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REGIONAL ECONOMIC PERFORMANCE AND PUBLIC SERVICE FACILITIES: AN ANALYSIS OF KLASSEN TYPOLOGY AND SCALOGRAM IN JAMBI PROVINCE

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Abstract: *Jambi Province consists of nine regencies and two cities with diverse topographical characteristics. Regional economic progress is generally determined by two primary indicators: economic growth and GRDP/capita. This study aims to analyze the development levels of regencies and cities in Jambi Province in relation to their public facilities. The research methodology employs the Klassen Typology to classify regional progress, Scalogram Analysis to determine public facility ownership, geographic and geo-economic mapping to identify the distribution of influence. The results identify four patterns of regional economic performance: one Developed Region, four Potential Regions, three Developing Regions, and three Lagging Regions. A notable finding indicates that the Developed Region is Muaro Jambi Regency, while Jambi City is positioned as a Lagging Region. More significantly, the ownership of public facilities doesn't appear to dictate a region's progress. This suggests that regions prioritize functional access to public facilities over administrative ownership of the facilities themselves.*
Keywords: *Public Facilities, Accessibility, Regional Performance, Klassen Typology*

Abstrak: Provinsi Jambi terdiri dari 9 kabupaten dan 2 kota dengan karakteritik topografi yang beragam. Kemajuan ekonomi suatu daerah dapat ditentukan dengan 2 indikator, yaitu pertumbuhan ekonomi dan PDRB/kapita. Penelitian ini bertujuan untuk menganalisis tingkat kemajuan kabupaten/kota di Provinsi Jambi dan fasilitas publik yang dimiliki. Metode penelitian menggunakan Tipologi Klassen untuk mengklasifikasikan tingkat kemajuan kabupaten/kota, Analisis Skalogram untuk menentukan kepemilikan fasilitas publik, pemetaan geografis dan geo-ekonomi untuk mengetahui sebaran pengaruhnya. Hasil penelitian mengidentifikasi empat pola kinerja ekonomi wilayah, yaitu 1 daerah tipe Daerah Maju, 4 daerah tipe Daerah Potensial, 3 daerah tipe Daerah Berkembang, dan 3 daerah tipe Daerah Tertinggal. Hasil yang menarik adalah Daerah Maju berada di Kabupaten Muaro Jambi sedangkan Kota Jambi menempati posisi sebagai Daerah Tertinggal. Hasil yang lebih menarik bahwa kepemilikan fasilitas publik seakan tidak menentukan kemajuan suatu daerah. Hal ini menggambarkan bahwa suatu daerah lebih membutuhkan akses ke fasilitas publik dari pada kepemilikan fasilitas itu sendiri.
Kata Kunci: Fasillitas Publik, Aksesibilitas, Kinerja Daerah, Tipologi Klassen

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1. INTRODUCTION

Regional economic development is essentially a planned and measurable effort aimed at two primary objectives: driving economic growth and simultaneously increasing GRDP per capita. Regional development is crucial not only for enhancing local welfare but also for stimulating national economic growth (Bappenas, 2025).

Economic growth implies an increase in production, trade, transportation, and consumption, leading to a steady rise in income year after year. Conversely, an increase in GRDP per capita ensures that progress is defined not only by rising regional income but also by its distribution across all levels of society.

In practice, the improvement of these two economic indicators does not always align. High economic growth is not necessarily followed by high GRDP per capita; it is possible for one to be high while the other remains low, or even for both to be categorized as low. Consequently, an analytical tool is required to classify the economic progress achieved by a region using both indicators simultaneously. This was addressed by Klassen in Sjafrizal (2009) by classifying regional performance into four types, known as the Klassen Typology. These four categories are Developed Regions, Potential Regions, Developing Regions, and Lagging Regions.

Classical regional economic theory assumes that cities serve as the orientation for regional development or as the focal point for the progress of rural villages typically located within regencies. Perroux (1950) proposed that economic activity tends to concentrate in specific locations known as centers or cities. These areas progress more rapidly due to production efficiency, ease of marketing access, and agglomeration economies gained from the utilization of shared facilities (Sjafrizal, 2018).

Aligned with Perroux (1950) conceptualization, the assumption has emerged that cities are developed regions characterized by high economic growth and high GRDP per capita. Such high growth attracts entrepreneurs to expand their businesses, making cities a primary destination for rural youth migrating in search of better future opportunities. Conversely, regency governments also strive to develop their regions to meet urban standards.

A study by Wahyuningsih (2024) in Central Java, utilizing the Klassen Typology analysis, concluded that five out of six cities are classified in the "Developed" category. In contrast, only five out of 26 regencies fall into the "Developed" category, while the remaining regencies are categorized as potential, developing, or lagging. Similarly, research by Sjafrizal (2015) indicated that in West Sumatra, three cities are categorized as "Developed Regions" and five cities as "Potential Regions," whereas all regencies are classified as either "Developing" or "Lagging Regions."

According to Pida et al. (2025), urban development in Indonesia is driven by urbanization, particularly rural-to-urban migration. Research conducted on economic development in major cities such as Jakarta, Surabaya, and Bandung revealed that while urbanization and migration stimulate economic growth and job creation, they also pose significant challenges to urban development, including housing shortages, traffic congestion, and pollution. Furthermore, Tjiptoherianto (1999) posited that urbanization—the proportion of the population residing in urban areas will continue

to rise in the coming years. This serves as a reminder that challenges related to population density, housing, traffic congestion, and the disorganization of the informal sector will become increasingly complex. Consequently, there is a possibility that cities could eventually fall into the underdeveloped or lagging categories.

Urban development in Indonesia is inseparable from the availability of public facilities. The presence of educational institutions, healthcare centers (hospitals), commercial areas, repair shops, and telecommunication networks act as pull factors that attract residents to migrate from regencies to cities. However, according to Sjafrizal (2012), excessive migration from regencies to cities can also generate negative impacts, such as traffic congestion, soaring land prices, housing shortages, and even increased crime rates. This illustrates a paradox where the physical ownership of public facilities within a region seemingly fails to benefit the city's own residents. Instead, these facilities predominantly benefit the population residing outside the city.

This study aims to analyze regional economic performance using the Klassen Typology, assess public facility ownership through the Scalogram method, and map regional economic performance within a spatial framework.

2. LITERATURE REVIEW

2.1 Regional Economic Performance and the Klassen Typology

Essentially, a region's economic performance indicates the extent to which local development has succeeded in improving community welfare. Generally, this success is measured through two primary indicators: the economic growth rate and the Gross Regional Domestic Product (GRDP) per capita (Todaro, 2000). The economic growth figure demonstrates the expansion of production activities, while GRDP per capita more accurately reflects the quality of life and the average income of its citizens. To map these economic conditions spatially, the Klassen Typology serves as a highly reliable analytical tool. This method categorizes regions into four quadrants by comparing a region's growth rate and income levels against provincial or national averages. These four quadrants consist of: High Growth and High Income (Quadrant I), Developed but Distressed (Quadrant II), Fast Developing (Quadrant III), and Relatively Backward (Quadrant IV) (Dangi et al., 2024). This mapping is crucial for enabling governments to identify precise areas of disparity, ensuring that designed development strategies truly align with the specific needs of each region.

2.1 Public Service Facilities and Growth Pole Theory

The economic development of a region cannot accelerate without the support of adequate public facilities and infrastructure, such as schools, hospitals, trade centers, and transportation access. Logically, this aligns with the Growth Pole Theory proposed by Perroux. This theory explains that the economy does not grow uniformly across all locations simultaneously, but rather concentrates at specific points possessing strong attraction. These points are typically urban areas equipped with comprehensive facilities (Saputra & Hidayat., 2023). The availability of superior facilities automatically acts as a magnet, attracting skilled labor and investors. When numerous economic activities cluster in one location, production costs become lower and more efficient

(economies of scale). Ideally, these centers of progress will gradually disseminate prosperity (trickle-down effect or spillover effect) to the surrounding hinterland areas.

2.3 Scalogram Analysis (Marshall Centrality Index)

To objectively measure the completeness of public facilities in a region, Scalogram Analysis (Marshall Centrality Index) is a highly appropriate method (Kuncoro, 2014). The logic of this method is straightforward: each type of facility is assigned a weight or value based on its scarcity. Facilities rarely found elsewhere, such as General Hospitals or Universities, receive a significantly higher weight compared to basic facilities that are present in almost every district, such as elementary schools or community health centers (Puskesmas). The total weight of all facilities is then summed to form the Centrality Index. This figure subsequently determines the rank or hierarchy of a region, ranging from the most comprehensive primary service centers (Hierarchy I) to areas with only basic services.

2.4 Spatial Anomaly: Urban Saturation and Spatial Spillover Effects

Ideally, regions with the most comprehensive facilities (such as city centers) should exhibit the highest rates of economic growth. However, reality on the ground often reveals anomalies or irregularities. Amir (2019) and Rosmeli (2018) found that the accumulation of physical development concentrated solely in cities can trigger new issues. When a city becomes overly saturated with facilities, it may experience urban saturation. This condition is characterized by high living costs, land scarcity, and traffic congestion, which ultimately burden and slow down the city's own economic pace.

On the other hand, peripheral areas with minimal facilities can experience rapid growth. This can occur for two logical reasons. First, due to the Spatial Spillover Effect. As evidenced by Jacobus et al. (2024) , the growth of buffer zones is often driven by the overflow of activities and the utilization of facilities in nearby cities (free-riding) without the region having to burden its own budget to build such infrastructure. Second, the presence of a Commodity Boom cycle. Peripheral areas rich in natural resources (such as palm oil or oil and gas) can reap significant GRDP income when global prices rise, despite their public facilities being minimal. This paradox or anomaly serves as the primary focus and theoretical foundation of this study to dissect the relationship between facility completeness and economic performance in Jambi Province.

3. RESEARCH METHODS

3.1. Approach and Data Sources

This study employs a quantitative approach utilizing a descriptive-comparative method. The primary focus of this research is to analyze regional economic performance, assess the availability of public facilities in each region, and map regional economic performance within a spatial framework. The study utilizes time-series secondary data, which encompass the following:

3.1.1. Economic Data

Non-Oil and Gas Gross Regional Domestic Product (GRDP) at Constant Prices, Non-Oil and Gas Economic Growth and the population of each regency and

city. These data were sourced from publications by the Central Bureau of Statistics (BPS) of Jambi Province.

3.1.2. Facility Availability Data

The number of public service facility units (educational, healthcare, economic, social, and religious facilities) per regency and city. These data were also obtained from publications by the Central Bureau of Statistics (BPS) of Jambi Province.

3.2. Data Analysis Method

3.2.1. Klassen Typology Analysis

The Klassen Typology analysis is utilized to map the position of regions into four distinct quadrants. This mapping is based on a comparison of the region's economic growth rate and its GRDP per capita. The quadrants for classifying each region are defined as follows (Sjafrizal, 2009):

1. Quadrant I: Developed Regions (Fast-Growing and High-Income Regions). Regions that possess both an economic growth rate and GRDP per capita higher than the regency/city average.
2. Quadrant II: Potential Regions. Regions that have a lower economic growth rate but a higher GRDP per capita compared to the regency/city average.
3. Quadrant III: Developing Regions. Regions that exhibit a higher economic growth rate but a lower GRDP per capita compared to the regency/city average.
4. Quadrant IV: Lagging Regions. Regions that have both an economic growth rate and GRDP per capita lower than the regency/city average.

3.2.2. Scalogram Analysis for Regional Hierarchy

The hierarchy of public service facilities is determined using Scalogram analysis, specifically through the Weighted Centrality Index (Marshall's Centrality Index) method. The weighting system is applied based on the scarcity principle, wherein facilities that are scarce or limited in number are assigned a higher centrality weight compared to those that are widely distributed.

To objectively determine the hierarchy of public service facilities, this study employs four sequential calculation stages based on the following formulas:

3.2.2.1. Calculating the Facility Availability Index (A_{ij})

Standardizing the number of facilities relative to the population size is necessary to ensure the assessment is not biased toward densely populated areas. The formula used is the facility ratio per 1,000 residents:

$$A_{ij} = \frac{1000\ x\ F_{ij}}{P_i}$$

Where:

I_{ij} = Weighted index

n = Total number of regions (Regencies/Cities)

f = Number of regions possessing the specific type of facility

3.2.2.2. Scarcity-Based Weighting (I_{ij})

Facilities that are scarce (possessed by only a few regions) are assigned a higher weight, in accordance with the principles of Central Place Theory.

$$I_{ij} = A_{ij}\ x\ weight$$

$$Weight = \frac{n}{f}$$

Where:
I_{ij} = Weighted index
n = Total number of regions (Regencies/Cities)
f = Number of regions possessing that specific type of facility

3.2.2.3. Value Standardization (K_{ij})

Given that each type of facility possesses different measurement units and value ranges, it is necessary to standardize these values into Standard Values (Z-Scores).

$$K_{ij} = \frac{I_{ij} - \min(I)_j}{S_j}$$

Where:
K_{ij} = Standardized hierarchy index value for region i and characteristic j
Min $(I)_j$ = Minimum index value for characteristic j
S_j = Standard deviation value of characteristic j

3.2.2.4. Determination of Hierarchy Classes

Hierarchy groups are determined using the Mean and Standard Deviation (Stdev) thresholds:
Hierarchy I (Primary Center):

$$\sum K_{ij} > Mean + Stdev$$

Hierarchy II (Secondary Center):

$$Mean < \sum K_{ij} < (Mean + Stdev)$$

Hierarchy III (Hinterland/Peripheral):

$$\sum K_{ij} < Mean$$

4. RESULTS AND DISCUSSION

4.1. Economic Performance Analysis of Regencies/Cities in Jambi Province Using the Klassen Typology Method

The Klassen Typology analysis Sjafrizal (2009) is valuable because it determines the progress of a region by utilizing two indicators: economic growth and GRDP per capita. The Klassen Typology classifies regions into four quadrants based on the economic growth rate (vertical axis) and GRDP per capita (horizontal axis). The results of the analysis will categorize the regions into Developed Regions, Potential Regions, Developing Regions, and Lagging Regions. This analysis utilizes data from the regencies/cities in Jambi Province from 2019 to 2024, as presented in Table 1.

Table 1. Classification of Regencies/Cities Based on the Klassen Typology (2019-2024)

Quadrant	Regional Classification	Regency/City	Economic Characteristics	Distance from the Provincial Capital (km)
Quadrant I	**Developed Regions** *(High Growth, High Income)*	Muaro Jambi Regency (MJ)	Regions with a high economic growth rate and high per capita income	MJ = 20.74
Quadrant II	**Potential Regions** *(Low Growth, High Income)*	Batanghari Regency (BH), East Tanjung Jabung Regency (TJT), West Tanjung Jabung Regency (TJB), and Sungai Penuh City (SP)	Regions where the economic growth rate has begun to slow down, but per capita income remains high	BH = 57.29 TJT = 65.98 TJB = 118.72 SP = 396.33
Quadrant III	**Developing Regions** *(High Growth, Low Income)*	Merangin Regency (MN), Bungo Regency (BG), and Kerinci Regency (KC)	Regions with a high economic growth rate but low per capita income	MN = 249.84 BN = 241.56 KC = 378.95
Quadrant IV	**Lagging Regions** *(Low Growth, Low Income)*	Tebo Regency (TB), Sarolangun Regency (SR), and Jambi City (KJ)	Regions with a low economic growth rate and a low per capita income	TB = 195.93 SR = 175.44 KJ = 0

Source: Statistics Indonesia (processed data)

Based on Table 2, it can be explained that there are four types of regions, as follows:

4.1.1. Quadrant I: Developed Regions

The only regency or city categorized as a Developed Region is Muaro Jambi Regency. This indicates that Muaro Jambi possesses a sector acting as a powerful economic engine, capable of driving economic growth above the average of Jambi Province. Furthermore, the regency is not pressured by high population growth rates, allowing its GRDP per capita to remain high and exceed the provincial average. Muaro Jambi also does not experience internal urban pressures such as traffic congestion, building density, overpopulation, residential clutter, or disorganized informal trade.

Additionally, Muaro Jambi Regency benefits significantly from a Spillover Effect; its geographical position surrounding the Jambi Provincial Capital grants it advantages in agglomeration economies. Many large-scale economic activities—such as warehousing, logistics, and middle-to-upper-class housing—have shifted from Jambi City to Muaro Jambi Regency. This shift occurs due to land scarcity within Jambi City. These developments create substantial money circulation and a high regional revenue

base. Moreover, the agricultural (plantation) and mining (coal) sectors in this region contribute massively to the GRDP per capita, establishing it as a wealthy region.

4.1.2. Quadrant II: Potential Regions

Included in this category are West Tanjung Jabung Regency, East Tanjung Jabung Regency, Batanghari Regency, and Sungai Penuh City. West Tanjung Jabung has traditionally been a "wealthy" region in Jambi Province. The high GRDP per capita in this region is driven by two main engines: the Manufacturing Industry (Pulp & Paper/Lontar Papyrus) and Oil and Gas Mining (PetroChina). However, this region is experiencing growth pressure due to a downward trend in oil and gas lifting (production) from aging wells. The mining sector frequently records negative or slowing growth, which drags down the regency's aggregate economic growth rate, even though other sectors are growing positively. Furthermore, the economy of West Tanjung Jabung is highly dependent on export markets. When global demand for wood pulp or world oil and gas prices experience a correction, the region's economic performance is immediately and significantly impacted, making it difficult to achieve high growth.

East Tanjung Jabung Regency also falls into the category of regions with relatively high GRDP per capita but slowing economic growth. This is because the contribution of several sectors remains significant, keeping the region's GRDP per capita seemingly high. However, similar to West Tanjung Jabung Regency, the main sectors in this region have not been able to adequately drive the economy, leading to hampered growth, particularly concerning copra commodities which were previously promising. Aside from oil and gas, the foundation of the local community economy in East Tanjung Jabung Regency is coconut plantations (copra). This commodity faces major challenges in the form of aging crops and declining productivity, as well as fluctuating copra prices that frequently plummet. This causes the grassroots economy to grow slowly, while the oil and gas sector simultaneously faces production pressures.

Sungai Penuh City, geographically located at the westernmost tip of Jambi Province, is also included in Quadrant II. Sungai Penuh serves as the center of money circulation for the surrounding population, particularly Kerinci Regency. All community shopping activities, banking services, and wholesale trade transactions are centralized here. The high volume of trade transactions (Wholesale and Retail Trade Sector) keeps the city's per capita income relatively high. Sungai Penuh City functions as an export gateway for leading highland commodities, such as cinnamon (*Cassia vera*) and Arabica coffee. The economic value of these commodities in the international market is exceptionally high. However, economic growth in this region appears to be slowing down because its geographical location, far in the western end, leads to a reliance primarily on the agricultural sector as the core economic driver.

4.1.3. Quadrant III: Developing Regions

Quadrant III is identified as the Developing Regions. The regencies categorized under this quadrant include Kerinci Regency, Merangin Regency, and Bungo Regency. These regions are currently in a "catch-up" phase, meaning the economic structures of

these hinterland areas are undergoing expansion, although they have not yet reached a level of income maturity. These three regencies share similar characteristics, being located along major logistics routes (Central/Eastern Trans-Sumatran Highway) and possessing extensive land bases. The high growth rates in these regions are strongly correlated with the rise in global commodity prices, particularly for palm oil and coal.

Merangin and Bungo Regencies serve as centers for both smallholder plantations and large-scale enterprises. When the price of Fresh Fruit Bunches (FFB) for palm oil increases, farmers' purchasing power rises, stimulating the trade and household consumption sectors, which results in high recorded economic growth. Furthermore, Bungo and Merangin Regencies are supported by mining activities. However, the per capita income in these regions remains low because the value-added potential of these commodities has not been maximized. The majority of products are sold as raw materials (FFB or raw coal) to other regions. Consequently, the circulation of money in these regions is not as high as in processing centers (downstreaming), keeping their GRDP per capita below the average. Nonetheless, as production volumes continue to increase, the growth rates remain consistently high.

Economic growth in Kerinci Regency is driven by specific commodities not found in other regions, namely Cinnamon (*Cassia vera*) and Arabica coffee. Stable export market demand allows Kerinci's agricultural sector to maintain positive growth. Additionally, the acceleration of the tourism sector drives the growth of the accommodation, food and beverage, and other service sectors at a faster pace compared to other regencies. Despite this rapid growth, Kerinci's per capita income is hindered by limited land ownership due to its mountainous topography—and a lack of large-scale industries. The economy is dominated by small-scale smallholder agriculture; therefore, individual capital accumulation is not as substantial as that of residents in palm oil.

4.1.4. Quadrant IV: Lagging Regions

The designation of Tebo Regency, Sarolangun Regency, and Jambi City as Lagging Regions (Quadrant IV) might seem counterintuitive from a layperson's perspective, considering that in reality, these areas appear to demonstrate advanced economic performance. Although the regions in Quadrant IV are classified as lagging, this categorization is theoretically highly logical. Jambi City, in particular, is currently facing the challenge of an inability to add new economic growth engines. The Jambi City area is already densely built up with both residential and commercial properties. Furthermore, Jambi City faces the issue of population in-migration from outside the city, primarily for educational purposes. This influx increases by a massive number every year, which consequently drives down the GRDP per capita.

4.2. Hierarchy Analysis of Public Service Facility Availability

To determine the hierarchy of public service facility availability, this study employs Scalogram Analysis (Rustiadi et al., 2011). Based on the data processing results regarding the availability of various facility types, a regional stratification is established, illustrating the hierarchy (ranking) among the regencies/cities in Jambi Province. The results of this ranking are presented in Table 2 below:

Table 2. Hierarchy (Ranking) of Public Service Facility Availability in the Regencies/Cities of Jambi Province

No	Completeness of Facilities	Regency/City	Public Facilities Used as Indicators
1.	Very Complete	Jambi City, West Tanjung Jabung Regency, Sarolangun Regency, and Sungai Penuh City	1. Educational services 2. Health services 3. Transportation services 4. Financial services 5. Environmental services
2.	Complete	Merangin Regency	
3.	Less Complete	Batanghari Regency, Kerinci Regency, Muaro Jambi Regency, and Tebo Regency	
4.	Incomplete	East Tanjung Jabung Regency and Bungo Regency	

Source: Statistics Indonesia (processed data)

Table 2 illustrates that the regencies/cities possessing very complete public service facilities are Jambi City, West Tanjung Jabung Regency, Sarolangun Regency, and Sungai Penuh City. The region categorized as having complete public service facilities is Merangin Regency. Meanwhile, the remaining regencies/cities fall into the categories of having less complete or incomplete public service facilities.

The availability of the public facilities in question encompasses education services, healthcare services, transportation services, financial services, and environmental services. In reality, these public service facilities do not necessarily need to be physically located within the respective regions; more importantly, there is access (opportunity) for the population to utilize these facilities. This level of access is precisely what is enjoyed by the regencies/cities located surrounding Jambi City. Jambi City provides higher education facilities, healthcare facilities, financial facilities, and commercial facilities, as well as mechanical, biological, chemical, and digital/information technology services. Consequently, the residents in the surrounding areas of Jambi City benefit significantly as they are able to utilize them.

4.3. The Relationship Between Economic Performance and Public Service Facilities

Public service facilities encompass several sectors, namely education services, healthcare services, transportation services, financial services, and environmental services. The improvement of these public service facilities aims to enhance the community's quality of life, ensure equity, and fulfill basic needs; hence, it is strongly presumed to positively influence economic performance. However, Dwiyanto (2021) points out that the availability of physical facilities in all these sectors does not necessarily have a positive impact on economic performance. This occurs because, even if a high-quality hospital facility is available in a city, the local residents might not necessarily need it; instead, it could be primarily utilized by residents from surrounding areas.

With the exception of basic education (which has certain limitations), every resident in a region has an equal opportunity to access services in higher education, healthcare, public transportation, finance, and the environment. Muaro Jambi

Regency, which falls into the "Developed Region" category in terms of Economic Performance, actually has "less complete" public service facilities. Conversely, Jambi City, which boasts complete public service facilities, has a "Lagging" economic performance.

Regarding the provision of public service facilities, in reality, not every region possesses all types of public facilities. The shortage of public service facilities in a specific area can be compensated for by the services provided by public facilities in neighboring regions. For instance, the comprehensive hospital facilities in Jambi City can be utilized by Muaro Jambi Regency, Batanghari Regency, West Tanjung Jabung Regency, East Tanjung Jabung Regency, and even other regencies.

This is particularly true for regions adjacent to the city. Cities generally possess more comprehensive public service facilities compared to regencies. For example, the higher education facilities, hospitals, transportation, commercial, and financial facilities located in the city may well be utilized by the surrounding regions. Currently, transportation accessibility has significantly improved. Furthermore, according to Sjafrizal (2009), the issue of overpopulation in regencies can be accommodated by the city; in fact, population migration from regencies to the city can alleviate the burden on the regencies but simultaneously add demographic pressure to the city, potentially causing the city's GRDP per capita to decline. Likewise, the higher education facilities available in Jambi City can also be accessed and utilized by residents from other regencies.

According to regional economic theory, every city possesses backward linkages and forward linkages. Surrounding areas provide inputs to the urban economy; for example, agricultural products sold to the city serve as inputs for urban industries. Similarly, labor from these areas constitutes a vital input for the sustainability of urban industrial activities. Conversely, the city provides essential inputs for its surrounding areas, such as seeds, fertilizers, pesticides, and agricultural machinery (Sjafrizal, 2008).

The research results indicate that the only region occupying the position of a "Developed Region" is Muaro Jambi Regency. Geographically, this regency surrounds Jambi City, placing it within the First Ring. Meanwhile, Jambi City itself is categorized as a "Lagging Region," characterized by both low economic growth and low GRDP per capita. This finding differs significantly from previous studies, which typically identify the city as the "Developed Region." However, this phenomenon is understandable when analyzed through the lens of "backwash effects" and "spread effects" (Myrdal, 1957). Muaro Jambi Regency possesses more abundant land resources for investments in ports and housing necessities for the residents of Jambi City which in turn generate significant revenue for the regency. In contrast, social-oriented investments, such as schools and hospitals, remain concentrated in Jambi City.

Regions categorized as "Potential Regions" (low economic growth but high GRDP per capita) include Batanghari Regency, West Tanjung Jabung Regency, East Tanjung Jabung Regency, and Sungai Penuh City. The first three regencies are located around Muaro Jambi Regency, placing them in the Second Ring. This spatial

distribution strengthens the assumption that backward and forward linkages are functioning as theoretically described.

The analysis explains that Jambi City, in its position as a "Lagging Region," faces two primary challenges. First, Jambi City is under pressure from the surrounding regencies located in the First, Second, and Third Rings. This pressure stems primarily from population migration into Jambi City, which becomes a demographic burden that subsequently diminishes its GRDP per capita. Second, Jambi City faces significant constraints in developing industry, ports, and housing, causing it to fall behind. Its development is hindered by limited land availability, an opportunity that has been seized by Muaro Jambi Regency. Conversely, the regencies located in the Second and Third Rings continue to develop while utilizing the public facilities available in Jambi City.

4.4. Location Analysis Based on Distance from the Provincial Capital

As previously discussed, the direct ownership of public facilities does not appear to significantly influence a region's economic performance; however, accessibility (opportunity) certainly plays a crucial role. These opportunities are often derived from adjacent or neighboring regions.

The region with the most comprehensive public service facilities is undoubtedly the capital of Jambi Province, namely Jambi City. Other regions with the highest accessibility are those geographically closest to it. This analysis operates under the assumption that all regions possess equally adequate transportation infrastructure, meaning that the primary factor determining the variance in opportunity is distance alone. The geographic distances between each regency/city and the provincial capital are presented in Table 3, while the spatial positioning of each regency/city within Jambi Province can be further explained using the Map of Regencies/Cities in Jambi Province.

Table 3. Distance from Regencies/Cities to the Capital of Jambi Province

Regency Capital	Regional Economic Performance	Distance to Jambi Provincial Capital
Muaro Jambi (Sengeti)	Developed Region	20.74
Batang Hari (Muara Bulian)	Potential Region	57.29
Tanjab Timur (Muara Sabak)	Potential Region	65.98
Tanjab Barat (Kuala Tungkal)	Potential Region	118.72
Sungai Penuh (Sungai Penuh)	Potential Region	396.33
Bungo (Muaro Bungo)	Developing Region	241.56
Merangin (Bangko)	Developing Region	249.84
Kerinci (Siulak)	Developing Region	378.95
Kota Jambi (Kota Jambi)	Lagging Region	0
Sarolangun (Sarolangun)	Lagging Region	175.44
Tebo (Muaro Tebo)	Lagging Region	195.93

Source: Statistics Indonesia (processed data)

Figure 1. Map of Regencies and Cities in Jambi Province

Based on Table 3, it can be observed that Muaro Jambi Regency the only region categorized as a Developed Region has the closest geographical proximity to the Jambi Provincial Capital, at a distance of 20.74 km. Furthermore, the Potential Regions (with the exception of Sungai Penuh City), namely Batanghari Regency, East Tanjung Jabung Regency, and West Tanjung Jabung Regency, possess closer geographical distances compared to the other remaining regencies. Subsequently, the Developing Regions are situated at a greater geographical distance than the Developed and Potential groups.

The Lagging Regions do not exhibit a linear geographical distance pattern as seen in the three previous groups. This indicates that the lagging group faces more specific challenges. As previously explained, Jambi City is constrained by a scarcity of land resources and a massive influx of residents from neighboring areas. Similarly, Sarolangun Regency and Tebo Regency possess internal issues that may be considered outliers in this specific distance-based analysis.

5. CONCLUSION

Muaro Jambi Regency is the only region in Jambi Province categorized under the Developed Region performance level. This achievement is attributed to the geographical advantage of being located in Ring I, surrounding Jambi City as the provincial capital. Although the regency lacks comprehensive public service facilities, its residents can naturally utilize the facilities available in Jambi City due to close proximity. This accessibility has enabled the regency to accelerate economic growth and increase its GRDP per capita.

The availability of public service facilities (physical infrastructure) does not correlate linearly with regional economic growth performance. It can be concluded that accessibility to public service facilities is more critical than the physical ownership of the facilities themselves. This is evidenced by the fact that Developed, Potential, and Developing Regions exhibit a linear relationship with their geographical distance from the provincial capital, which serves as the primary service hub.

As the provincial capital, Jambi City faces significant constraints in improving its economic growth and GRDP per capita. This is due to several factors, primarily limited land resources, which have caused industrial development plans to shift to Muaro Jambi Regency, thereby stagnating economic growth in the city. Additionally, the city faces pressure from in-migration, particularly by individuals of non-working age. This demographic influx subsequently leads to a decline in Jambi City's GRDP per capita.

Based on the findings above, several adaptive regional development strategies are recommended:

Regency and City Governments in Jambi Province should prioritize investment in base sectors or sectors with strong multiplier effects and high linkages to other economic activities. Furthermore, it is essential to manage population growth and reduce disguised unemployment to effectively increase the GRDP per capita.

The Jambi City Government should focus on the trade, transportation, and other service sectors, while addressing traffic congestion that can hinder economic growth. Additionally, the city government needs to expand job opportunities for the unemployed, as high unemployment rates exert downward pressure on the GRDP per capita.

Regency and City Governments should not focus solely on the procurement of public service facilities. Instead, they must strategically utilize existing public facilities in neighboring regions. This approach recognizes that the accessibility of public services is more critical than ownership, especially when owned facilities are not utilized optimally.

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