 2005) :

$$LQ = \frac{X_{ij}/X_j}{Y_i/Y} \dots\dots\dots(4)$$

information:

- X<sub>ij</sub> = Value added sector i in j area (district/city)
- X<sub>j</sub> = Total value added sector i in area j
- Y<sub>i</sub> = Value added sector i in region p (province/national)
- Y = Total sector added value in p (province/national)
- X<sub>ij</sub>/X<sub>j</sub> = Percentage of regional employment in sector i
- Y<sub>i</sub>/Y = Percentage of national employment in sector i

Measurement criteria according to Bendavid-Val (1991) are: LQ >1, indicates that the sector includes the base sector, meaning that the level of district/city spsesialisasi is higher than the provincial level. The production of the commodity in question has exceeded the consumption needs in the area where the commodity is produced and the excess can be sold out of the region (export). LQ = 1, indicates that the level of specialization of the district/city is the same as at the provincial level.

The production of commodities in question is only enough for the needs of the local area. LQ < 1, explains that the sector isgrouped into a non-base sector, meaning that the district/city specialization level is lower than the provincial level. The production of these commodities is not sufficient for consumption needs in the area concerned and its fulfillment is imported from other regions.

**RESULTS AND DISCUSSION**

Skalogram analysis is used to identify and analyze the districts that are the center of economic growth in the districts in East Bali. Skalogram analysis uses public facilities

variables in 2020. Index analysis of marshal centrality is used to know the structure /hierarchy of the central economic growth of the region by calculating the number of functions, types of functions and how large the frequency of the existence of a function in one regional unit (riyadi and bratakusumah, 2003, p. 118).

East Bali has three districts namely Klungkung Regency, Bangli Regency, and Kabupaten Karangasem. There are 22 types of facilities in East Bali, among others: Educational facilities, among others, are kindergarten, health facilities, worship facilities, economic facilities, among others, are primary cooperatives, secondary cooperatives, and pawnshops and supporting facilities include hotels, restaurants, and tour operators.

**Table 2.** East Bali Centrality Index and Skalogram Results for 2020

No	Regency	Number of Facility Units	Total Weight	Order
1	Karangasem	2219	908,1	I
2	Klungkung	1604	732,95	III
3	Bangli	1308	661	III

Source: Data Processed, 2021

Based on the results of the analysis of scalograms and centrality indexes, the district that is the center of economic growth based on the availability of facilities and the value of the centrality index is higher than other districts in East Bali is Karangasem Regency. Karangasem regency is the only district that occupies order I with the availability of many facilities, namely 2219 units of facilities and a high centrality index value of 908.1, the value of facility weight.

Karangasem regency has the highest public facilities (education, health, worship, economy, and support) in East Bali. There is a relationship between the availability of facilities and the function of the region as a growth center that is the higher the number of facilities, the wider the area of influence and attract the community to conduct economic activities in Karangasem Regency. The availability of public facilities in the Karangasem Regency can draw the community to conduct economic activities.

People come to Karangasem Regency to go to school, worship, medicine, invest, travel, etc. High economic activity can increase productivity by increasing transactions arising from the economic activity to increase GDP acquisition. Karangasem regency as a growth center has better capabilities than other districts in East Bali in providing more complete services in public facilities to its people.

The results of this study are in line with previous research conducted by Gulo (2015), hat the function of the region as a growth center is the more complete the facilities owned. The region has a more significant function than other regions. The results of this study are under the theory of the central place presented by Christaller (1993), explaining that the primary function of a city center is as a service center for the surrounding areas carrying out socioeconomic functions to serve the hinterland area.

The function of the city can help the people, which is associated with the main socioeconomic of a town. The function of the city is described by the quality and completeness of the urban service facilities it has. Interaction analysis (gravity) is used to analyze the interaction of Karangasem Regency as a growth

center in East Bali and how far Karangasem Regency as the center of economic growth is able to affect the district/city in Bali Province. The variables used are the number of inhabitants and the distance between regions. Based on the results of calculations using variables of population and distance between regions can be known the value of interaction Karangasem Regency as a growth center with districts/cities in Bali Province as follows:

**Table 3.** Results of Karangasem Regency Interaction with Regency/City in Bali Province in 2020

No	Regency/City	Interaction Value
1	Klungkung	254.725.709,63
2	Gianyar	247.809.000,28
3	Badung	92.568.705,34
4	Bangli	88.223.502,66
5	Denpasar	58.702.508,91
6	Buleleng	46.064.544,52
7	Tabanan	34.645.257,62
8	Jembrana	5.216.443,84

Source: Data Processed, 2021

Based on calculations by gravity method using variable population numbers and distances between regions in 2020 obtained districts/cities with the strongest interactions to the weakest interactions. The region with the strongest interactions with Karangasem Regency as the center of economic growth in East Bali is Klungkung Regency, with a gravitational index value of 254,725,709.63 units of attraction.

The magnitude of the interaction shows the strong relationship between Karangasem Regency as the center of economic growth in East Bali and the surrounding area in Bali Province. The interaction is characterized by the movement of people, goods, and services and is

described in the region's economic and social service relations.

Klungkung Regency is the district that has the highest interaction with Karangasem Regency as the center of economic growth in East Bali. This condition is influenced by distance and population. Klungkung regency has the closest distance to Karangasem Regency, with a distance of 20 km. The proximity between Karangasem Regency as the center of economic growth in East Bali and the surrounding area in Bali Province will strengthen the interaction between regions related to cost and time. A short distance takes a little time to travel as well as the cost of traveling is also small.

Another factor influencing the interaction is the population. The number of inhabitants is closely related to the quantity of human movement, goods, and services. The more people between regions, the more interaction is also higher because many are involved in economic activity between regions. A large population between Karangasem Regency as the center of economic growth in East Bali with the surrounding area in Bali Province can strengthen interactions between regions because it relates to people, goods, and services. Many people between regions resulted in a higher movement of people, goods, and services so that inter-regional needs can be met and more transactions are carried out between regions.

Jembrana Regency is the district that has the weakest interaction with Karangasem Regency as the center of economic growth in East Bali. This is influenced by distance and population. Jembrana Regency has a distance of 173 km with Karangasem Regency. The low interaction of Karangasem and Jembrana Regency is due to the location of a very far area. Karangasem Regency is located in the eastern

most part of Bali Province, while Jembrana Regency is located the western most of Bali Province. The long distance between Karangasem Regency as the center of economic growth in East Bali with the surrounding area in Bali Province will cause interaction between regions is weak because it relates to cost and time. Long distances take a lot of time to travel as well as the expenses incurred to travel are also significant.

Another thing that influences interaction is the population. Many people but with a long-distance resulted in one's interest in traveling to below. The small population between regions resulted in a downward movement of people, goods, and services, so the limited exchange that can be done between regions and transactions conducted between regions is also low. The results of this study are in line with previous research conducted by Ayu (2016) that interactions between regions have different strengths - different because it is influenced by distance, population, and the pull of the area.

The results of this study are under by Tarigan (2005) that the interaction between the two regions is determined through the magnitude of the area. The gravitational analysis uses population benchmarks to determine the size of a city. Another factor that influences the interaction between regions is the distance between the two regions because the farther the distance between the two regions, the lower one's desire to travel (Tarigan, 2005).

Klassen typology analysis is used to identify and analyze the position and economic condition of districts in East Bali compared to the economy of Bali Province. The variables used are GDP per capita and the rate of economic growth in 2015 - 2020. Based on the typological

analysis Klassen year 2015 - 2020 in Bali Province, can be known the position and economic condition of the district located in East Bali with other districts/cities in the Province of Bali.

In 2015 Klungkung and Bangli districts are in the position of quadrant III, which is a fast-growing area which means that the GDP rate per capita is lower compared to Bali Province. Still, the rate of economic growth is more significant than Bali province. While Karangasem Regency occupies the position of quadrant IV, which is a relatively lagging area which means that GDP per capita and the rate of economic growth is smaller than Bali Province.

In the next four years in 2016 - 2019, Klungkung and Bangli districts decreased, occupying quadrant IV positions, while Karangasem Regency remained in quadrant IV position, which is a relatively lagging area GDP per capita and economic growth rate is smaller than Bali Province. Klungkung Regency, Bangli Regency, and Karangasem Regency have GDP, increasing every year from 2015 - 2019.

However, compared to other districts/cities in Bali Province, GDP acquisition is still much low. This result is because based on the location of most districts in East Bali, the natural potential of mountains oriented to the agricultural sector is supported by the breadth of agricultural land available. The agricultural sector has the most contribution to establishing GDP in Klungkung, Bangli, and Karangasem. However, the agricultural sector is not the leading sector that is the shaper of the GDP of Bali Province, so that the agricultural sector has low added value.

Klungkung Regency, Bangli Regency, and Karangasem Regency have a much lower GDP

than districts/cities that have the potential of the tourism sector as the leading sector of PDRB formation in Bali Province. The Covid-19 pandemic that hit the world in 2020 resulted in a decrease in economic activity that resulted in a decline in GDP per capita and a reduced economic growth rate. Bali province in 2020 experienced a decrease in GDP per capita by 6,956,920, which was initiated in 2019 by 58,137,730 to 51,180,810 in 2020.

Similarly, the economic growth rate in Bali Province decreased by 14.91%, which was initiated in 2019 by 5.6% to -9.31% in 2020. The economic position has changed; Klungkung Regency, Bangli Regency, and Karangasem Regency have improved by occupying quadrant III. That result concludes that the GDP rate per capita is lower than Bali Province, but the economic growth rate is greater than that of Bali Province. Klungkung Regency, Bangli Regency, and Karangasem Regency in 2020 have a decrease in GDP per capita.

Still, the decline is not as much as the decline of other districts/cities in Bali Province. However, GDP per capita Klungkung, Bangli, and Karangasem districts are still low compared to Bali Province, while the rate of economic growth also decreased to minus, the decrease is also not as much as other districts/cities in Bali Province. The economic growth rate of Klungkung Regency, Bangli Regency and Karangasem Regency is more significant than in Bali Province.

The rise of Klungkung Regency, Bangli Regency, and Karangasem Regency into quadrant III is accompanied by the decline of districts/cities with great potential in the tourism sector, namely Badung Regency and Denpasar City to be in quadrant II. Covid-19 Pandemic influence a decrease in economic

activity, especially in the leading sector of Bali Province, namely the tourism sector. There is a significant decrease in tourists who visit, which results in reduced transaction volume resulting in lower revenues in GDP and the pace of economic growth.

Klungkung, Bangli, and Karangasem districts can survive by relying on the agricultural sector. This is characterized by a significant increase in the number of people working in the agricultural sector. Since the Covid-19 Pandemic resulted in economic activity/activities decreased drastically due to the absence of tourists who come to the island of Bali. Many workers lose their jobs from the leading sector of Bali Province, namely the tourism sector. Many workers look for alternative sources of livelihood that are turning into farmers.

Increasing the number of people working will increase productivity, which causes the agricultural sector to contribute significantly to Bali Province PDRB. The agricultural sector's contribution to the GDP of Bali Province in 2020 amounted to 15.09%, which is the largest contribution of the agricultural sector for six years with the period 2015 - 2020. The agricultural sector can become a reliable sector and save the economy of Bali Province during the Covid-19 Pandemic.

The results of this study are in line with previous research conducted by Yuendini, et al (2019), that there is a gap between the district/city that becomes the basis of tourism with the district/city that is not the basis of tourism. The results of this study are reinforced by Sjafrizal (2008), that the grouping of regions is based on the structure of growth. Using Matrix, Klassen used four regional groups using indicators: the rate of change and per capita

income. However, the Klassen typology grouping is dynamic because it depends heavily on the development activities of the area concerned

Location Quotient (LQ) analysis is used to analyze the base and non-base sectors in each district in East Bali in 2015 – 2020. LQ analysis uses district PDRB variables according to the business field based on Constant Price in 2015 - 2020 and PDRB Bali Province according to the business field based on Constant Prices in 2015 - 2020. By comparing the role of a business sector GRDP district in East Bali, namely Karangasem Regency, Klungkung Regency, and Bangli Regency in 2015 - 2020 with the business field sector GRDP Bali Province in 2015 - 2020.

Karangasem Regency has six base sectors and eleven non-base sectors. The base sector with LQ criteria  $> 1$  is the mining and quarrying sector with an average value of LQ in 2015 - 2020 of 3.35, which is the highest LQ value. This indicates that the mining and quarrying sector has the highest level of specialization in the Karangasem Regency, followed by the transportation and warehousing sector with an LQ value of LQ 2.28. Then, agriculture, forestry, and fisheries sector with an LQ value of 1.82; government administration, defense, and social security sectors are mandatory with an LQ value of 1.52; other service sectors with an LQ value of 1.36; and the financial and insurance services sector with an LQ value of 1.05.

While the non-base sector with a level of specialization is lower than the level of Bali Province with LQ criteria  $< 1$  is real estate with a VALUE of LQ of 0.98. Then, health services and social activities with an LQ value of 0.91; water procurement, waste management, waste, and recycling with an LQ value of 0.72; services with

an LQ value of 0.70. Then, construction with an LQ value of 0.65; processing industry with an LQ value of 0.64; large trade and retail, car, and motorcycle repairs with an LQ value of 0.62; information and communication with an LQ value of 0.59; education services with an LQ value of 0.48; provision of accommodation and drinking meals with an LQ value of 0.47; electricity and gas procurement with an LQ value of 0.43.

Klungkung regency has eight base sectors and nine non-base sectors. The base sector with LQ criteria  $> 1$  is the mining and quarrying sector with an average value of LQ in 2015 - 2020 of 3.60, which is the highest LQ value. This indicates that the mining and quarrying sector has the highest level of specialization/concentration in Klungkung Regency, followed by the health services sector and social activities with an LQ value of 1.94; information and communication sector with an LQ value of 1.57; agriculture, forestry, and fisheries sector with an LQ value of 1.52; processing industry sector with an LQ value of 1.42; other service sectors with an LQ value of 1.40; water procurement, waste management, waste, and recycling sectors with an LQ value of 1.09; government administration, defense, and social security sectors are mandatory with an LQ value of 1.04.

While the non-base sector with a level of specialization/concentration is lower than the level of Bali Province with LQ criteria  $< 1$  is constructed with an LQ value of 0.96; financial and insurance services with an LQ value of 0.94; large trade and retail, repair of cars and motorcycles with a value of LQ of 0.90. Then, the real estate with a value of LQ of 0.58; services with an LQ value of 0.90; procurement

of electricity and gas with an LQ value of 0.53; provision of accommodation and drinking meals with an LQ value of 0.55; education services with an LQ value of 0.46; transportation and warehousing with an LQ value of 0.40.

Bangli Regency has six base sectors and eleven non-base sectors. The base sector with LQ criteria  $> 1$ , the government administration sector, defense, and social security, must have an average value of LQ in 2015 - 2020 of 2.12, which is the highest LQ value. This indicates that the government administration sector, defense, and social security must have the highest specialization/concentration in the Bangli District.

Then, followed by the mining and quarrying sector with an LQ value of 2.01; other service sectors with an LQ value of 1.87; agriculture, forestry, and fisheries sector with an LQ value of 1.82; processing industry sector with an LQ value of 1.52; large trade and retail sectors; repair of cars and motorcycles with an LQ value of 1.12. While the non-base sector with a level of specialization/concentration is lower than the level of Bali Province with LQ criteria  $< 1$  is constructed with an LQ value of 0.81; information and communication with an LQ value of 0.75; real estate with an LQ value of 0.75; health services and social activities with an LQ value of 0.65.

Then, the financial and insurance services with an LQ value of 0.63; provision of accommodation and drinking meals with an LQ value of 0.60; education services with an LQ value of 0.45; water procurement, waste management, waste, and recycling with an LQ value of 0.33; services with an LQ value of 0.50; transportation and warehousing with an LQ value of 0.18; electricity and gas procurement with an LQ value of 0.16.

Based on the calculation of LQ in 2015 - 2020 in the district in East Bali that the base and non-base sectors tend to remain. There is no significant change, especially in the Bangli Regency, which, since 2015 - 2020, has only six base sectors, and judging by the large value of LQ for eleven non-base sectors, it is still far enough to be the base sector. It shows that the economic activity that takes place in Bangli Regency, including low, six base sectors owned also does not contribute significantly to the acquisition of GDP, this is evidenced by the low acquisition of GDP Bangli regency with an average of 2015 - 2020 of 4.1 trillion IDR which is the lower GDP acquisition from the district/cities in Bali Province.

Karangasem and Klungkung districts have experienced slight changes from non-base to base sectors. Karangasem Regency in 2017 - 2019 has seven base sectors, whereas previously in 2015 - 2016 with six base sectors. The sector that has increased to become the base sector is the real estate sector. However, in 2020 the LQ value of the real estate sector decreased by meeting the LQ criteria  $< 1$ , thus putting the sector back into a non-base sector and Karangasem Regency again having six base sectors in 2020.

Klungkung Regency had nine base sectors in 2017, whereas in 2015 - 2016 with eight base sectors. The sector that has increased to the base sector is the construction sector. However, in the following year, in 2018 - 2020, the value of LQ continued to decline by meeting the criteria of LQ  $< 1$ , thus putting the sector back into a non-base sector, and Klungkung Regency again had eight base sectors in 2018 - 2020.

The results of this study are in line with previous research conducted by Ayu (2016) that the base sector of each region is influenced by the magnitude of the value of the sector that

affects centralized regional income. The results of this study, following the theory of economic base (economic base theory) presented by Glasson (1990), explained that there is a relationship explained that there is a relationship between sectors - economic sectors in a region with the strength - the driving force of one industry to the other sector either directly or indirectly.

Increasing the amount of primary economic activity in the region will increase the region's revenue. It will increase the demand for goods and services in the area and encourage an increase in the volume of economic activity instead of the base (multiplier effect). Conversely, if there is a decrease in the amount of base activity will result in reduced revenue flowing into the relevant area, and then there will be a decrease in demand for goods produced by non-base activities.

## CONCLUSION

Based on the results of research and discussion through scalogram analysis and centrality index; interaction analysis (gravity); typological analysis Klassen; and LQ analysis, it can be concluded as follows: Karangasem Regency is the center of economic growth in East Bali. As the center of economic growth, Karangasem Regency has the strongest interaction with Klungkung Regency, while the weakest interaction is with Jembrana Regency.

Karangasem Regency, Klungkung Regency, and Bangli Regency occupy quadrant IV, which means the area is relatively lagging. Agriculture, forestry, and fisheries sectors; mining and quarrying sector; government administration,

defense, and social security sectors are mandatory; and other service sectors are base sectors in East Bali.

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