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Has the National Capital Relocation Reshaped Regional Economic Structure? Evidence from East Kalimantan

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Abstract

This study aims to describe changes in the economic structure of East Kalimantan around the enactment of Law Number 3 of 2022 concerning the National Capital (IKN), and to identify the leading sectors in the province. Unlike previous studies on capital relocation in Indonesia, which focus on spatial planning, fiscal impacts, and macroeconomic projections, this study combines the Location Quotient (LQ), the Dynamic Location Quotient (DLQ), and Shift-Share analysis at the 52-subsector level, and complements them with a comparison of sectoral growth before and after the enactment of the law. The analysis uses East Kalimantan's Gross Regional Domestic Product (GRDP) at constant prices, with the national economy as the reference region. The results show that the provincial economy remains dominated by resource-based sectors, with coal and lignite mining recording an average LQ of 14.42 during 2018–2022. Sea transport, other mining and quarrying, and the chemical, pharmaceutical, and traditional medicine industries are identified as leading sectors by the LQ, the DLQ, and the Net Shift criteria simultaneously. In 2023, growth accelerated most strongly in the electricity and gas supply sector (12.21 percentage points) and the construction sector (8.05 percentage points) relative to the previous year. Because the methods are descriptive and the post-enactment period is short, these patterns are consistent with, but do not prove, an effect of the IKN development on the regional economic structure.

Keywords: Economic Growth, Leading Sector, Economic Structure, Capital Relocation, Shift-Share Analysis

JEL Classification: O18, R11, R58

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Introduction

East Kalimantan occupies a distinctive position in Kalimantan's regional economy. Although the province is widely recognized for its large economic base, driven by its mining sector, its economic growth rate in 2022 was 4.48 percent, the lowest among the provinces on the island (BPS Kaltim, 2024) and below Indonesia's national growth of approximately 5 percent (World Bank, 2023). By contrast, in Figure 2, Central Kalimantan recorded growth above 6 percent and North Kalimantan above 5 percent in the same year (BPS Kaltara, 2024; BPS Kalteng, 2024). Differences in growth performance often reflect variations in sectoral specialization, productivity, and regional competitiveness (Todaro & Smith, 2020), and they raise questions about the effectiveness of the existing economic structure amid major policy changes such as the relocation of the national capital to East Kalimantan (Barca et al., 2012; Storper, 2013; World Bank, 2009).

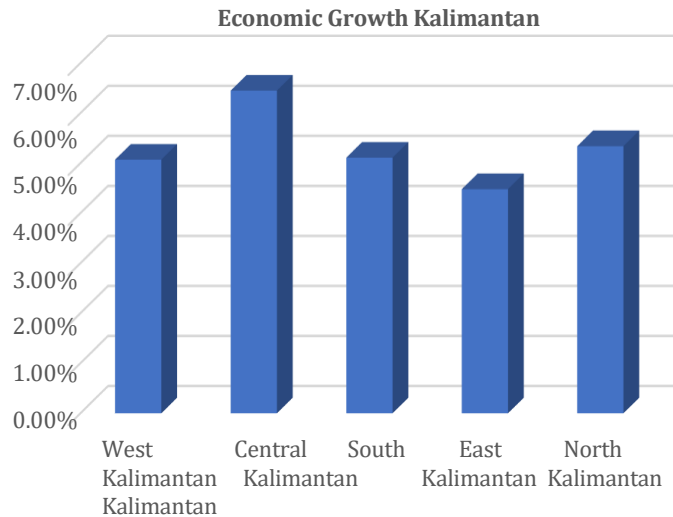


Figure 1. Economic Growth by Province in Kalimantan, 2022

Source: Processed from data published by Statistics Indonesia

Following the enactment of Law Number 3 of 2022, the government officially designated the relocation of the national capital from Jakarta to Penajam Paser Utara in East Kalimantan. The relocation is grounded in rapid urbanization and environmental degradation in Jakarta, the concentration of more than half of the country's population on Java, and national economic disparities that remain dominated by Java (Mazda, 2022; Mutaqin et al., 2021; Otorita IKN, 2022).

As a large-scale policy intervention, the relocation is expected to act as a catalyst for regional economic transformation through investment, infrastructure development, and shifts in the sectoral structure. The growth rate (Figure 2) rose from 4.48 percent in 2022 to 6.22 percent in 2023 (BPS Kaltim, 2024), and in 2023 the expansion was supported primarily by the electricity and gas supply and construction sectors (Figure 3). Whether this expansion reflects structural change or a temporary response, however, remains an open question.

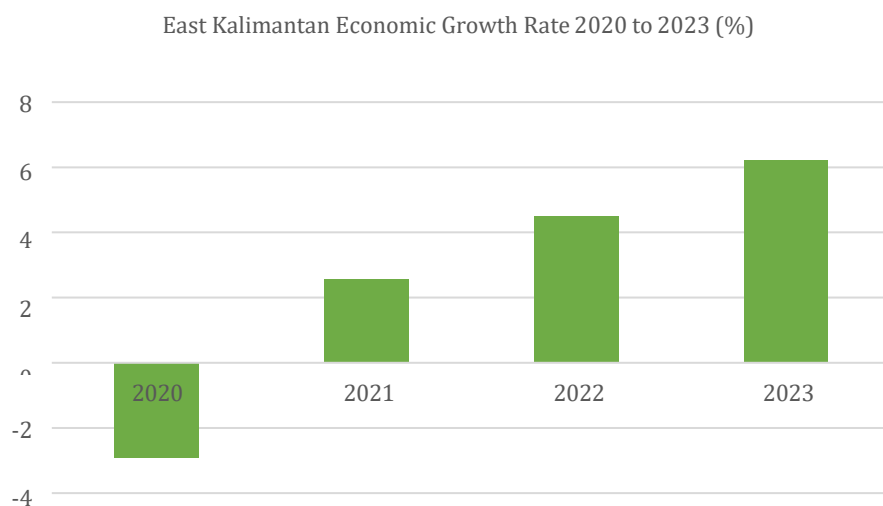


Figure 2. Economic Growth Rate of East Kalimantan, 2020–2023

Source: Statistics Indonesia (East Kalimantan)

A substantial body of literature suggests that large-scale policies, such as the establishment of a new capital city or the relocation of government centers, can stimulate regional growth through investment, construction activity, and short-term aggregate demand (Guo et al., 2023; World Bank, 2009). Nevertheless, growth is not always synonymous with structural transformation, since output expansion may continue to rely on traditional sectors without diversification or improvements in

competitiveness (Capello, 2015; McMillan et al., 2014). Identifying leading sectors is therefore a critical step in policy formulation when central and local governments face budgetary constraints (Fitrian, 2018; Suparta & Moniyana, 2014; Sutejo et al., 2018).

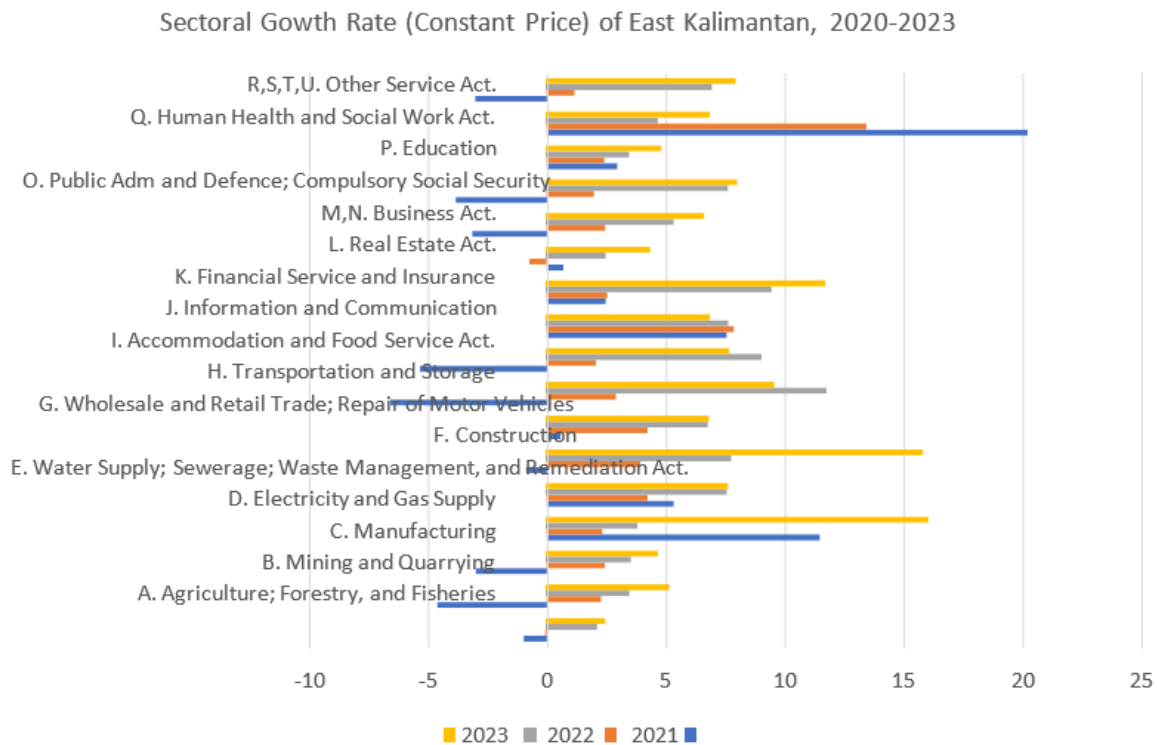


Figure 3. Sectoral Growth Rate (Constant Prices) of East Kalimantan, 2020–2023

Source: Processed from data published by Statistics Indonesia (East Kalimantan)

Numerous studies employ the Location Quotient and Shift-Share approaches to identify base sectors and the sources of regional growth (Esteban-Marquillas, 1972; Richardson, 1978), but much of this work is static or oriented toward long time horizons and is less able to capture structural changes triggered by a policy shock. In Indonesia, research on the relocation of the national capital has focused on spatial planning, macroeconomic projections, fiscal impacts, and environmental implications (Aprillia & Supentri, 2024; Diba et al., 2025; Mazda, 2022; Mutaqin et al., 2021; Tasya, 2024). Empirical studies that quantitatively examine changes in base sectors and sectoral competitiveness, and that distinguish the periods before and after the formal adoption of the IKN policy, remain very limited.

Building upon this gap, the present study makes three contributions. First, it applies the LQ, the DLQ, and Shift-Share analysis jointly at the 52-subsector level, so that specialization, its dynamics, and the sources of growth can be read against one another. Second, it treats the formal adoption of the relocation policy as a point of structural change by comparing sectoral growth before and after the enactment of Law Number 3 of 2022. Third, it interprets the results in light of the international experience of capital relocation and the resource-dependent context of Kalimantan. In line with its descriptive design, the study does not estimate the causal effect of the relocation; it asks whether the sectoral pattern observed after 2022 is consistent with structural transformation or with a temporary, construction-led response.

Literature Review

Economic Base Theory and Leading Economic Sectors

Economic base theory holds that a region's growth is determined primarily by the capacity of certain sectors to generate demand outside the region (Richardson, 1973). Base sectors produce goods and services for external demand and act as the engine of regional growth, whereas non-base sectors serve local needs and depend on the performance of the base sectors (Tarigan, 2015). A leading sector is a

narrower concept: besides an external orientation, it is characterized by a high growth rate, strong employment absorption, intersectoral linkages, and value added (Nugraha, 2019; Tarigan, 2015). Not every base sector is therefore a leading sector, particularly when it lacks long-term competitiveness.

Among the methods for identifying base sectors, the Location Quotient (LQ) is the most widely employed because it is simple, relies on GRDP data, and shows the degree of sectoral specialization relative to a broader reference area (Billings & Johnson, 2012; Isserman, 1977; Ufitri, 2022). Because the LQ is static, the Dynamic Location Quotient (DLQ) extends it by comparing relative sectoral growth over a period, so that strengthening and weakening sectors can be identified (Kuncoro, 2014; Nazara, 2005; Suyatno, 2000). Shift-Share Analysis (SSA) decomposes regional growth into the national share, the industry mix, and the regional share, the last of which reflects regional competitiveness (Capello, 2015; Esteban-Marquillas, 1972; Richardson, 1978). Applied together, the three techniques describe the structure, dynamics, and sources of regional growth (Sjafrizal, 2008; Tarigan, 2015).

Capital Relocation and Regional Economic Structure: International Evidence

Studies of capital relocation outside Indonesia suggest that moving government functions rarely transforms the regional economic base on its own. The German case is the most thoroughly documented. Becker et al. (2021) show that the designation of Bonn as the seat of government raised public employment substantially, whereas private employment increased only modestly, with gains in non-industrial services and a small negative effect on industrial employment. Faggio et al. (2025), analyzing the 1999 move of the German government to Berlin, estimate a local multiplier of around 1.3 for private employment, which was again concentrated in services and in the immediate vicinity of the relocation sites. In both cases, the secondary effects of the government function were absorbed mainly by non-tradable service activities rather than by export-oriented sectors.

The experience of purpose-built capitals such as Brasília, Putrajaya, Sejong, and Astana is more varied. These cities were planned primarily as administrative or symbolic centers (Epstein, 1973; Koch, 2010; Moser, 2010), and comparative studies suggest that their economic trajectories depended less on the relocation itself than on whether private activity developed beyond the government function (Rossman, 2017; Schatz, 2004). In Sejong, development has been shaped by workers who remain linked to Seoul (Lee & Kim, 2017), and Campante and Do (2014) associate isolated capital cities with weaker accountability, an issue that deserves attention in the case of IKN, which is being developed on a largely greenfield site.

Two implications follow. First, because the secondary effects of relocation fall mainly on non-tradable activities, a rise in construction, utilities, and services in East Kalimantan would be an expected early pattern rather than evidence of diversification. Second, shift-share analysis has been refined since Dunn (1960) and Esteban-Marquillas (1972) separated the allocation effect, Arcelus (1984) accounted for the regional industry mix and growth, and Barff and Knight (1988) proposed a dynamic version calculated over successive sub-periods. The static decomposition applied in this study is therefore a first-order description of sectoral change.

Research Method

This study utilizes Gross Regional Domestic Product (GRDP) data at constant 2010 prices for East Kalimantan Province from Statistics Indonesia of East Kalimantan, and Indonesia's Gross Domestic Product (GDP) at constant 2010 prices from Statistics Indonesia, which serves as the higher-level reference region. The LQ is calculated for each year of 2018–2022, and sectors are classified by the five-year average, whereas the DLQ and the Shift-Share analysis are based on sectoral growth over 2019–2023. The analysis is conducted at the 52-subsector level (Appendix A). Sectors that are not further disaggregated, such as construction, are treated as single categories, and the 17-sector aggregates are excluded from the results tables to avoid double counting. The 17-sector classification is used only for the comparison of growth before and after the enactment of the IKN Law. All calculations were conducted in Microsoft Excel.

The three techniques were chosen for three reasons. First, they require only published sectoral GRDP series available for both East Kalimantan and the national economy, whereas input-output or computable general equilibrium models rely on tables and parameters that are updated infrequently and do not yet cover the period after the enactment of the law. Second, they answer complementary

questions: the LQ shows where the province is specialized, the DLQ whether that specialization is strengthening, and the Shift-Share analysis whether growth derives from national growth, the industry mix, or regional competitiveness (Barff & Knight, 1988; Esteban-Marquillas, 1972; Isserman, 1977). Third, their results translate directly into sector priorities for regional planning (Sjafrizal, 2008; Tarigan, 2015). Their limitation is that they are descriptive and cannot separate the effect of the IKN policy from other influences, such as the post-pandemic recovery and commodity prices; causal designs such as difference-in-differences or synthetic control (Abadie et al., 2010) require comparable regions and a longer post-enactment series.

Location Quotient

Location Quotient (LQ) analysis aims to identify base or leading sectors with the potential to export beyond the region. The LQ is calculated as follows:

$$LQ = (S_{ib}/S_b) / (S_{ia}/S_a) \quad (1)$$

where S_{ib} and S_b are the GRDP of sector i and of all sectors in the region (b), and S_{ia} and S_a are the corresponding values in the higher-level reference region (a). An LQ above one indicates a base sector, whereas an LQ of one or below indicates a non-base sector (Sjafrizal, 2008).

Dynamic Location Quotient (DLQ)

Dynamic Location Quotient (DLQ) analysis examines sectoral potential from a dynamic perspective, using GRDP growth rates to compare the growth of each sector in the region relative to the reference region. The formula used is as follows:

$$LQ = \left(\frac{\frac{(1 + g_{ik})}{1 + g_k}}{\frac{1 + g_{tp}}{1 + g_p}} \right)^t \quad (2)$$

where g_{ik} and g_k are the average growth rates of sector i and of total GRDP in the region (k), g_{tp} and g_p are the corresponding rates in the reference region (p), and t is the growth period. A DLQ above one indicates a sector that grows faster than its national counterpart and has prospective growth (Sjafrizal, 2008).

Location Quotient

Shift-Share analysis decomposes sectoral growth into the National Growth (PN), which reflects the effect of overall national growth; the Proportional Growth (PP), which reflects differences in sectoral structure; and the Regional Share Growth (PPW), which captures regional competitiveness. The Net Shift (PB = PP + PPW) is positive for sectors that grow faster than the reference region. Sectors are further classified by the signs of PP (horizontal axis) and PPW (vertical axis), as shown in Figure 4.

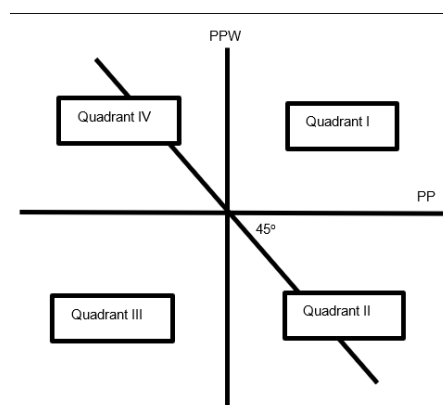


Figure 4. Shift-Share Quadrants and the Net Shift Line

A sector whose PP and PPW intersect above the line $PPW = -PP$ (a diagonal sloping downward at 45 degrees) has $PB > 0$ and is classified as progressive. The quadrants classify sectors by the signs of PP and PPW: Quadrant I ($PP > 0, PPW > 0$) contains sectors with a favorable industry mix and regional competitiveness; Quadrant II ($PP > 0, PPW < 0$) sectors with a favorable mix but low competitiveness; Quadrant III ($PP < 0, PPW < 0$) slow-growing, uncompetitive sectors; and Quadrant IV ($PP < 0, PPW > 0$) sectors that are competitive despite an unfavorable mix (Sjafrizal, 2008). A sector in Quadrant II or IV can therefore still have a positive Net Shift when its positive component outweighs its negative one.

Result and Discussion

Result

During the period 2019–2023, the economic performance of East Kalimantan Province is presented in Figure 5. Figure 5 indicates that the mining and quarrying, manufacturing, and construction sectors predominantly drive the economy of East Kalimantan Province.

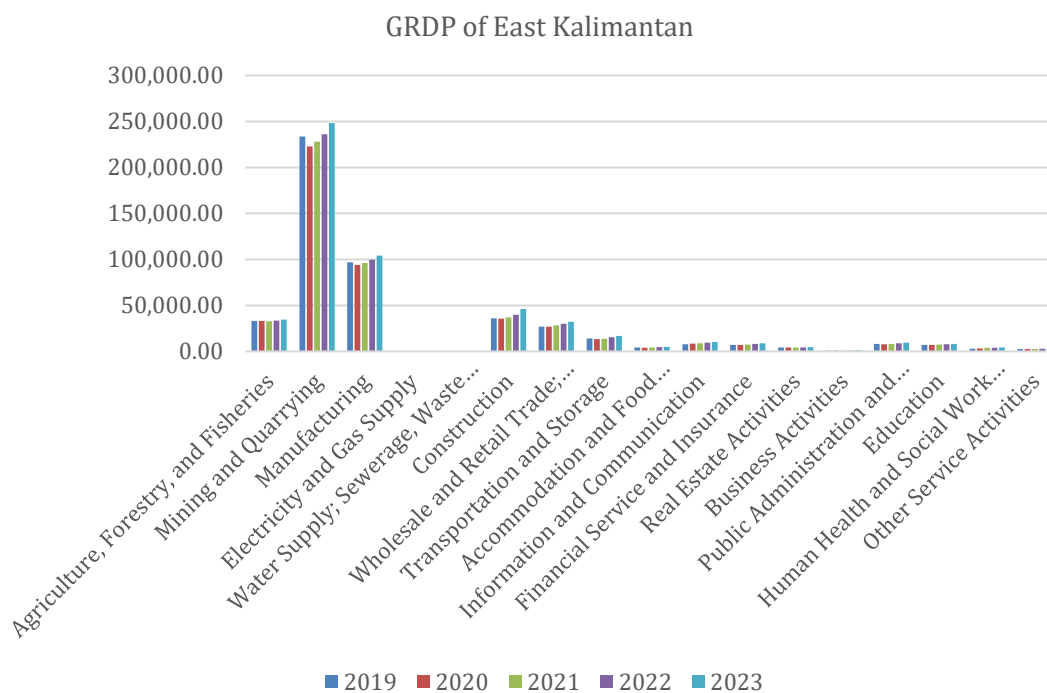


Figure 5. GRDP of East Kalimantan Province, 2019–2023

Source: Statistics Indonesia of East Kalimantan

In terms of economic growth performance, during the period of 2019–2023, East Kalimantan Province demonstrated an overall upward trend. Between 2019 and 2020, the economy contracted by 2.90% (Figure 2). This decline was attributable to the COVID-19 pandemic, during which activity restrictions were implemented, leading to an economic slowdown not only at the national level but also globally.

In the post-pandemic period, economic conditions gradually improved, and by 2023, the economy grew by 6.22% year over year. This figure represents the highest growth rate recorded over the past five-year period.

When examined in terms of contributions by city and regency within East Kalimantan Province, Kutai Kartanegara is the largest contributor, accounting for more than 25% of East Kalimantan's Gross Regional Domestic Product. This is followed by Kutai Timur, Balikpapan, and Samarinda (Figure 6).

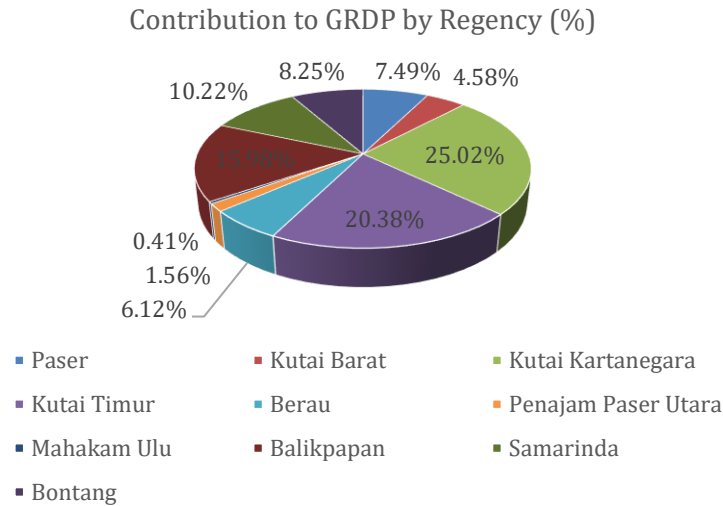


Figure 6. Contribution to GRDP by Regency/Municipality
Source: Statistics Indonesia of East Kalimantan

The contribution across regencies/municipalities in East Kalimantan Province is relatively uneven, as nearly half of the total GRDP is generated by Kutai Kartanegara and Kutai Timur alone. Notably, Penajam Paser Utara—designated as the location of the new national capital—contributes only 1.56% to the province's Gross Regional Domestic Product.

LQ Analysis

The leading sectors of East Kalimantan Province identified through the LQ analysis for 2018–2022 (average LQ > 1) include coal and lignite mining; the coal industry and oil refining; oil, gas, and geothermal mining; other mining and quarrying; river, lake, and ferry transport; forestry and logging; sea transport; warehousing and transportation support services, including postal and courier services; the chemical, pharmaceutical, and traditional medicine industry; and air transport.

Table 1. LQ Results, 2018–2022

Sector (Based on 52 Sectors)	LQ					
	2018	2019	2020	2021	2022	Average
Coal and Lignite Mining	14.58	14.97	14.69	14.32	13.52	14.42
Coal Industry and Oil Refining	6.35	6.65	6.83	6.81	6.82	6.69
Oil, Gas, and Geothermal Mining	3.11	3.11	3.12	3.15	3.15	3.13
Other Mining and Quarrying	2.06	2.09	2.12	2.20	2.36	2.17
River, Lake, and Ferry Transport	2.13	2.24	2.34	1.64	1.52	1.97
Forestry and Logging	1.61	1.53	1.52	1.54	1.53	1.55
Sea Transport	1.40	1.50	1.55	1.58	1.47	1.50
Warehousing and Transportation Support Services; Postal and Courier Services	1.39	1.74	1.75	1.32	1.22	1.49
Chemical, Pharmaceutical, and Traditional Medicine Industry	1.45	1.38	1.33	1.39	1.42	1.39
Air Transport	0.92	1.45	1.52	1.23	1.12	1.25

Source: Data processed

Coal and lignite mining is the dominant sector. Its average LQ of 14.42 means that its share in East Kalimantan's GRDP is more than fourteen times its share in the national economy, followed by the coal industry and oil refining (6.69) and oil, gas, and geothermal mining (3.13). Three patterns in Table 1 deserve attention. First, the LQ of coal and lignite mining declined from 14.97 in 2019 to 13.52 in 2022, although it remained far above one. Second, the LQs of river, lake, and ferry transport and of warehousing and transportation support services fell markedly after 2020 (from 2.34 to 1.52 and from 1.75 to 1.22 by 2022), suggesting a partial loss of specialization during the recovery. Third, air transport has an average LQ of 1.25 but was below one in 2018 (0.92) and has declined since 2020 (from 1.52 to 1.12), so its specialization is recent and weakening.

Table 2. DLQ Results (Selected Sectors with DLQ > 1)

Sector (Based on 52 sectors)	DLQ	Sector (Based on 52 sectors)	DLQ
Wood Industry; Wood and Cork Products; and Articles of Straw, Bamboo, Rattan, and Similar Materials	5.3E+09	Other Mining and Quarrying	38.45
Gas Supply and Ice Production	2,263,141.00	Coal Industry and Oil Refining	35.90
Textile and Wearing Apparel Industry	50,569.96	Financial Intermediation Services	30.55
Non-Metallic Mineral Products Industry	18,031.74	Electricity	20.66
Other Manufacturing; Repair and Installation Services of Machinery and Equipment	750.63	Human Health and Social Work Activities	10.36
Furniture Industry	309.47	Sea Transport	3.26
Construction	160.69	Oil, Gas, and Geothermal Mining	2.14
Financial Support Services	127.10	Chemical, Pharmaceutical, and Traditional Medicine Industry	1.08

Source: Data processed

Several DLQ values in Table 2 are exceptionally large, notably the wood industry (5.3E+09), gas supply and ice production (2,263,141), textiles and wearing apparel (50,569.96), and non-metallic mineral products (18,031.74). Such values arise when a subsector expands rapidly from a very small provincial base, so that its relative growth ratio becomes very large and is amplified further by the exponent t ; they do not express an economically meaningful magnitude. The DLQ is therefore interpreted only through its threshold (DLQ > 1), and the ordering of sectors, and sectors with extreme values are treated as leading only when supported by the LQ or Shift-Share results. Construction (160.69) is the only extreme value with a large share of GRDP (Figure 5), and its DLQ is consistent with the acceleration shown in Table 6.

Five sectors are classified as leading under both the LQ and the DLQ analyses (LQ > 1 and DLQ > 1): oil, gas, and geothermal mining; the coal industry and oil refining; other mining and quarrying; sea transport; and the chemical, pharmaceutical, and traditional medicine industry. Of these, only other mining and quarrying, sea transport, and the chemical, pharmaceutical, and traditional medicine industry also record a positive Net Shift (PB > 0) in the Shift-Share analysis, and they are therefore classified as leading sectors by all three methods. When the stricter criterion of PP > 0 and PPW > 0 (Quadrant I) is applied, sea transport is the only sector that satisfies all three tools.

Shift Share Analysis

The identification of leading sectors using the Shift Share method is based on the Net Shift (PB), where PB > 0 indicates a leading sector. However, a more precise identification can be achieved by further distinguishing sectors for which both Proportional Growth (PP) and Regional Share Growth (PPW) are positive, that is, PP > 0 and PPW > 0.

Sectors that meet both criteria (Quadrant I) are human health and social work activities; financial intermediation; electricity; water supply, sewerage, waste management, and remediation; sea transport; wholesale and retail trade (excluding motor vehicles and motorcycles); food and beverage service activities; the fabricated metal products, computer, electronic, and electrical equipment industry; and the transport equipment industry. River, lake, and ferry transport records a positive Net Shift but is not in Quadrant I, because its negative PPW (−49.45%) is offset by a strong PP (55.11%).

Several magnitudes in Table 3 stand out. Construction records the largest regional share effect (PPW) at IDR 7,959.58 billion (22.16%), while its proportional growth is negative (−5.59%), which indicates that its growth in East Kalimantan was driven by local competitiveness rather than by the national industry mix. Information and communication show the opposite pattern, with a PP of IDR 1,929.93 billion (24.89%) and a negative PPW (−3.46%). Human health and social work activities (PP 20.46%; PPW 20.12%) and financial intermediation (PP 5.03%; PPW 21.98%) combine a favorable sectoral structure with regional competitiveness, even though neither is identified as a base sector by the LQ. Finally, the extreme PP of river, lake, and ferry transport (55.11%) is almost entirely offset by its PPW (−49.45%), leaving a small Net Shift of 5.66%.

Table 3. Shift-Share Analysis Results (Selected Sectors with PB > 0)

Sector (Based on 52 sector)	Pij = (Ri-Ra)Yij		PPWij = (ri-Ri)Yij		PBij = Ppij+PPWij	
	billion	%	billion	%	billion	%
Human Health and Social Work Activities	579.29	20.46	569.66	20.12	1,148.95	40.58
Financial Intermediation Services	222.08	5.03	969.34	21.98	1,191.42	27.01
Electricity	15.64	5.58	50.46	18.01	66.1	23.6
Information and Communication	1,929.93	24.89	-268.02	-3.46	1,661.91	21.44
Construction	-2,006.89	-5.59	7,959.58	22.16	5,952.69	16.58
Water Supply; Sewerage, Waste Management, and Remediation Activities	17.04	7.24	18.52	7.86	35.56	15.10
Sea Transport	175.46	7.13	90.52	3.68	265.98	10.81
Other Mining and Quarrying	-554	-3.44	2,247.54	13.96	1,693.54	10.52
Wholesale and Retail Trade, Excluding Motor Vehicles and Motorcycles	110.14	0.45	2,108.19	8.69	2,218.33	9.15
River, Lake, and Ferry Transport	664.49	55.11	-596.22	49.45	68.26	5.66
Chemical, Pharmaceutical, and Traditional Medicine Industry	1,155.77	8.81	-520.28	-3.97	635.49	4.85
Fabricated Metal Products; Computers, Electronic and Optical Products; and Electrical Equipment Industry	5.17	0.77	15.04	2.23	20.21	3.00
Food and Beverage Service Activities	72.00	1.95	22.76	0.62	94.76	2.57
Transport Equipment Industry	3.56	0.42	12.16	1.44	15.72	1.86

Source: Data processed. Note: Italic = Quadrant I (PP > 0 and PPW > 0). Only selected sectors with PB > 0 are shown; values are in IDR billion and percent processed

Discussion

The sectors consistently classified as leading across all three analytical tools (LQ, DLQ, and Shift Share) are sea transport, other mining and quarrying, and the chemical, pharmaceutical, and traditional medicine industry. These sectors are linked to the extractive and trade-oriented backbone of the provincial economy rather than to the new capital itself. In terms of economic base theory (Richardson, 1973; Tarigan, 2015), their export orientation explains why they remain base sectors, and the persistent LQ of coal and lignite mining above 13 shows that the economic base is still natural resource extraction. Sea transport is the only sector that is also in Quadrant I, so it combines a favorable national structure with local competitiveness. Other mining and quarrying is leading mainly because of regional competitiveness (PP < 0), whereas the chemical, pharmaceutical, and traditional medicine industry shows the opposite pattern (PP > 0; PPW = -3.97%) and relies on the national structure more than on local competitiveness.

This concentration is the central structural issue. The literature on resource-rich economies shows that a booming extractive sector can crowd out tradable non-resource sectors (Corden & Neary, 1982) and that dependence on natural resources is associated with slower long-term growth (Sachs & Warner, 2001). Although these studies do not refer to East Kalimantan, they are consistent with the fact that only ten of the 52 subsectors have an average LQ above one (Table 1) and that the province recorded the lowest growth in Kalimantan in 2022 (Figure 1).

Sea Transport Sector

Balikpapan Port serves as supporting infrastructure for IKN, which is located near the Indonesian Archipelagic Sea Lane (ALKI) II and is consistent with the vision of Indonesia as a global maritime axis (Limas et al., 2022). The development of the new capital coincided with an 81.36 percent increase in sea transport passengers in 2022 at three principal ports in the province (Tribun Kaltara, 2023).

Sea transport is also the sector in which the link with IKN is most direct. Its LQ remained between 1.40 and 1.58 throughout 2018–2022, and its PP and PPW are both positive, which means that the sector was already specialized before the law was enacted. The sharp increase in sea passengers in 2022 should therefore be understood as additional demand on an existing logistics base. Its durability will depend on freight and goods distribution rather than on passenger mobility related to the construction phase.

Other Mining and Quarrying Sector

Table 4 shows that the land area allocated to non-metallic mineral resources, which fall within the other mining and quarrying subsector, increased by more than 75 percent between 2021 and 2023, which may have contributed to the subsector's higher contribution to GRDP. The categories in Table 4 are reported separately by the data source and are not additive, since the area for oil and gas exceeds that for mining and quarrying as a whole.

Table 4. Land Area of Energy and Mineral Resources in East Kalimantan Province, 2021–2023

Data List	2021	2022	2023	Unit
Mining and Quarrying	4,160,249.20	4,160,249.20	4,160,249.20	Ha
Coal	4,153,297.89	4,153,297.89	4,153,297.89	Ha
Oil and Gas	6,131,173.81	6,131,173.81	741,506.40	Ha
Non-Metallic Mineral Resources	820,143.35	820,143.35	1,440,694.81	Ha

Source: Satu Data Kalimantan Timur

Sea transport is also the sector in which the link with IKN is most direct. Its LQ remained at 1.40. Although coal mining remains dominant in the LQ analysis and contributes to East Kalimantan's GRDP, the land area devoted to coal mining has remained relatively stagnant. Similarly, oil and gas mining experienced a substantial decline in land area in 2023. As with coal mining, the mining and quarrying sector remains a key economic pillar in many regions of Indonesia, resulting in a high degree of dependence on extractive industries.

This dependence may pose challenges in the future, since mining is a non-renewable and relatively less sustainable sector (Barri et al., 2021; Hendra et al., 2021; Hidayat et al., 2014; Taufikurrahman et al., 2023). The dependence on mining is also the main structural obstacle to the post-coal transition and to the “forest city” vision on which IKN is planned (Mutaqin et al., 2021). With an average LQ above 14 and an unchanged land area allocated to coal (Table 4), coal mining continues to generate a large share of provincial output, so a decline in coal activity would reduce output directly, whereas a forest city requires an economy based on activities consistent with environmental carrying capacity. The sectors that lead in both specialization and growth, namely sea transport and the chemical industry, together with services that already show positive PP and PPW, such as human health and financial intermediation, are the most plausible candidates for a transition that builds on the existing logistics and industrial base.

Chemical, Pharmaceutical, and Traditional Medicine Industry Sector

The LQ of the chemical, pharmaceutical, and traditional medicine industry stayed within a narrow range of 1.33 to 1.45 during 2018–2022 (Table 1), indicating a stable specialization rather than one driven by the COVID-19 pandemic. Table 5, however, shows no pharmaceutical manufacturing facilities in East Kalimantan (zero units in 2021–2023); the facilities consist mainly of distribution and retail outlets.

Table 5. Number of Pharmaceutical Industry Facilities, 2021–2023

Data Category	2021	2022	2023	Unit
Number of Pharmaceutical Industries	0	0	0	Units
Number of Traditional Medicine Manufacturing Industries	3	0	0	Units
Number of Pharmaceutical Warehouses	11	11	11	Units
Number of Pharmaceutical Wholesalers	52	52	54	Units
Number of Medical Device Distribution Facilities	78	55	86	Units
Number of Medical Device Distribution Branch Facilities	45	33	33	Units
Drug Stores	228	75	77	Units

Source: Satu Data Kalimantan Timur

Accordingly, the sector's weight in provincial GRDP most plausibly derives from its chemical component, and its classification as a leading sector should be read in this light. Facility counts are also not uniformly highest in 2021: drug stores peaked in 2021 (228 units), whereas wholesalers (54) and medical device distribution facilities (86) were highest in 2023.

In recent years, the chemical and pharmaceutical industry has emerged as one of the sectors with the highest levels of investment inflows into East Kalimantan Province ([Antaranews, 2023](#); [Munjin, 2023](#); [Setiawan, 2021](#); [Tempo, 2023](#)). One of the key challenges this industry faces is its heavy reliance on imported raw materials ([Pratama, 2021](#); [Sukarta, 2024](#)).

Differences Before and After the IKN Law

The IKN Law (Law Number 3 of 2022) formally initiated preparations for the new national capital. Because it was enacted in February 2022, the growth between 2021 and 2022 serves as the benchmark for the period before the policy, and the growth between 2022 and 2023 as the period after it. This comparison is indicative only, since the post-enactment period is a single year and 2022 was partly affected by the enactment.

Table 6. Increase (Decrease) in Sectoral Growth Rate

Sector	Growth 2021– 2022 (%)	Growth 2022– 2023 (%)	Change (%)
Agriculture, Forestry, and Fisheries	2.15	2.49	0.35
Mining and Quarrying	3.50	5.18	1.68
Manufacturing	3.57	4.71	1.14
Electricity and Gas Supply	3.84	16.05	12.21
Water Supply; Sewerage, Waste Management, and Remediation Activities	7.58	7.64	0.06
Construction	7.77	15.82	8.05
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	6.79	6.85	0.07
Transportation and Storage	11.76	9.59	-2.17
Accommodation and Food Service Activities	9.04	7.69	-1.35
Information and Communication	7.65	6.88	-0.77
Financial Service and Insurance	9.46	11.72	2.27
Real Estate Activities	2.51	4.39	1.88
Business Activities	5.36	6.64	1.29
Public Administration and Defence; Compulsory Social Security	7.63	8.03	0.40
Education	3.49	4.84	1.34
Human Health and Social Work Activities	4.70	6.89	2.19
Other Service Activities	6.96	7.97	1.00

Source: Data processed

Based on the data presented in Table 6, the sectors that experienced the highest increases in growth rates before and after the enactment of the IKN Law are the electricity and gas supply sector, whose growth rose from 3.84 percent to 16.05 percent (an increase of 12.21 percentage points), and the construction sector, whose growth rose from 7.77 percent to 15.82 percent (an increase of 8.05 percentage points). In contrast, growth decelerated in transportation and storage (–2.17 percentage points), accommodation and food service activities (–1.35 percentage points), and information and communication (–0.77 percentage points), so the acceleration was not broad-based. In recent years, the largest contributors to East Kalimantan's economic growth have been three major sectors: electricity and gas supply, construction, and financial services and insurance.

The electricity and gas supply and construction sectors are closely associated with the development of the new national capital ([Alexander, 2024](#)). In the infrastructure-led growth framework, infrastructure is an initial determinant of regional expansion: [Calderón et al. \(2015\)](#) show that more and better infrastructure raises output and productivity, and [Seneviratne & Sun \(2017\)](#) emphasize the strong short-term growth effect of public infrastructure spending in developing countries.

Construction tends to accelerate most in the early phase of new regional development because it is investment-intensive and has extensive intersectoral linkages; [Khan et al. \(2020\)](#) show that it has a relatively high output and employment multiplier.

The growth of electricity and gas supply can be explained by the energy–growth nexus: [Shahbaz \(2016\)](#) and [Acheampong \(2018\)](#) found a strong relationship between electricity consumption and

growth in developing countries, where energy capacity is often a prerequisite for industrial expansion and urbanization. In new urban development, power investments are made before and during construction, so output in the two sectors rises together.

In East Kalimantan, this mechanism is closely tied to the construction of the core infrastructure of IKN. Nevertheless, growth in these sectors is likely to be transitory, since it depends on public investment during the construction phase and does not by itself create tradable capacity. A demand surge in non-tradable sectors may raise local costs and absorb labor and capital without strengthening the export base (Corden & Neary, 1982). Accordingly, the acceleration in 2023 should be regarded as evidence of the early construction phase of IKN, and its lasting contribution will depend on whether it is followed by growth in sectors that remain after construction ends, such as logistics, services, and downstream manufacturing.

Conclusion

This study set out to describe how the economic structure of East Kalimantan changed around the enactment of Law Number 3 of 2022. The descriptive evidence shows that the acceleration of growth in 2023 has not yet been accompanied by a fundamental transformation of the province's economic structure. The LQ analysis for 2018–2022 confirms the persistent dominance of resource-based sectors, especially coal and lignite mining (average LQ of 14.42), the coal industry and oil refining (6.69), and oil, gas, and geothermal mining (3.13). The DLQ results indicate that construction, electricity and gas supply, and several manufacturing and service subsectors are growing faster than their national counterparts, although the extreme DLQ values of small subsectors indicate direction rather than magnitude.

The Shift–Share analysis further indicates that only a limited number of sectors simultaneously demonstrate strong growth performance and regional competitiveness. Nine sectors fall in Quadrant I, including human health and social work activities, financial intermediation, electricity, and sea transport. Sea transport, other mining and quarrying, and the chemical, pharmaceutical, and traditional medicine industry are identified as leading sectors by the LQ, the DLQ, and the Net Shift criterion, and sea transport is the only sector that also satisfies the stricter criterion of $PP > 0$ and $PPW > 0$.

A comparison of sectoral growth before and after the enactment of the law shows that the largest acceleration occurred in electricity and gas supply (12.21 percentage points) and construction (8.05 percentage points), while transportation and storage, accommodation and food service activities, and information and communication decelerated. This pattern suggests that recent economic expansion has been concentrated in infrastructure-supporting sectors rather than in broad-based diversification, which is consistent with the early construction phase of a new capital city.

These findings should be interpreted as descriptive. The LQ, the DLQ, and the Shift–Share analysis cannot separate the effect of the capital relocation from other contemporaneous influences, such as the post-pandemic recovery and commodity price movements, and the post-enactment period covers only one year. The results are therefore consistent with, but do not prove, an early influence of the IKN development on sectoral growth. The conclusion that the relocation has reshaped the regional economic structure cannot be drawn from this evidence.

Several implications follow for the IKN Authority and the provincial government. First, because the surge in construction and electricity is tied to the construction phase of IKN, the sector priorities in the Regional Medium-Term Development Plan (RPJMD) should treat it as a transitional source of demand and direct investment toward sectors that can continue to grow once construction ends. Second, sea transport, the only sector that is leading under all criteria, warrants priority in port, logistics, and connectivity development, including Balikpapan Port. Third, the dominance of coal mining (LQ above 14) means that the transition toward the forest city vision requires diversification through mineral and chemical downstreaming and through services that already show positive PP and PPW, namely human health and financial intermediation. Fourth, the chemical industry should be supported as downstream manufacturing rather than as a pharmaceutical sector, since the data show no pharmaceutical manufacturing facilities in the province.

Future research should extend the post-enactment period and apply designs that can identify causal effects, such as difference-in-differences or synthetic control methods with comparable provinces. It should also compute the LQ, the DLQ, and the Shift–Share indicators separately for the periods before and after the enactment, and use regional input–output tables to trace the linkages of construction and electricity to the rest of the economy.

CRedit authorship contribution statement

Nurhidayati: Conceptualization, Methodology, Data Curation, Formal analysis, Investigation, Visualization, Writing – Original Draft, Writing – Review & Editing.

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Appendix

Table A1. Classification of the 52 GRDP Subsectors

A. Agriculture, Forestry, and Fisheries	8. Manufacture of Chemicals, Pharmaceuticals, and Traditional Medicines	H. Transportation and Storage
1. Agriculture, Livestock, Hunting, and Related Services	9. Manufacture of Rubber and Plastics Products	1. Rail Transport
a. Food Crops	10. Manufacture of Other Non-Metallic Mineral Products	2. Land Transport
b. Horticultural Crops	11. Manufacture of Basic Metals	3. Sea Transport
c. Plantation Crops	12. Manufacture of Fabricated Metal Products; Computer, Electronic and Optical Products; and Electrical Equipment	4. River, Lake, and Ferry Transport
d. Livestock	13. Manufacture of Machinery and Equipment	5. Air Transport
e. Agricultural and Hunting Services	14. Manufacture of Transport Equipment	6. Warehousing and Support Activities for Transportation; Postal and Courier Activities
2. Forestry and Logging	15. Manufacture of Furniture	I. Accommodation and Food Service Activities
3. Fisheries	16. Other Manufacturing; Repair and Installation of Machinery and Equipment	1. Accommodation
B. Mining and Quarrying	D. Electricity and Gas Supply	2. Food and Beverage Service Activities
1. Oil, Gas, and Geothermal Mining	1. Electricity	J. Information and Communication
2. Coal and Lignite Mining	2. Gas Supply and Ice Production	K. Financial Service and Insurance
3. Metal Ore Mining	E. Water Supply; Sewerage, Waste Management, and Remediation Activities	1. Financial Intermediation
4. Other Mining and Quarrying	F. Construction	2. Insurance and Pension Funds
C. Manufacturing	G. Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	3. Other Financial Services
1. Manufacture of Coal Products and Petroleum Refining	1. Trade and Repair of Motor Vehicles and Motorcycles	4. Financial Supporting Activities
2. Manufacture of Food and Beverages	2. Wholesale and Retail Trade, Excluding Motor Vehicles and Motorcycles	L. Real Estate Activities
3. Manufacture of Tobacco Products		M, N. Business Activities
4. Manufacture of Textiles and Wearing Apparel		O. Public Administration and Defense; Compulsory Social Security
5. Manufacture of Leather and Related Products and Footwear		P. Education
6. Manufacture of Wood and of Products of Wood and Cork, and Articles of Straw and Plaiting Materials		Q. Human Health and Social Work Activities
7. Manufacture of Paper and Paper Products; Printing and Reproduction of Recorded Media		R, S, T, U. Other Service Activities

Source: Statistics Indonesia (2021). Construction (F) is not disaggregated further in the classification and is therefore treated as a single category in the analysis.