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Spillover Effect Analysis of Economic Growth between Regency City in Jambi ProvinceCity

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Abstract: The goal of this research is to ascertain how spatial relationships between regions function, what areas help each region individually, and how Jambi City has spillover effects to other locations within Jambi Province. The methods employed were Moran Scatterplot, Moran Index, Local Indicator of Spatial Autocorrelation (LISA), and overlay analysis. The findings demonstrate that there is a clustering pattern for areas with comparable features and that all of the regencies and cities in the province of Jambi have an overall positive autocorrelation. Two cluster patterns have been identified in the eastern region, according to the LISA study. Muaro Jambi Regency and East Tanjung Jabung Regency fall into the high-high group, whereas Kerinci Regency falls into the low-low category. In Bungo Regency, Jambi City, Sungai Penuh City, Kerinci Regency, and Sarolangun Regency, on the other hand, the construction sector is the predominant growing sector and enjoys a comparative advantage, according to the overlay analysis results. In contrast, Bungo, Tebo, Sarolangun, and Kota Sungai Penuh are less affected by the processing sector.

Introduction

Nearly all developing nations have the same issues, which range from high rates of crime to low levels of health and education to unemployment. A region's development success can be determined by achieving significant economic growth combined with a reduction in the income gap between populations and sectors, as outlined Pratiwi & Kuncoro (2016). According to Magdalena & Suhatman (2020) economic growth is the process of raising economic production power, which is demonstrated by rising national and local incomes.

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In completing the acceleration of development, it is necessary to establish a growth center area in a region. Thus, the problem of limited funds in carrying out development can be overcome because it only focuses on one area that becomes a growth center area, to increase the development of facilities and infrastructure improvements. These growth centers are expected to be able to provide a positive *spillover effect* on the *hinterland* areas of the growth centers which become trade centers, industrial centers, service centers, and economic centers. (Priyadi & Atmadji, 2017)..

In research Hasna & Qibti (2020) he stated that economic movements in a region can affect its neighboring regions through the *spillover effect* provided. The *spillover* effect is a result that arises with the existence of inter-regional dependency relationships, which can be both positive and negative impacts. In addition, he also explained that some theories that depart from *unbalanced growth* have implicitly included the concept of *regional spillover*, where it is explained in this theory that growth will always start from the area that becomes the center of growth and then spread to the surrounding areas. However, however, Capello (2009) However, Capello (2009) states that in the long run, growth centers are considered to provide spillovers to surrounding regions with varying degrees of intensity, depending on their capabilities. In theory, growth centers will initially absorb a lot of resources from the surrounding areas (*backwash effect*), but over time, the absorption will decrease due to the large spread of resources to the surrounding areas (spillover *effect*), resulting in a *net spillover effect*.

Jambi Province is a province in Indonesia located on the east coast of Sumatra Island, which is bordered by Riau Province to the north, Riau Islands Province to the east, South Sumatra Province to the south, and West Sumatra Province to the west. In addition, Jambi Province also has a very strategic position because it faces the IMS-GT economic growth area, which consists of Indonesia, Malaysia and Singapore. The region is also one of Sumatra's most important plantation and forestry producers.

Coastal and small island areas, especially in the long coastline of Jambi Province, have a lot of potential to be developed as another development force. Some businesses that can develop in these areas include capture fisheries, coastal aquaculture, tourism, oil and gas mining, and the development of seaports in several strategic locations that can be supported by industrial estates. The development of local and renewable resource-based leading sectors and commodities is the goal of agribusiness center development, especially for domestic and regional markets. So far, the agriculture, forestry and fisheries business field holds the highest position in the economic structure of Jambi Province, with 31.83 percent. Followed by mining and quarrying at 15.31 percent, wholesale and retail trade, repair of cars and motorcycles at 13.30 percent, and processing industry at 9.98 percent. These four business fields contributed 70 percent to the economy of Jambi province (BPS Jambi Province 2023). In addition, the Jambi Provincial government must also pay attention to the problem of inequality, considering that based on the data from BPS Indonesia (2023) in 2023, Jambi Province had the highest Gini ratio value on the island of Sumatra, amounting to 0.343, even higher than the Indonesian

Gini average. So, we can say that the income and expenditure of people in Jambi Province is uneven. If this continues, it will cause the economy of Jambi Province to be unstable.

National strategic areas are those whose spatial planning is prioritized because it significantly affects state sovereignty, national defense and security, the economy, society, culture, or the environment, including areas designated as world heritage. This is in accordance with Government Regulation (PP) Number 26 of 2008 concerning the National Spatial Plan. The province of Jambi's national strategic region has been established due to its significant environmental roles and carrying capacity. A region's gross domestic product (GRDP) at constant (real) prices can be used to gauge its rate of economic growth. The GDP of Jambi Province is displayed below.

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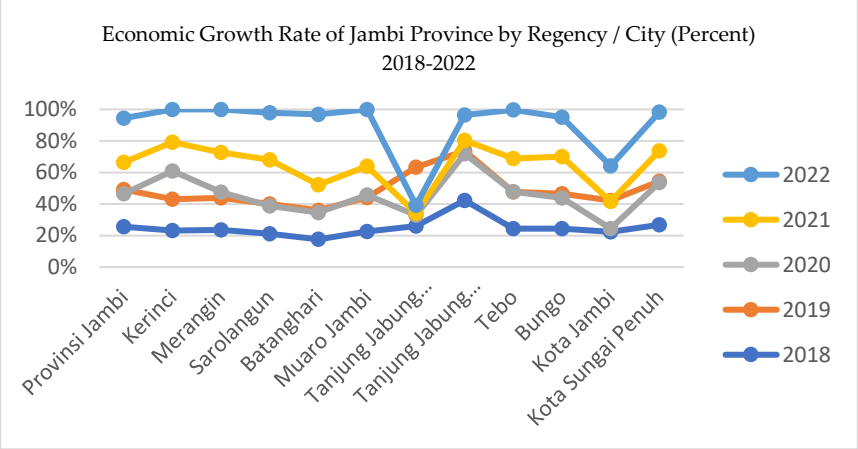

Figure 1. Economic Growth Rate of Jambi Province by Regency / City 2018-2022

Source: *Jambi Province Central Bureau of Statistics (2023)*

The table above shows the economic growth rate of each district/city in Jambi Province from 2018 to 2022, with different average growth values. Batanghari Regency has the highest percentage growth value of 12.27 percent in 2022 because the mining and quarrying sector experienced a significant increase. Meanwhile, East Tanjung Jabung Regency has the lowest economic growth rate at 0.57 percent. However, in 2018, the average percentage of economic growth between districts/cities was balanced, with Jambi City having the highest percentage of 5.30 percent and East Tanjung Jabung District having the lowest percentage of 2.94 percent.

Based on the results of the analysis of growth center areas, it is found that Merangin Regency, Sarolangun Regency, Bungo Regency, Jambi City, and Sungai Penuh City are at hierarchy level 1, which means that these areas can have a high level of economic development. As for hierarchy level 3, namely Kerinci Regency, Batanghari Regency, and Tebo Regency, which still have less facility availability than other regions, which means that these areas have a low economic level. Of all the regions that are at the hierarchy 1 level, the central growth area of Jambi Province is Jambi City with the largest role in the formation of Jambi City's GRDP in 2022, the most contribution is owned by the transportation and warehousing sector, followed by the processing industry. (BPS Jambi City, 2023).

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The economic development of a region cannot escape the influence of other regions that have resource potential and are administratively closer. Jambi City, as a growth center, serves as a driver of growth and is the starting point of development for other regions in Jambi Province, such as Batanghari Regency, Muaro Jambi Regency, East Tanjung Jabung Regency, and West Tanjung Jabung Regency. The potential of each region is different, so each region has the opportunity to increase its economic growth by working together to provide spillover economic activity.

Regional spillovers from other regions can be positive or negative. To deal with this problem, regional economic development policies must be made based on the performance of local governments in managing their regions. (Rosyadi & Yulyanti, 2021).. Research on *spillover effects* is important for a region as it can provide a better understanding of the economic dynamics in the region and help in the creation of successful development strategies. In addition, another objective is to analyze the movement of economic sectors as a result of economic growth. This can give an idea of which sectors are thriving and which ones need support. This is supported by research conducted by Kurniasih et al, (2019)(2019), which found that South Sumatra's economic *spillover, which* consists of investment, consumer price index, gross domestic product, and road length, has a positive *spillover effect* to Jambi, Lampung, Bengkulu, and Bangka Belitung provinces, except for Bangka Belitung's consumer price index which has a negative value. These regions have a direct or close relationship with South Sumatra, which suggests that South Sumatra is helping its neighboring regions.

To improve the regional economy both now and in the future, in addition to discussing the *spillover effect of* Jambi City as a growth center compared to other regions, it is necessary to conduct research on *leading sectors*. With its unique characteristics, each region has the potential for leading economic sectors that can be developed and utilized. According to Widodo (2006)According to Widodo (2006), leading sectors are very important for regional development. This sector not only has an impact on the geographical conditions of a region, but also spreads from one sector to another. The agricultural sector still plays an important role in the economy of Jambi Province. Therefore, it is important to know what areas can help each Regency or City in Jambi Province to develop in order to contribute to GRDP, which in turn will have an impact on local economic growth.

Then this of course can be a correction for the government whether the regions that have a high growth rate are affected by the economic growth of Jambi City as the center of growth or vice versa. Therefore, researchers are interested in raising the *spillover effect of* economic growth between districts / cities in Jambi Province, to be able to provide an overview of regional development planning, especially in Jambi Province in the future.

Research Methods

This research uses a quantitative approach. The data used includes the ADHK Gross Domestic Product (GRDP) of each Regency / City in Jambi Province from 2010 to 2022, the economic growth rate of each Regency / City from 2010 to 2022, and the distance between Regencies / Cities to Jambi City from 2022. This data was obtained from the Central Bureau of

Statistics (BPS). Five data analysis methods were used to achieve the objectives of this study, including:

Moran Index

Abdulhafedh (2017) stated that one of the most frequently used analyses in spatial analysis is the Moran index analysis. This analysis aims to determine spatial depedence or autocorrelation between locations, which gives rise to the characteristics of an area affecting or influencing the characteristics of its nearby villages. If the results show positive autocorrelation, it means that neighboring locations have similar values and tend to differ; conversely, if the results show negative autocorrelation, it means that neighboring locations have different values and tend to differ. The formula used to calculate spatial autocorrelation using Moran's Index is as follows (Zhang et al., 2008):

$$\mathrm{I} = \frac{Z_i - \bar{Z}}{\sigma^2} \sum_{j=1, j \neq i}^{n} \left[w_{ij} (z_j - \bar{z}) \right] \ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Description:

I : Moran Index

n : Number of observed locations (districts/cities)

z_i : Value at location i

z_j : Value at location j

σ^2 : Variance of variable z

$\bar{x}$: Average value of the number of variables or value

w_{ij} : elements in the standardized weights between villages i and j.

Decision Making H_o rejected if $|Z_{hitung}| > Z_{a/2}$. The value of I is in the range between -1 and 1. If I > I_o then the autocorrelation value is positive, which means that the data pattern is clustered, and if I < I_o then the autocorrelation value is negative, indicating a *dispersed* data pattern.

Local Indicator of Spatial Autocorrelation (LISA) and Moran Scatterplot

In Anselin (1995) LISA analysis is used to identify and group areas to show which districts/cities have similar characteristics on certain benchmarks based on the spatial patterns formed. According to Mathur (2015) there are five scenarios that may occur as follows:

1. *High-High* (H-H) or *hotspots*, which indicate areas that have high observed values are also surrounded by areas that have high observed values.
2. *High-Low* (H-L) or *outliers*, which indicate regions with high observed values surrounded by regions with low observed values.
3. *Low-High* (L-H) or *outliers,* which indicate regions with low observations but surrounded by regions with high observation values.
4. *Low-Low* (L-L) or *coldspots*, which indicate areas with low observed values and are surrounded by areas that also have low observed values.
5. *Not significant*, which indicates regions that do not have spatial autocorrelation.

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Meanwhile, the *Moran scatterplot* is a visualization graph that describes the linear relationship between the observed variable and the lag of the variable, which in this context is the spatial linkage which is a weighted variable of neighboring regions. The *Moran scatterplot* consists of four quadrants as described in the following table (Hasibuan et al., 2019):

Table 1. Moran Scatterplot Typology

Kuadran II *low-high cluster*	**Kuadran I** *high-high cluster*
Kuadran III *low-low cluster*	**Kuadran IV** *high-low cluster*

Spillover Effect Analysis

In this study, to determine how Jambi City provides a *spillover effect of* economic growth to the Regency / City of Jambi Province, a calculation using the formula from Capello (2009), which is as follows:

$$SP_{rt} = \sum_{j=1}^{n} W_j \frac{\Delta j_t}{d_{rj}}$$

Description:

SP_{rt} : *Spillover Effect of* regional economic growth

ΔY_{jt} : GRDP of neighboring region (j) in year t

j : Neighborhood of Jambi City

d_{rj} : Distance between the area/center of Jambi City (r) and neighboring areas (j)

n : number of neighboring regions of Jambi City

W_j : The economic weight of neighboring regions of Jambi City (j) on Jambi City (r) in the form of percentage economic growth.

Overlay Analysis

In this study, the purpose of the *overlay* analysis, which combines several analyses, is to determine what sectors are superior for the regencies/cities in Jambi Province. The combined analysis results are *Location Quotient* (LQ), Growth Ratio Model (MRP), and *Shift Share* Analysis. The data used for this analysis is the ADHK GRDP of Jambi Province. In overlay analysis, there are four classifications, namely as follows (Rosmeli, 2022):

Classification 1: RP_s (≥1) and LQ (≥1), which means the growth activity is dominant and comparative advantage.

Classification 2: RP_s (≥1) and LQ (≤1), which means the growth activity is dominant but does not have a comparative advantage.

Classification 3: RP_s (≤1) and LQ (≥1), which means the activity has low growth but comparative advantage.

Classification 4: RP_s (≤1) and LQ (≤1), which means the growth activities are low and not potential.

1) Location Quetient (LQ) Analysis

To determine the basic and non-basic sectors, a *Location Quotient* (LQ) analysis is conducted, which uses the level of income and the number of businesses as indicators. The following mathematical model is used to determine the base sector in each regency/city in Jambi Province. This model is based on the level of income (GRDP) of each regency/city and Jambi Province. (Huda & Cahyono, 2021).

If the result shows LQ > 1, it means that the role of the sector is more prominent in each Regency/City in Jambi Province than in the whole Jambi Province, so it can be called the basic sector in each Regency/City. Conversely, if the result shows LQ < 1, then it means that the role of the sector is smaller in the entire Jambi Province than in the entire Jambi Province.

2) Shift Share Analysis

Shift-share analysis is one of the analytical tools used to determine changes and structural shifts in a region's economy. Shift-share analysis is similar to LQ analysis, which compares the difference in the growth rate of economic sectors of a region with the region above it. However, the shift-share method uses three components, namely the National Share (Ns), the Proportional Shift Component (P) and the Differential Shift Component (D).

3) Growth Ratio Model (MRP)

Based on GRDP growth, the growth ratio model (MRP) is used to determine the leading sector or subsector. This model is derived from the initial equation of the two main components in the shift and gain analysis, namely the shift in the growth ratio of the reference area (RPR) and the shift in the growth ratio of the study area (RPS). The results of this MRP analysis can be classified as follows (Tarigan, 2004).

Classification 1: Values RP_R (+) and RP_S (+) indicates that the activity experienced prominent growth at the Jambi Province level and at the Regency/City level in Jambi Province. This activity is known as growth dominant.

Classification 2: Values RP_R (+) and RP_S (-) This indicates that although the activity has developed significantly at the Jambi Province level, it is not yet visible at the district or city level.

Classification 3: Values RP_R (-) and RP_S (+) This indicates that the activity has experienced an insignificant increase at the Jambi Province level, but at the district and city levels including a significant increase.

Classification 4: Values RP_R (-) and RP_S (-) This indicates that the activity experienced a low increase both at the Jambi Province level and at the district/city level.

Results and Discussion

Analysis of Spatial Interaction between Regency/City in Jambi Province

Spatial autocorrelation analysis is a fundamental thing used to measure spatial data, namely the level of interdependence between data in one location and another. Spatial autocorrelation indicates that when the value of objects located in adjacent locations will have a high similarity compared to the value of objects that are far apart. (Zhao et al., 2018).

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Moran Index Analysis

Based on the results of the calculation of the Moran Index for 20010-2022 in the Regency / City of Jambi Province, it shows that the average value of *Moran's I* (0.0376) > E(I) (-0.1000). This can be interpreted that there is positive autocorrelation and a pattern of clustering (*clustered)* areas with similar characteristics in the Regency / City of Jambi Province. Although, in 2022 the Moran index value is negative, which means that there is a spatial pattern of economic inequality between regions. Where for the highest average GRDP value is in Muaro Jambi Regency, West Tanjung Jabung Regency and East Tanjung Jabung Regency in the 2010-2022 period. To test the significance of inter-regional linkages used with statistical testing by looking at the Z (I) test, if the value of Z (I) > Z table, it is concluded that there is a significant spatial linkage between regions. In this study used α at 5% or 1.960. Based on the results of the table above, each year the average shows the value of Z(I) (0.5767) < Z table (1.960), so it can be concluded that H_O accepted, which means that there is no spatial relationship in economic growth between regencies / cities in Jambi Province. The distribution pattern of GRDP values in Jambi Province can be seen in the following figure.

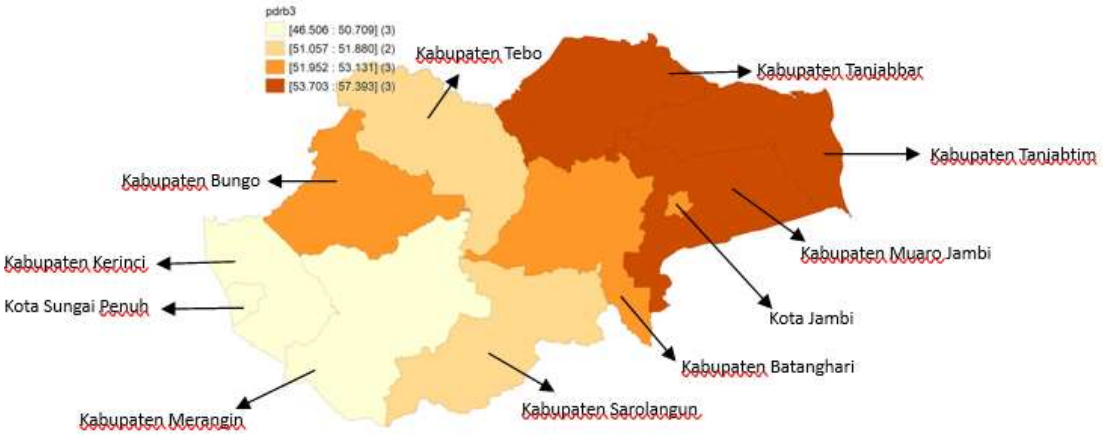

Figure 2. Distribution of GRDP Value in Jambi Province
Source: Data Processed (2024)

LISA and Moran Scatterplot Analysis

In addition, the *Local Indicator of Spatial Autocorrelation* (LISA) and *Moran Scatter plot* can be used to see a region that has significant spatial autocorrelation. *LISA cluster map* performs spatial visualization of the local Moran index, and LISA can be used to identify which districts or cities are spatially related. The results of the LISA analysis of economic growth in the Regency / City of Jambi Province in 2010-2022 are shown in the figure below.

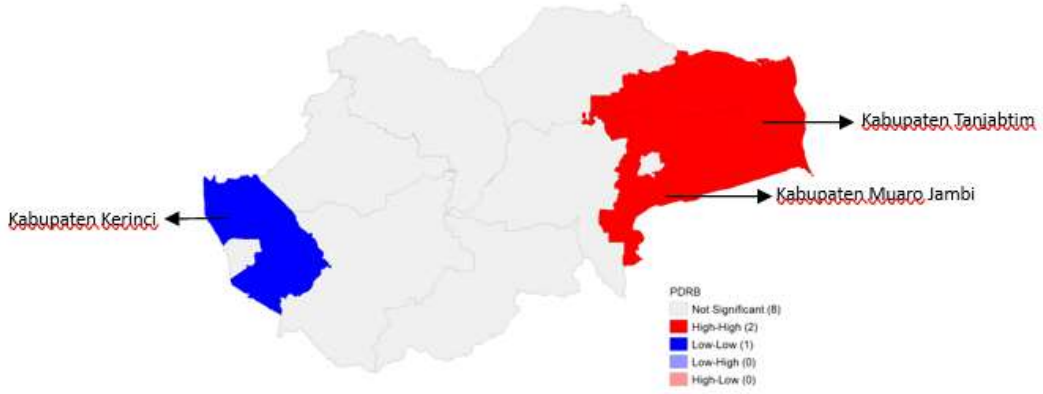

Figure 3. Results of LISA Cluster Map Analysis
Source: Data Processed (2024)

Based on the results of the calculation of the Moran local index described by LISA, it is based on the growth rate of GRDP per capita for each Regency / City of Jambi Province in 2007-2022, which represents economic performance in the same period. Then, the figure above shows that there are 2 districts that are included in the *high-high* cluster, 1 district that is included in the *low-low* cluster, and 8 other districts / cities are insignificant or have no spatial relationship. Among those included in the *high-high* cluster are Muaro Jambi Regency and East Tanjung Jabung Regency. Meanwhile, the *low-high* cluster is Kerinci Regency.

Furthermore, the visualization of data using *Moran Scatterplot* shows that the economic growth of districts / cities in Jambi Province is spread in 4 different quadrants. The distribution of the most values seen in the graph below is quadrant I and Quadrant IV. Where areas that are included in quadrant I or the *high-high* cluster are Jambi City, Muaro Jambi Regency, East Tanjung Jabung Regency, and West Tanjung Jabung Regency. Then, the areas included in quadrant II or the *low-high* cluster are Batanghari Regency, and Tebo Regency. Then, the areas included in quadrant III or the *low-low* cluster are Sarolangun Regency, Merangin Regency, Kerinci Regency, and Kota Sungai Penuh. Meanwhile, for quadrant IV or the *high-low* cluster, the area included is Bungo Regency. In the Moran *scatterplot*, the gradient shows the slope of the line from the horizontal axis, which shows how much spatial autocorrelation is found in the data. In addition, the direction of the gradient starting from quadrant III towards quadrant I indicates a positive spatial autocorrelation.

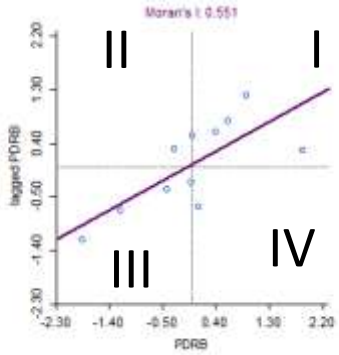

Figure 4. Moran Scatterplot Results
Source: Data Processed (2024)

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In addition, interregional economics refers to efforts to maintain the stability of interregional economic development and improve economic performance outside the region. It is said that national development is basically a process of regional development and policy plans to encourage the economic growth of each region proportionally. Therefore, the main objective of such development is to encourage economic growth to improve the welfare of the people in the region. (Muta'ali, 2002). Consequently, to improve the people's economy, the government must continue to increase the potential possessed by all districts and cities in Jambi Province.

Spillover Effect Analysis of Jambi City on Regency/City in Jambi Province

In analyzing the *spillover effect*, there are two properties given by a region to other regions, namely the *spread effect* and the *backwah effect*. In this study, the authors used the formula proposed by Capello (2009) to calculate the *spillover effect* visualized by Geoda *software*. Based on the measurement of the growth *spillover effect* that has been carried out during the 2010-2022 period, the average *spillover effect* from Jambi City received by the Regency / City in Jambi Province is the lowest in Kerinci Regency by 0.014, Full River City by 0.019, Merangin Regency by 0.025, Bungo Regency by 0.42, Tebo Regency by 0.044, Sarolangun Regency by 0.053, West Tanjung Jabung Regency by 0.082, East Tanjung Jabung Regency by 0.171, Batanghari Regency by 0.208, and the highest was Muaro Jambi Regency by 0.406.

Geographically, Jambi City as the capital of Jambi Province as well as a growth pole area neighbors Muaro Jambi Regency, Batanghari Regency, and East Tanjung Jabung Regency. Therefore, the *spillover effect* received is much higher than the other districts/cities. In contrast, the lowest *spillover effect* was received by Kerinci Regency, which amounted to 0.014. Similarly, all regencies in Sungai Penuh City, Bungo Regency, Merangin Regency, Sarolangun Regency, Tebo Regency, and Tanjung Jabung Barat Regency each received low *spillover effects*. This shows that, during 2010-2022, development allocations were still centered in the area around Jambi City, as shown in the figure below.

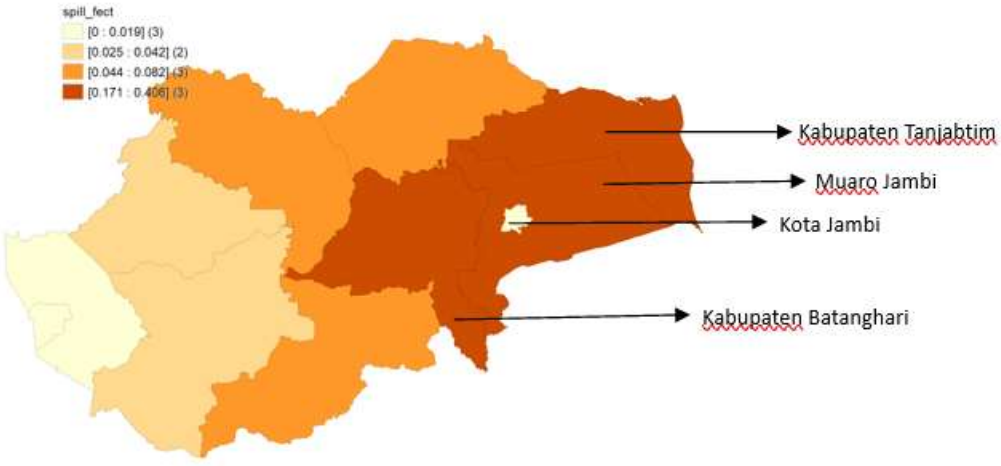

Figure 5. Average *Spillover Effect of* Regency/City Growth in Jambi Province.
Source: Data Processed (2024)

The results show that there is a *spread effect of* economic growth between Jambi City and Muaro Jambi Regency, East Tanjung Jabung Regency, and Batanghari Regency. Because Muaro Jambi Regency is in the vicinity of Jambi City, and East Tanjung Jabung Regency and Batanghari Regency are neighbors of Jambi City, economic activities can run more smoothly between the two regions. The interdependence between regions in terms of goods and services is due to their different resources and characteristics; as a result, there is a causal relationship and spillover of economic growth between these regions. This is in line with Capello's theory, which states that the economic growth of a region is driven by interregional economic interactions, and conversely the economic growth of a region is driven by interregional economic interactions.

Spillover effects are impacts that occur due to inter-regional dependency relationships. The impact can be a positive impact, which makes the economy in other regions increase, or a negative impact, which causes the economy of other regions to decline (Dainty Julliet Roring et al., 2023). (Dainty Julliet Roring et al., 2023). In this study, it has been proven that there is a positive spillover effect from the economic activities of one region to another, namely between Jambi City and Muaro Jambi Regency, East Tanjung Jabung Regency, and Batanghari Regency which has a very high impact. Meanwhile, Kerinci Regency and Full River City have a very low spillover effect.

To improve connectivity between regions, the government continues to improve infrastructure such as bridges or roads. Especially now that the construction of the Jambi-Palembang toll road has taken place, which will facilitate the distribution of goods or services, improve connectivity to Jambi Province, support equitable development on the island of Sumatra, and improve the economy of the surrounding community. According to Susanto & Udjianto (2021) inter-regional connectivity will create greater positive effects if accompanied by intergovernmental cooperation. Economic activities will provide optimal results when the production process is carried out on a large scale, so that it will benefit from economies of scale.

This finding is in line with research conducted by Kurniasih et al., (2019) where the results of his research explain that South Sumatra Province provides a positive spillover effect to Jambi, Bengkulu, Lampung and Bangka Belitung Provinces. This is also similar to the results of research from Chen & Wu, (2012) where regions outside the Pan Pearl River Delta (PPRD) have a greater spillover effect on economic growth than fellow members of the PPRD region itself.

Leading and Competitive Sectors in Districts/Cities of Jambi Province

Overlay analysis is an analysis used to evaluate potential economic categories both in terms of contribution and GRDP growth. In this study, overlay analysis was also used as a comparison of various analytical tools used to evaluate leading economic categories in several districts or cities in Jambi Province. In this study, to conduct the Overlay analysis, the authors combined three analyses, namely *Location Quotient* (LQ) analysis, *Shift Share* (SS) analysis, and Growth Ratio Model (MRP) analysis. The following are the results of the Overlay analysis for

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each Regency / City in Jambi Province. In the research there are 4 classifications of Overlay analysis used, namely; 1) Value RP_R (+) and RP_S (+) indicates that the activity experienced prominent growth at the Jambi Province level and at the Regency / City level in Jambi Province. This activity is known as dominant growth. 2) RP_s (≥1) and LQ (≤1), which means that the growth activity is dominant but does not have a comparative advantage. 3) RP_s (≤1) and LQ (≥1), which means the activity is low growth but has a comparative advantage. 4) RP_s (≤1) and LQ (≤1), which means the growth activity is low and has no potential. The results of the overlay analysis for each district and city in Jambi Province are shown here.

Table 2. Results of Overlay Analysis of Regency / City in Jambi Province 2010-2022

Kategori	Kota Jambi		Kab. Bungo		Kab. Tebo		Kab. Muaro Jambi		Kab. Batanghari		Kab. Kerinci		Kab. Merangin		Kab. Sarolangun		Kab. Tanjabtim		Kab. Tanjabbar		Kota Sei. Penuh	
	LQ	MRP	LQ	MRP	LQ	MRP	LQ	MRP	LQ	MRP	LQ	MRP	LQ	MRP	LQ	MRP	LQ	MRP	LQ	MRP	LQ	MRP
A	0,038	12,232	0,956	0,752	1,769	1,037	1,567	1,044	1,503	0,833	1,942	0,779	1,888	0,770	1,043	0,627	0,556	1,961	0,818	1,547	0,204	0,762
B	0,165	-0,379	0,778	1,118	0,370	1,071	0,604	1,256	0,640	2,289	0,067	1,595	0,107	0,618	1,286	1,479	2,646	0,367	1,897	0,734	0,035	0,883
C	1,114	0,772	0,916	0,598	0,540	0,826	1,532	0,785	1,100	0,721	0,274	1,151	0,709	1,069	0,366	0,760	0,641	1,515	1,778	0,622	0,056	0,910
D	3,587	1,837	1,459	0,772	1,327	1,242	0,710	1,422	0,953	1,182	0,783	1,860	1,150	1,440	0,524	2,993	0,233	3,197	0,263	3,300	0,440	1,149
E	1,889	0,426	0,689	1,543	0,284	0,763	0,708	0,527	0,604	0,762	2,749	0,342	1,345	0,686	0,934	0,593	0,411	1,589	0,397	0,665	2,470	0,745
F	1,360	1,445	1,503	1,582	0,926	0,887	0,762	1,204	0,940	0,919	1,111	3,069	1,011	1,246	1,812	1,153	0,562	3,383	0,564	2,942	1,738	1,040
G	2,796	1,457	0,992	1,305	0,901	1,187	0,537	0,960	0,786	0,890	1,011	0,969	1,144	1,379	0,600	0,167	0,513	3,470	0,326	1,552	2,531	1,091
H	3,977	0,806	1,186	0,760	0,420	0,821	1,133	0,912	0,488	0,926	0,836	1,028	1,000	1,598	0,606	3,423	0,317	2,476	0,243	1,546	1,135	1,048
I	2,178	1,778	1,203	2,318	0,306	0,905	0,585	1,095	0,339	1,086	0,823	0,945	1,819	1,458	1,781	1,077	0,271	3,118	0,384	1,450	1,000	1,063
J	1,487	1,316	1,859	1,283	0,961	1,036	0,694	1,225	0,796	1,120	1,946	1,598	1,244	1,316	0,982	1,041	0,334	3,651	0,454	2,204	3,850	1,126
K	2,637	1,417	1,118	1,722	0,578	0,911	0,765	1,044	0,793	0,893	0,470	1,103	0,673	1,127	1,052	1,146	0,293	2,434	0,414	-1,244	2,109	1,280
L	1,788	0,844	0,746	1,941	1,248	0,810	0,838	0,755	0,828	0,754	1,252	0,407	1,556	0,743	0,884	1,036	0,335	2,170	0,425	1,241	1,805	0,742
M,N	2,705	0,831	0,536	0,196	0,056	0,688	1,127	0,573	0,070	0,798	0,041	0,539	0,134	0,633	0,219	0,609	0,925	1,585	1,039	0,859	9,349	0,864
O	2,179	0,487	0,688	0,760	1,090	1,021	0,904	0,620	1,156	0,831	1,719	0,477	1,041	0,687	1,099	0,724	0,450	1,692	0,421	1,092	1,545	0,853
P	1,439	0,835	0,891	1,482	0,661	0,776	0,526	-0,865	1,628	0,837	1,345	0,689	1,120	0,630	0,901	0,727	0,788	1,590	0,532	0,841	2,661	0,880
Q	2,302	1,787	2,032	0,579	0,762	1,124	0,882	1,521	1,222	1,131	1,475	1,301	1,213	1,428	1,134	0,683	0,357	3,297	0,392	1,918	2,124	1,156
R,S,T,U	0,798	0,736	0,693	0,646	1,671	0,578	1,381	0,742	1,089	0,753	1,631	0,847	1,426	0,986	1,469	1,453	0,255	1,795	0,534	0,859	2,222	0,902

Source: Data Processed (2024)

With its unique characteristics, each region certainly has the potential for superior economic sectors that can be grown and utilized. The government can utilize the leading sectors by implementing targeted regulations to increase local economic growth. Leading sectors have a *multiplier effect* in a country's economy (Tipka, 2021). To find out the leading sectors in the Regency / City of Jambi Province, researchers used *Overlay* analysis which combines the results of *Location Quotient* (LQ) and Growth Ratio Model (MRP) analysis into an Overlay composite model with research years covering 2010-2022.

Overall, across all regencies and cities in Jambi Province, the construction sector is on average the most developed industry in five regions namely Bungo Regency, Jambi City, Sungai Penuh City, Kerinci Regency, and Sarolangun Regency. This is due to the fact that construction in Jambi Province has become the government's focus and priority for building infrastructure to boost the economic growth of the community. Although in 2020, this sector experienced the biggest decline in growth as a result of the COVID-19 pandemic. (DGT Jambi Province, 2022).

Meanwhile, in terms of sectors with low growth and no comparative advantage, the Processing Industry sector is the average in the Regency / City of Jambi Province, namely Bungo Regency, Tebo Regency, Sarolangun Regency, and Sungai Penuh City. This explains that the processing industry sector in Jambi Province is not the dominant sector even though this sector contributed to the economic growth of Jambi Province by 10.24% in 2021. Therefore, here the government is expected to provide the right stimulus to support the success of the processing industry in Jambi Province, as well as increase the role of women in it. The government can also improve the quality of human resources (HR) by improving the quality of education and training that can support the community to develop according to market

needs. Here the role of the private sector is also needed, for example by developing business units that can increase employment.

Conclusions

The economic development of a region depends on the influence of other regions that have resource potential and are administratively closer. Jambi City, as a growth center, serves as a driver of growth and is the starting point of development for all other districts and cities in Jambi Province. The study of key sectors is crucial to improving the regional economy both now and, in the future, if we want to talk about the spillover effect of Jambi City as a growth center compared to other regions. With its unique characteristics, each region has potential leading economic sectors that can be developed and utilized.

The results of the Moran Index analysis show that the average autocorrelation for all regencies and cities in Jambi Province is positive overall, and the pattern of regional groupings with similar characteristics has a positive value. The results of the Moran Scatterplot analysis showed that Jambi City, Muaro Jambi Regency, East Tanjung Jabung Regency, and West Tanjung Jabung Regency were in high quadrant I; Batanghari Regency and Tebo Regency were in low quadrant II; Sarolangun Regency, Merangin Regency, Kerinci Regency, and Full River City were in low quadrant III; and Jambi City was in high-low quadrant IV. Furthermore, the LISA analysis showed that two cluster patterns were formed in the eastern and western parts of Jambi Province. Muaro Jambi Regency and East Tanjung Jabung Regency are in the high-high classification in the east, and Kerinci Regency is in the low-low classification in the west.

Conversely, because Jambi City neighbors Muaro Jambi Regency, East Tanjung Jabung Regency, and Batanghari Regency, there is a spillover effect on economic growth. This is indicated by the results of the Spillover Effect analysis using the Cappello calculation formula. Furthermore, the results of the overlay analysis show that overall, in all districts/cities in Jambi Province, the construction sector is on average the most developed sector and has comparative advantages in five regions: Bungo District, Jambi City, Full River City, Kerinci District, and Sarolangun District. On the other hand, the manufacturing sector, which has low growth and no comparative advantage, is the most developed.

This research is of course expected to help the government in determining what policies will be formed for the welfare of the community. From the results of the analysis that has been carried out, it appears that Jambi City as a growth center area has a positive impact on the economy of the surrounding area, because it can provide a symbiotic relationship of mutualism, where sectors that are not owned or that do not meet the needs of the community can be fulfilled by another Regency / City in Jambi Province and vice versa.

Suggestion

Based on the results of the research and discussion, the researcher provides the following suggestions:

1. The government can continue to improve inter-governmental cooperation and coordination through the development of regulations to govern inter-sectoral and inter-regional cooperation.

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2. The government can increase programs that encourage performance in the Agriculture, Forestry and Fisheries sectors considering that this sector is the largest labor absorber in Jambi Province.
3. The government can also consider forming new growth center areas based on the potential of the local economy in Jambi Province, which in turn can encourage the spillover of growth between districts / cities in Jambi Province.
4. Each district/city can continue to improve their existing sectors of excellence and for sectors that have low growth can create new programs that are in line with market needs.
5. The author sincerely hopes that this research can be continued by changing or adding variables or methods used. The hope is that more complete results can be used as a reference or comparison in the public policy making process.

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