

Assessing The Spillover Effects of The Indonesian Capital City (IKN) Development in North Penajam Paser Through Shift-Share Analysis

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Abstract

Objective: The structural transformation of the economy in North Penajam Paser Regency has become massive as a result of the development of the Indonesian Capital City (IKN). This study analyzes the impact of sectoral spillovers and the potential for economic inequality arising from this development.

Design/Methods/Approach: The quantitative Shift-Share Analysis method using the 2010 ADHK GRDP of Districts and Provinces, along with a descriptive review of the Gini Ratio indicator, was employed to analyze the period before and after the construction of IKN, specifically for the years 2021 and 2025.

Findings: The research results show that the construction sector has the highest local competitive advantage score, confirming the absolute dominance of the capital city's physical development as an economic driver. Positive values for the trade, real estate, and accommodation sectors indicate a multiplier effect. However, the agriculture sector has the highest negative score due to land conversion and labor migration to infrastructure projects. The results also indicate the potential for structural and economic inequality.

Originality/Value: The novelty of this research spans the massive construction phase through 2025 (the latest data), focusing not only on potential impacts. This research quantitatively demonstrates the existence of economic dualism in North Penajam Paser Regency, namely the highly uneven economic growth across sectors.

Practical/Policy implications: The government needs to ensure that the spillover effects of the capital city's development are inclusive. This requires strengthening the agricultural sector, developing local MSMEs, improving the quality of human resources, and ensuring equitable access.

Keywords: Indonesian Capital City; North Penajam Paser; Shift-Share Analysis; Spillover; Economic Inequality

Abstrak

Tujuan: Transformasi struktural ekonomi di Kabupaten Penajam Paser Utara menjadi masif sebagai dampak pembangunan Ibu Kota Nusantara (IKN). Penelitian ini menganalisis dampak spillovers sektoral dan potensi ketimpangan ekonomi yang timbul dari adanya pembangunan tersebut.

Desain/Metode/Pendekatan: Metode kuantitatif Shift-Share Analysis menggunakan PDRB ADHK 2010 Kabupaten dan Provinsi dan tinjauan deskriptif pada indikator Gini Ratio digunakan untuk analisis penelitian ini.

Temuan: Hasil penelitian menunjukkan bahwa sektor konstruksi memiliki nilai keunggulan kompetitif lokal tertinggi, mengonfirmasi dominasi mutlak pembangunan fisik IKN sebagai penggerak ekonomi. Sektor perdagangan, real estat, dan penyediaan akomodasi yang bernilai positif mengindikasikan adanya multiplier effect. Namun, sektor pertanian memiliki nilai negatif tertinggi yang akibat konversi lahan dan migrasi tenaga kerja ke proyek infrastruktur. Hasil juga menunjukkan adanya potensi ketimpangan struktural dan ekonomi.

Orisinalitas/Nilai: Kebaruan dari penelitian ini mencakup fase konstruksi masif hingga tahun 2025 (data terbaru) yang tidak hanya fokus pada potensi dampak. Penelitian ini secara kuantitatif membuktikan adanya dualisme ekonomi di Kabupaten Penajam Paser Utara, yaitu ketidakmerataan pertumbuhan ekonomi yang sangat tinggi antarsektor.

Implikasi kebijakan: Pemerintah perlu memastikan agar spillover pembangunan IKN berlangsung secara inklusif. Perlu adanya penguatan sektor pertanian, pengembangan UMKM lokal, peningkatan kualitas sumber daya manusia, dan pemerataan akses.

Kata Kunci: Ibukota Nusantara; Panajam Paser Utara; Shift-Share Analysis; Spillover; Ketimpangan Ekonomi

Introduction

The development of the Indonesian Capital City (IKN) aims to achieve equality in terms of the economy, population, and development. The IKN is projected to become a new center of economic growth, stimulating investment, infrastructure development, and economic activity (Jauchar et al., 2022). The location of the new capital in East Kalimantan is expected to reduce economic concentration on Java. Furthermore, the concentration of the majority of Indonesia's population in Java (56.10%) and Sumatra (21.68%) is a particular concern (Kementerian Sekretariat Negara RI, 2021). The relocation of the capital is expected to help equalize Indonesia's population. Relocating the capital is not just a physical relocation of buildings, but also a shift in work culture and new mindsets (Kementerian Sekretariat Negara RI, 2023). The relocation of the nation's capital is one of Indonesia's economic transformation strategies.

North Penajam Paser Regency is one of the areas directly impacted by the development of the new capital city. The regency was chosen as the administrative center for the new capital due to its strategic

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location, minimal disaster risk, and the availability of extensive state-owned land, as outlined in the feasibility studies by the Ministry of National Development Planning (Bappenas) and formalized in Law No. 3 of 2022 concerning the State Capital (Republik Indonesia, 2022). North Penajam Paser's economic growth has increased quite dramatically. In 2021, the economic growth rate was recorded at -1.69%, then increased to 14.49% in 2022 (BPS Kabupaten Penajam Paser Utara, 2026). This economic growth will continue to increase until 2025. Based on the GRDP at constant prices (ADHK) in 2010, North Penajam Paser Regency will reach 13.39 trillion rupiah in 2025. This is due to the increase in the construction sector. This sector contributes 52.06% to the GRDP of North Penajam Paser Regency compared to other sectors (BPS Kabupaten Penajam Paser Utara, 2026). This sector will replace the mining and quarrying sector starting in 2022.

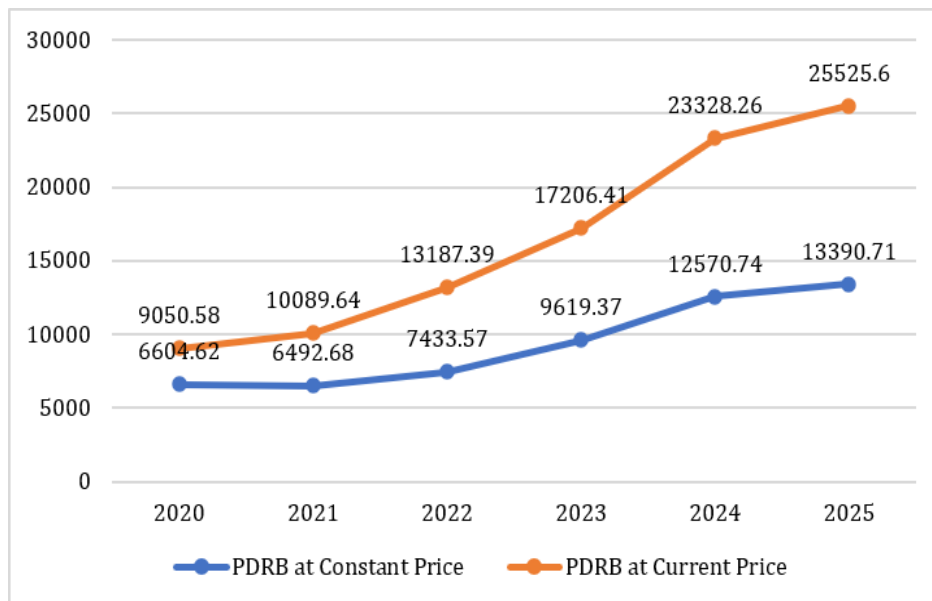


Figure 1. GRDP at Constant Price and GRDP at Current Price of North Penajam Paser Regency (Billion Rupiah)

The impact of the development of the new capital on North Penajam Paser Regency from a regional development perspective can be explained through François Perroux's concept of a growth pole. Development at a growth pole can create a positive economic impact, spreading to surrounding areas by increasing regional economic activity (Myrdal & Sitohang, 1957). This phenomenon has been occurring in North Penajam Paser Regency since the construction of the new capital. The new capital's presence has had a multiplier effect that has spread to various business sectors, such as electricity supply, water supply, food and beverage accommodation, government administration, and wholesale and retail trade (BPS Kabupaten Penajam Paser Utara, 2026). Massive infrastructure development has significantly boosted growth in the construction, trade, transportation, and communications sectors (Lubis et al., 2025). This increased economic activity demonstrates that the development of the new capital city (IKN) not only generates growth in the core area of the new capital but also spurs economic spillovers to the surrounding areas through greater economic mobility, investment, and demand across various service and trade sectors.

While the development of the new capital city (IKN) has had a positive impact on the economic growth of North Penajam Paser Regency (Jauchar et al., 2022), there is also the potential for economic dualism. The increase in GRDP from the construction sector due to the development of the new capital city could impact other sectors. Data shows that the contribution to GRDP from the agriculture, plantations, and fisheries sectors has continued to decline over the past five years. This is also true for the mining and quarrying sector, which will contribute only 10.51% to GRDP by 2025 (BPS Kabupaten Penajam Paser Utara, 2026). This has the potential to create economic dualism, with the modern sector (construction) experiencing rapid growth, while traditional sectors (agriculture and mining) experience a slowdown. While the development of the new capital city has the potential to boost economic growth in the buffer zone, it can also pose the risk of social inequality, marginalization of local communities, and development disparities if development benefits are not distributed inclusively (Jauchar et al., 2022).

Studies on the development of the IKN typically address economic growth and the developmental impact of the city. For instance, research by Hotsawadi et al. (2025) employed the Inter-Regional Input-

Output (IRIO) approach to analyze how IKN development influences economic output and workforce distribution across regions. Meanwhile, Jauchar et al. (2022) focus on the socio-economic aspects, emphasizing community development within the buffer zone. Despite these insights, empirical studies investigating the effects of IKN development on the economic structure of North Penajam Paser Regency, particularly concerning economic dualism and inequality, remain limited. Consequently, this study aims to analyze the spillover effects of IKN development on the region’s economic structure and potential economic disparities using shift-share analysis with data collected before and after the development. This methodology facilitates the identification of sectoral growth shifts, regional economic competitiveness, and indicators of economic dualism and inequality attributable to IKN development. As the regency most directly affected by the establishment of the new capital city, North Penajam Paser Regency provides an important case for understanding how large-scale growth-pole development influences regional economic transformation in East Kalimantan. The findings are expected to contribute to the broader discussion on the extent to which the benefits of IKN development are transmitted to surrounding regions and whether such development promotes inclusive growth or reinforces regional disparities within East Kalimantan.

The research questions guiding this investigation are as follows:

1. RQ1: How does the development of the new capital as a growth pole influence the economic structure of North Penajam Paser Regency?
2. RQ2: Which sectors experience the most substantial spillovers from IKN development? And
3. RQ3: Does the development of IKN contribute to economic dualism and inequality in the region?

Literature Review

Growth Pole Concept

Regional economic development often uses the concept of a growth pole to explain that growth is concentrated at a specific point and not spread evenly. This concept was introduced by François Perroux in 1955 (Christofakis & Papadaskalopoulos, 2011; Frick & Rodríguez-Pose, 2025). This concept explains that economic growth is concentrated in certain economic centers or poles. This is due to the presence of leading sectors, significant investment, and strong infrastructure. Growth poles are typically located in industrial areas or specific companies. Growth poles can also be in areas with high economic potential, such as tourism and mining areas (Frick & Rodríguez-Pose, 2025). In the growth pole concept, growth poles serve as the driving force of the economy. Increased investment, production activity, employment opportunities, and regional infrastructure support growth poles as the driving force of the economy.

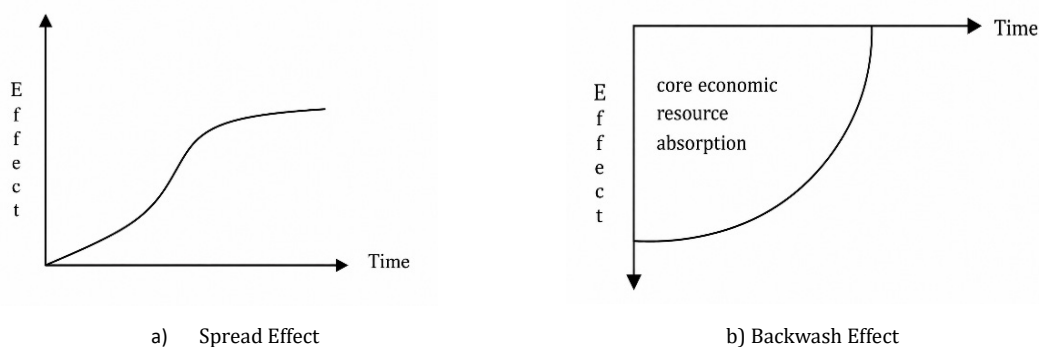


Figure 2. Spread Effect and Backwash Effect

The presence of a growth pole at a particular point will have a positive impact (spread effect) or a negative impact (backwash effect) on the surrounding buffer zone. The spread effect is defined as the economic output of the growth pole on the economy of the surrounding region (Sari et al., 2023). A region that becomes a growth pole is expected to have a positive impact on the buffer zone or surrounding areas. The spread effect can take the form of economic growth in the buffer zone, equitable distribution of labor, capital, infrastructure, and investment (Ke & Feser, 2010). In addition to the positive impacts of growth poles, negative impacts can also be felt in surrounding areas. This backwash effect is often referred to as a negative consequence of growth poles. It occurs when economic activity is polarized as a result of the formation of agglomerations (Sari et al., 2023). The negative impact of the existence of growth centers can be in the form of the withdrawal of labor, capital and activities to the growth poles (Ke & Feser, 2010), as well as the occurrence of urban bias, economic concentration, and regional inequality at the start of development (Sari et al., 2023).

Several studies related to regional economics show that the development of growth poles often has two impacts at once, namely the spread effect and the backwash effect. Research by [Amalia & Arif \(2023\)](#) analyzed the influence of inter-regional economic growth in Pati Regency. The results showed that the backwash effect was more dominant than the spread effect received from the growth poles, namely Kudus and Rembang. This suggests that growth poles do not always result in economic equality. Other research has shown the same thing, with case studies of Surabaya and Madura by [Nusa et al \(2021\)](#). The backwash effect is more dominant than the spread effect experienced by Madura. This occurs because Madura's economic activity is largely drawn to Surabaya. Research by [Ke & Feser \(2010\)](#) A case study of Greater Central China shows a different outcome. The research found a significant spread effect on surrounding areas. Economic growth and the workforce are spread across urban areas. Previous research has shown that the presence of a growth center or megaproject in a region impacts the surrounding areas, both positively and negatively. The development of the new capital city (IKN) was deliberately carried out to become a center of economic activity, government, and investment, driving the economy in Kalimantan and Eastern Indonesia.

Economic Spillover

Economic spillover is the process of spreading impacts (externalities) to surrounding areas due to the presence of a growth pole. This spread process occurs through the interconnectedness of economic activity, investment, trade, labor, and infrastructure development. Economic spillover is a manifestation of the spread effect described in the growth pole theory. Spillover occurs when growth in the core region creates a multiplier effect that encourages increased economic activity in the buffer zone. The growth pole initially absorbs resources from other regions, but in the long run, it benefits the buffer zone ([Pasaribu et al., 2014](#)). Economic spillover generally occurs in regions with strong spatial links and economic connectivity with growth centers. This means that economic activity in core areas can stimulate growth in economic sectors in surrounding areas.

Several empirical studies show that the development of growth centers can create economic spillovers to buffer areas. [Rahajeng et al \(2024\)](#) analyzed the spillover impact of Yogyakarta on the surrounding areas. The results showed a spillover effect on suburban areas through the development of the service, trade, and residential sectors. Other research from [Karim et al \(2020\)](#) Transportation infrastructure development has an indirect impact on provincial economic growth in Indonesia. Areas surrounding infrastructure centers experience increased investment and connectivity. Based on this empirical study, the development of the new capital city (IKN) as a new growth center has the potential to create economic spillovers that drive the transformation of the economic structure of the buffer zone.

Economic Dualism and Economic Inequality

Every process of developing growth poles or centers always has the potential to result in dualism. Dualism is defined as the existence of a modern sector growing alongside a traditional sector. In many developing countries, during the development of growth poles or centers, the modern sector grows faster than the traditional sector ([Lewis, 1954](#)). The productivity of the modern sector tends to be supported by investment and technology, and wages tend to be higher. Meanwhile, the traditional sector often suffers from limited capital, low productivity, and slower growth. This difference in growth rates between the modern and traditional sectors has the potential to lead to economic dualism if the benefits of development are not distributed evenly.

The existence of economic dualism due to unequal benefits from the development of growth poles or centers has the potential to create inequality. This is closely related to the backwash effect caused by the attraction of labor, capital, and economic activity to growth poles, which increases inequality. The backwash effect in the early stages of growth pole development tends to be greater than the spread effect. This is because all economic activity will be concentrated at the growth poles, so the backwash effect tends to have a greater impact on buffer zones. The difference in the speed of development between the modern and traditional sectors will result in development inequality, income inequality, and inequality in access to infrastructure.

Several studies show that the development of growth poles and strategic megaprojects can give rise to economic dualism in buffer zones. [Rahmayani et al. \(2025\)](#) case study in Central Java shows that growth pole development increases inequality, as regions with adequate absorption capacity receive greater benefits. Another study, using a case study in East Java, shows similar results: the backwash effect tends to be more dominant, leading to the emergence of economic dualism and persistently high inter-

regional inequality (Shasmita, 2023). In the context of the development of the new capital city (IKN), accelerated development and investment have the potential to rapidly increase the growth of the modern sector in North Penajam Paser Regency. If this transformation is not accompanied by equity, the capacity of the traditional sector could potentially lead to economic dualism and inequality.

Data and Research Methods

Data

This study uses Gross Regional Domestic Product (GDP) data at constant prices for 2010 for North Penajam Paser Regency and East Kalimantan Province. The data are for 2021 and 2025, representing the year before and after the construction of the new capital city. Data were obtained from the Statistics Indonesia (BPS) of East Kalimantan Province and the Statistics Indonesia (BPS) of North Penajam Paser Regency. In addition to the 2010 GRDP (GRDP ADHK), this study also uses the economic growth rate and Gini Ratio to deepen the analysis of economic growth and inequality. The use of 2010 GRDP (GRDP ADHK) data aims to eliminate the effects of price changes or inflation, ensuring that the observed economic growth reflects real changes in economic activity rather than nominal increases in output value. Consequently, the shift-share analysis can more accurately capture changes in economic structure, sectoral competitiveness, and the spillover effects of the development of Indonesia's New Capital City (IKN) on the economy of North Penajam Paser Regency.

It is important to note a specific limitation regarding the timeframe: utilizing 2021 as the base year means the initial economic indicators still capture the residual slowdown effects of the COVID-19 pandemic. Consequently, the rapid economic expansion observed through 2025 likely reflects a combination of natural post-pandemic recovery and the direct shock of IKN development. However, the disproportionate and massive surge, specifically in the construction sector, confirms that the capital megaproject remains the primary driver of this structural shift.

Research Methods Section

This study uses a descriptive quantitative approach. Shift-Share Analysis is used to dissect growth into three components: Regional Share, Proportional Shift, and Differential Shift (C_{ij}). These three components are calculated using the formula below.

- a. *Regional Share* (N_{ij}): Measuring the impact of East Kalimantan's economic growth on North Penajam Paser.

$$N_{ij} = E_{ij} \times r_n \quad (1)$$

Note:

- E_{ij} : 2010 ADHK GRDP value for sector i in North Penajam Paser Regency in 2021
 r_n : Total economic growth rate of East Kalimantan Province

- b. *Proportional Shift* (M_{ij}): Measuring whether the sector in North Penajam Paser is growing faster or slower compared to the same sector in East Kalimantan.

$$M_{ij} = (r_{in} - r_n) \times E_{ij} \quad (2)$$

Note:

- r_{in} : Growth rate of sector i in East Kalimantan Province
 r_n : Total economic growth rate in East Kalimantan Province
 E_{ij} : 2010 ADHK GRDP value of sector i in North Penajam Paser Regency in 2021

- c. *Differential Shift* (C_{ij}): Measuring the competitiveness or competitive advantage of local sectors.

$$C_{ij} = (r_{ij} - r_{in}) E_{ij} \quad (3)$$

Note:

- r_{ij} : Growth rate of sector i in North Penajam Paser Regency
 r_{in} : Growth rate of sector i in East Kalimantan Province
 E_{ij} : 2010 ADHK GRDP value of sector i in North Penajam Paser Regency in 2021

- d. *Total Change* (D_{ij}): Changes in GRDP of the North Penajam Paser sector

$$D_{ij} = N_{ij} + M_{ij} + C_{ij} \quad (4)$$

This shift-share analysis method is used to determine the development of the economic structure and the shift in leading sectors in North Penajam Paser Regency towards East Kalimantan Province. This

method is used in many regional studies, such as Negara & Putri (2020) which examines the leading economic sectors of the Toboali District, Bangka Selatan Regency. Likewise with Nur (2021) to determine the superior sectors and less superior sectors through the Bulungan Regency GDP data and the North Kalimantan Province GDP.

Results and Discussion

Results

Table 1. Economic Growth Rate of Districts/Cities in East Kalimantan

District/City	2019	2020	2021	2022	2023	2024
Paser	3.99%	-2.86%	5.39%	1.10%	1.38%	3.77%
West Kutai	5.69%	-2.87%	4.19%	4.78%	5.82%	7.57%
Kutai Kartanegara	3.92%	-4.21%	2.68%	3.70%	5.13%	5.62%
East Kutai	8.17%	-3.08%	-0.89%	5.58%	7.71%	9.82%
Berau	5.63%	-3.32%	5.36%	3.95%	5.44%	7.28%
North Penajam Paser	2.61%	-2.34%	-1.69%	14.49%	29.40%	30.68%
Mahakam Ulu	5.52%	-0.22%	1.27%	0.91%	2.80%	3.60%
Balikpapan	4.99%	-0.91%	4.57%	4.96%	6.49%	3.23%
Samarinda	5.00%	-0.99%	2.78%	6.60%	8.62%	8.66%
Bontang	-2.15%	-2.74%	1.60%	2.46%	4.16%	-2.51%

The development of the Indonesian Capital City (IKN) in East Kalimantan has impacted the existing regencies/cities, particularly North Penajam Paser Regency. The development of the IKN in North Penajam Paser Regency has had economic, social, and environmental impacts. Based on the economic growth rate (Table 1), it can be seen that the economic growth rate in North Penajam Paser Regency continues to increase. A significant increase occurred in 2022, following the commencement of IKN construction.

Table 2. GRDP at Constant Prices 2010 for North Penajam Paser Regency and East Kalimantan

Sector Category	GRDP of North Penajam Paser (Billion Rupiah)		GRDP East Kalimantan (Billion Rupiah)	
	2021	2025	2021	2025
A. Agriculture, Forestry, and Fisheries	1342.85	1448.39	33003.90	38094.42
B. Mining and Quarrying	1739.41	1942.80	227988.67	264845.38
C. Processing industry	945.45	1098.21	96209.52	117780.03
D. Electricity and Gas Procurement	6.58	13.22	324.79	482.62
E. Water Supply, Waste Management, Waste and Recycling	6.79	10.39	258.50	346.61
F. Construction	884.06	6642.17	37005.44	52380.46
G. Wholesale and Retail Trade; Automobile and Motorcycle Repair	635.47	894.40	28216.89	38811.27
H. Transportation and Warehousing	113.32	164.53	13667.05	19626.14
I. Provision of Accommodation and Food and Beverages	29.89	48.81	4193.40	6214.97
J. Information and Communication	125.66	188.65	8994.26	12189.40
K. Financial Services and Insurance	52.43	76.49	7320.02	9359.91
L. Real Estate	91.15	134.54	4290.18	5269.53
M,N. Corporate Services	1.12	1.79	911.51	1204.10
O. Government Administration, Defense and Compulsory Social Security	225.11	348.49	8108.29	12063.09
P. Educational Services	234.59	282.61	7420.37	9181.07
Q. Health Services and Social Activities	2.55	4.21	3861.22	4987.04
Total	6492.68	13309.71	484439.61	596660.60

The growth rate of North Penajam Paser Regency increased by 14.49% from 2022, even reaching 30.68% in 2024. This contrasts with the growth rate before 2022, which was below 2%. Compared to the

economic growth rates of other regencies/cities in East Kalimantan, North Penajam Paser Regency has had the highest growth rate since 2022. This indicates that economic growth in this regency has increased since the construction of the new capital city.

The table below shows the results of the Shift-Share calculation for North Penajam Paser Regency. The Shift-Share table shows the calculation results of the regional share (Nij), proportional shift (Mij), differential shift (Cij), and total change (Dij) of 17 sectors in North Penajam Paser Regency in relation to East Kalimantan.

Table 3. Shift-Share Results of GRDP of North Penajam Paser Regency (Billion Rupiah)

Sector Category	Regional Share (Nij)	Proportional Shift (Mij)	Differential Shift (Cij)	Total Change (Dij)
A. Agriculture, Forestry, and Fisheries	311.07	-103.95	-101.58	105.54
B. Mining and Quarrying	402.94	-121.74	-77.80	203.39
C. Processing industry	219.01	-7.04	-59.21	152.76
D. Electricity and Gas Procurement	1.52	1.67	3.44	6.64
E. Water Supply, Waste Management, Waste and Recycling	1.57	0.74	1.29	3.60
F. Construction	204.79	162.52	5390.80	5758.11
G. Wholesale and Retail Trade; Automobile and Motorcycle Repair	147.21	91.39	20.33	258.93
H. Transportation and Warehousing	26.25	23.16	1.80	51.21
I. Provision of Accommodation and Food and Beverages	6.92	7.49	4.51	18.92
J. Information and Communication	29.11	15.53	18.35	62.99
K. Financial Services and Insurance	12.15	2.47	9.45	24.06
L. Real Estate	21.12	-0.31	22.58	43.39
M,N. Corporate Services	0.26	0.10	0.31	0.67
O. Government Administration, Defense and Compulsory Social Security	52.15	57.65	13.58	123.38
P. Educational Services	54.34	1.32	-7.64	48.02
Q. Health Services and Social Activities	0.59	0.15	0.92	1.66
R,S,T,U. Other services	13.04	11.43	10.26	34.73

The Regional Share (NIJ) indicates the extent of North Penajam Paser’s growth driven by the general economic trends of East Kalimantan Province. Positive NIJ values across all sectors indicate that East Kalimantan’s economic growth has had a positive impact on all sectors in North Penajam Paser. The mining and quarrying sector (IDR 402.94 billion), the manufacturing industry sector (IDR 219.01 billion), the construction sector (IDR 204.79 billion), and the wholesale and retail trade and automotive and motorcycle repair sectors (IDR 147.21 billion) are among the sectors most impacted by East Kalimantan’s economic growth.

The Proportional Shift (MIJ) describes the growth of a sector in North Penajam Paser driven by the growth of the same sector in East Kalimantan. This measures whether these sectors are growing faster or slower. The shift share results show that the construction sector (IDR 162.52 billion) is the largest growing sector. This indicates that the construction sector is developing rapidly in both East Kalimantan and North Penajam Paser. In contrast, the agriculture, forestry, and fisheries sectors (-103.95 billion rupiah), mining and quarrying (-121.74 billion rupiah), manufacturing (-7.04 billion rupiah), and real estate (-0.31 billion rupiah) showed negative signs. These sectors exhibited slower growth compared to similar sectors in East Kalimantan.

Differential Shift (Cij) indicates the competitive advantage of sectors in North Panajam Paser Regency compared to other regions in East Kalimantan. A positive Cij value indicates the sector’s high competitiveness, while a negative value indicates its weak competitiveness. The construction sector (Rp5390.80 billion) was the highest performing sector. This indicates that the construction sector in North Panajam Paser Putih’s growth far exceeds the average for East Kalimantan. Conversely, the agriculture

sector had the highest negative value (-101.58 billion rupiah), indicating that the agricultural sector in North Penajam Paser is less competitive or under pressure locally.

Total Change (Dij) indicates total sector growth. The Dij value reflects the final picture. The construction sector's positive and high coefficient indicates its dominance. Meanwhile, the agriculture, forestry, and fisheries sectors, as well as the mining and industrial sectors, have negative Cij but still have a positive total change, indicating that the influence of economic growth in East Kalimantan remains quite significant.

Discussion

The development of the IKN as a growth pole and the economic structure of North Penajam Paser Regency

Based on the shift share results, the development of the Indonesian Capital City has driven changes in the economic structure in North Penajam Paser Regency. This economic structural change is driven by the growth of modern sectors directly related to the development of the Indonesian Capital City. The regional shift (Nij) component shows that all sectors in North Penajam Paser Regency experienced positive growth in line with East Kalimantan's economic growth in the 2021-2025 period. Based on the proportional shift (Mij) value, the construction sector, wholesale and retail trade, car and motorcycle repair, and government administration, defense, and compulsory social security sectors showed that these sectors experienced faster growth than the average sectoral growth in East Kalimantan. The rapid growth in modern sectors directly related to the development of the Indonesian Capital City indicates a change in the economic structure.

The increase in activity in the construction sector demonstrates that conditions in North Penajam Paser align with the growth pole concept. Economic growth tends to be concentrated in leading sectors, which then creates economic linkages with other sectors (Perroux, 1955). In the context of North Penajam Paser Regency, the construction sector acts as a leading sector, driving the growth of trade, real estate, information and communication, services, and government administration. This is evidenced by the significant increase in GRDP compared to other sectors since the construction of the new capital in the buffer zone of the new capital. This finding also supports research Hotsawadi et al., (2025), this shows that the development of the new capital city (IKN) increases regional economic output and employment through growth in the construction and trade sectors. The presence of growth poles accelerates regional economic transformation, driving urbanization and agglomeration (Parr, 1999).

In addition to generating economic growth, the development of the new capital (IKN) also encourages economic agglomeration in North Penajam Paser through increased investment concentration and modern economic activity. Growth in the trade, transportation, and communications sectors demonstrates that the development of the new capital not only increases physical development activity but also expands economic linkages between sectors and regions. This situation demonstrates that North Penajam Paser Regency is beginning to experience a transformation in its economic function from a natural resource-based region to an urban buffer zone and services. This finding aligns with the classical growth pole theory Hansen (1967), and is further corroborated by recent empirical studies on regional megaprojects, which confirm that rapid infrastructure investments significantly accelerate inter-sectoral linkages and urban agglomeration in developing regions (Hotsawadi et al., 2025).

The Economic Spillover Impact of the IKN Development on the Leading Sectors of North Penajam Paser Regency

The shift-share analysis shows that the development of the Indonesian Capital City has had a positive impact on North Penajam Paser Regency. Most economic sectors in North Penajam Paser Regency experienced positive growth during the IKN development. This is evident in the growth and competitiveness of several economic sectors, particularly those directly related to the development of the Indonesian Capital City Region. This condition indicates that the IKN development has driven increases in investment, infrastructure, goods, and labor.

The development of the Indonesian Capital City has contributed to the emergence of new leading sectors in North Penajam Paser Regency. Based on the differential shift (Cij) results, several sectors have positive values. This indicates a competitive advantage and faster growth compared to the same sectors in East Kalimantan Province. Prior to the development of the Indonesian Capital City, North Penajam Paser Regency excelled in the agriculture, forestry, and fisheries sectors, as well as the mining and fisheries sectors, which contributed the highest to the GRDP. After the development of the Indonesian Capital City, modern sectors such as construction and real estate have become leading sectors. This is evident from the

positive and high Differential Shift (Cij) values compared to other sectors. Sectors directly related to the development of the Indonesian Capital City tend to become new leading sectors. The existence of direct links, such as the development of basic infrastructure and supporting facilities for the new capital city, all of which are centered on the physical development of the Indonesian Capital City, makes the construction sector a leading sector.

The leading sectors that have grown from the development of the new capital city (IKN) demonstrate a spread effect in North Penajam Paser Regency. The development of the new capital city has increased economic activity and the distribution of goods, services, and even labor. This has stimulated the development of the trade, transportation, and communications sectors. This condition indicates that the development of the new capital city has created a spread of economic activity to the buffer zone. This finding aligns with the spread effect concept, which states that when economic growth in the core region provides economic benefits to the buffer zone (Myrdal & Sitohang, 1957). The same research from Taena et al. (2025) that the superior sectors that are formed provide spillover to other regions.

In addition to economic spillovers and the emergence of leading sectors, the development of the new capital city (IKN) also generated a multiplier effect and growth in modern sectors. This multiplier effect strengthens the interconnectedness of economic sectors in North Penajam Paser Regency. The rapidly growing construction sector drives demand for building materials, transportation, trade, labor, accommodation, and communication services. This growth in other sectors is called the multiplier effect. This is in line with research. Taena et al., (2025) which shows that the leading sectors provide a multiplier effect on other sectors. They also highlights how the agricultural and manufacturing sectors in East Nusa Tenggara provide a multiplier effect to other sectors across the region.

The shift share results show that the leading sectors formed by the development of the new capital city are modern sectors. The construction, trade, transportation, and communications sectors are growing rapidly, outpacing the primary sector. This demonstrates the economic transformation from the primary sector to the secondary and tertiary sectors in North Penajam Paser Regency. In addition to demonstrating economic transformation, this condition reflects increasing economic urbanization and the development of the urban economy. These findings align with research from Ke & Feser (2010) that growth poles are able to create growth in the modern sector and accelerate economic transformation.

Economic Dualism and the Potential for Economic Inequality

While the development of the new capital city (IKN) has provided positive economic spillovers to the modern sector, other sectors have also shown slow growth and decreased competitiveness in North Penajam Paser Regency. Primary sectors with low or negative differential shift (Cij) values indicate that the development of the new capital city (IKN) has not provided equal benefits to all sectors. This impact indicates a backwash effect, namely the concentration of capital, labor, and economic activity in the modern sector. As a result, the traditional sector is relatively left behind. In addition to the concentration of economic activity, unequal access to villages surrounding the new capital city development area is also a major cause (Sjaf et al., 2025). The shift share results show that the differential shift (Cij) value for the construction sector reached 5,390.80 billion rupiah. This value is the highest compared to other sectors, which are only below 30 billion rupiah. Conversely, traditional sectors have negative values, such as the agriculture, forestry, and livestock sector, which has a value of -101.58 billion rupiah. Likewise, the mining and quarrying sector has a value of -77.80 billion rupiah. This indicates that growth poles not only produce a spread effect but can also create a backwash effect. The emergence of this backwash effect can increase development inequality between sectors and between regions (Myrdal & Sitohang, 1957).

The dominant growth of the modern sector compared to the traditional sector indicates an indication of economic dualism. The construction, trade, real estate, and accommodation sectors grew much faster than the agriculture, forestry, and fisheries sectors; the mining and quarrying sector; and the manufacturing sector, which were previously the base sectors in North Penajam Paser Regency. This phenomenon aligns with the theory of economic dualism, which explains that economic development in developing countries is often characterized by faster growth of the modern sector compared to the traditional sector (Lewis, 1954). Furthermore, traditional sectors such as agriculture and mining are also experiencing a decline in competitiveness. This situation may occur because the allocation of investment, labor, and infrastructure is more concentrated in modern sectors, which are considered to have higher economic value. In addition to the concentration of economic activity in the modern sector, traditional sectors are experiencing a decline in competitiveness due to the shrinking area of cultivated land (Yudha, 2026). This finding is in line with research Ke & Feser (2010) showed that the growth pole strategy can create rapid growth in the modern sector, but at the same time has the potential to weaken the competitiveness of the traditional sector through the concentration of economic development in core areas and leading sectors.

The development of the new capital will not only change the economic structure of North Penajam Paser Regency but also has the potential to increase inequality. Concentrated economic growth in the modern sector could widen income disparities if the benefits of development are not distributed equitably. Modern sectors such as construction, trade, and real estate generally require higher levels of capital, skills, and economic access than traditional sectors. This results in certain groups having better capital, education, and economic access than those in traditional sectors. Consequently, high economic growth in North Penajam Paser Regency without a corresponding economic equality can exacerbate inequality.

Table 4. Gini Ratio Index of Regencies/Cities in East Kalimantan 2020-2025

District/City	2020	2021	2022	2023	2024	2025
Paser	0.29	0.288	0.282	0.292	0.271	0.273
West Kutai	0.338	0.317	0.3	0.277	0.266	0.261
Kutai Kartanegara	0.294	0.283	0.269	0.284	0.307	0.285
East Kutai	0.325	0.328	0.304	0.336	0.283	0.305
Berau	0.3	0.377	0.352	0.327	0.317	0.294
North Panajam Paser	0.292	0.263	0.274	0.299	0.258	0.319
Mahakam Ulu	0.259	0.27	0.288	0.33	0.285	0.296
Balikpapan	0.311	0.325	0.334	0.323	0.324	0.325
Samarinda	0.324	0.322	0.346	0.323	0.33	0.308
Bontang	0.405	0.34	0.324	0.299	0.33	0.349

Table above shows that the Gini index in North Penajam Paser Regency has increased. The Gini index for North Penajam Paser Regency, which reached 0.319 in 2025, up from 0.258 in 2024 ([Badan Pusat Statistik Provinsi Kalimantan Timur, 2025a](#)). North Penajam Paser Regency ranks among the top three with the highest Gini index in East Kalimantan Province. Furthermore, in terms of annual population growth rate, North Penajam Paser Regency has the highest growth rate compared to other regencies/cities in East Kalimantan Province. In 2025, North Penajam Paser Regency recorded a population growth rate of 18.49 percent per year ([Badan Pusat Statistik Provinsi Kalimantan Timur, 2025b](#)). This condition shows that a high population increase, without being accompanied by high and even economic growth, has the potential to increase inequality in North Penajam Paser Regency.

The increase in the Gini ratio of North Penajam Paser Regency from 0.258 in 2024 to 0.319 in 2025 represents a rise of 0.061 points within a single year ([Badan Pusat Statistik Provinsi Kalimantan Timur, 2025a](#)). This increase is substantially higher than the changes observed at the provincial level. For example, the Gini ratio of East Kalimantan Province decreased only marginally from 0.322 in March 2023 to 0.321 in March 2024, a change of merely 0.001 points ([Badan Pusat Statistik Provinsi Kalimantan Timur, 2024](#)). Likewise, the change between March 2024 and September 2024 was only 0.011 points, declining from 0.321 to 0.310 ([Badan Pusat Statistik Provinsi Kalimantan Timur, 2025a](#)). Compared to these relatively small fluctuations, the increase recorded in North Penajam Paser Regency indicates a much more rapid widening of income inequality. This suggests that the economic transformation associated with the development of Indonesia's New Capital City (IKN) has generated benefits that are distributed unevenly across population groups. While economic growth has accelerated through the expansion of construction, trade, transportation, and service sectors, the gains from growth appear to be concentrated among households and workers with greater access to capital, skills, and emerging economic opportunities, thereby contributing to a sharper increase in inequality than that observed in most other regions of East Kalimantan.

In the context of North Penajam Paser Regency, the increase in modern economic activity and urbanization due to the development of the IKN has the potential to increase the Gini ratio if there is a gap between community groups that are able to participate in the modern sector and those that still depend on the traditional sector ([Hornok & Raeskyesa, 2024](#)). This is supported by research from [Sjaf et al. \(2025\)](#), this indicates significant disparities between villages in North Penajam Paser. This is due to limited access to infrastructure, public facilities, economic services, and human resource quality. The development of the new capital city, which has increased economic activity in the construction sector without equitable distribution to surrounding areas, has resulted in further inequality. Therefore, the development of the new capital city requires more inclusive development policies through strengthening the agricultural sector, improving the quality of local human resources, and ensuring equitable economic access to the economy, so that the economic transformation does not exacerbate economic dualism and regional inequality.

Conclusion

This study analyzes the spillover impact of the development of the Indonesian Capital City on changes in economic structure and potential inequality in North Penajam Paser Regency using the shift-share method for the 2021 and 2025 periods. The results show that the development of the new capital city has driven a transformation in the economic structure in North Penajam Paser Regency. This change is indicated by rapid economic growth in modern sectors such as construction, trade, and real estate. High, positive proportional shift (Mij) and differential shift (Cij) values in these sectors indicate economic spillover and increased local competitiveness. This phenomenon indicates that the development of the new capital city is beginning to function as a new growth pole, driving economic activity in the buffer zone.

However, the results also indicate slower growth in traditional sectors. The agricultural and mining sectors exhibited slower economic growth and decreased competitiveness compared to the modern sector, which has grown rapidly due to the development of the new capital city. This condition indicates a backwash effect due to the concentration of economic activity in the modern sector. Furthermore, this condition also indicates economic dualism, as the modern sector is growing much faster than the traditional sector. If this situation persists over the long term without equitable economic access, the development of the new capital city (IKN) could increase sectoral and income inequality in North Penajam Paser Regency.

Based on the research results, the government must implement targeted, actionable policies to ensure that IKN development spillovers are inclusive and not solely captured by the modern sector. To mitigate the severe decline in the agricultural sector's local competitiveness (which recorded a Differential Shift/Cij of -101.58 billion), the government should enforce strict spatial zoning regulations to protect productive agricultural land from excessive commercial conversion. Furthermore, to capture the soaring food demand from the new urban population, the government must provide direct capital access and smart-farming technology subsidies to local farmers, thereby strengthening economic linkages between the traditional agrarian base and the modern urban center.

Finally, this study provides an initial macroeconomic overview of sectoral shifts, which carries inherent limitations regarding micro-level socio-economic dynamics. Future research should employ micro-level household survey data to analyze the direct impact of IKN development on local income distribution and utilize spatial econometric models to map the precise geographical spread of these economic spillovers across East Kalimantan

Declaration

Authors' Contributions

WS performed the conceptualization, writing original draft, data curation, formal analysis, investigation, and methodology. ZF contributed to review and editing, writing review and editing, supervision, validation, and visualization.

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Informed Consent Statement

Not applicable. This study did not involve human participants, personal data, or biological materials. The research used secondary data obtained from publicly available statistical publications.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

Availability of Data and Materials

The data used in this study are secondary data obtained from publicly available sources, including publications from Badan Pusat Statistik (BPS) Kabupaten Penajam Paser Utara and Badan Pusat Statistik (BPS) Provinsi Kalimantan Timur. The datasets analyzed during the current study are available from the corresponding author upon reasonable request.

Use of Artificial Intelligence (AI)

The authors declare that the AI tool, ChatGPT by OpenAI, was used for outlining and improving the academic structure of the manuscript. Grammarly was used for language refinement. All analyses, interpretations, and conclusions presented in this study are solely the responsibility of the authors.

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