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**REGIONAL ECONOMIC TRANSFORMATION AND THE ROLE
OF THE MINING SECTOR IN RESTRUCTURING INTER-SEC-
TORAL COMPETITIVENESS IN THE NATIONAL MINING COR-
RIDOR OF KONAWA, INDONESIA**

Abstract: Economic transformation in natural resource-based areas, such as the mining and quarrying sector, often presents complex structural and spatial challenges. In Konawe Regency, the dominance of this sector has become the main characteristic of the regional economic structure, but in the long term it shows symptoms of extractive dependence that weakens sectoral competitiveness. This study analyzes the dynamics of sectoral competitiveness and its spatial implications for the direction of regional development in Konawe Regency during the period 2010–2024. The Shift Share Analysis (SSA) approach is used with a focus on the competitive effect (Cij) component to evaluate local sectoral advantages longitudinally. The results show that the economic structure of Konawe has shifted from the dominance of the primary sector to the secondary sector, especially the processing industry which showed a significant spike in Cij in 2019–2024. In contrast, the mining and quarrying sector, although nominally dominant, experienced a sharp decline in competitiveness, indicating symptoms of extractive dependence and weak spatial-sectoral integration. These findings also indicate the emergence of spatial inequality in the distribution of growth, especially between industrial zones and rural areas. The proposed policy implications include the need for evidence-based economic diversification strategies, strengthening inter-sectoral connectivity, and repositioning the role of mining in regional development systems. This study emphasizes the importance of a spatial-sectoral approach in regional planning and development geography, and suggests the integration of SSA with spatial and institutional methods in further research to produce more inclusive, resilient, and contextual development directions.

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Introduction

The structure and competitiveness of a regional economy are largely determined by the configuration of sectoral contributions and patterns of natural resource utilization. Among various economic sectors, the mining sector plays a strategic role in determining the direction of economic development, particularly in resource-rich developing countries (Ericsson & Löf, 2019; Content & Frenken, 2016; Porter, 2003). Although this sector is capable of driving Gross Regional Domestic Product (GRDP) growth and attracting investment, its dominance often creates sectoral imbalances and long-term economic dependencies that can undermine development sustainability (da-Silva et al., 2021; World Bank, 2019; McMahan & Moreira, 2014).

Indonesia, with nickel reserves exceeding 50 million metric tons, or approximately 40% of global supply, has made the mining sector central to its national economic transformation. Through its industrial downstreaming policy, the government is encouraging the development of mineral processing areas, particularly in Sulawesi and Maluku, to increase the added value of mineral commodities (Djamhari et al., 2024; Prasetyantoko, 2022). One area representing this transformation process is Konawe Regency in Southeast Sulawesi Province, where the Indonesia Konawe Industrial Park (IKIP) is located, serving as a center for nickel-based industrial expansion (Government of Indonesia, 2020; Bappenas, 2023).

Over the past decade, Konawe Regency has experienced significant economic changes. Since 2019, the manufacturing sector has contributed more than 50% to the GRDP, replacing the agricultural sector as the mainstay of the regional economy (BPS-Statistics Indonesia Konawe Regency, 2025a; 2025b). Although the mining sector's direct contribution to GRDP has declined, its systemic influence remains strong through backward and forward linkages, which act as catalysts for sectoral and spatial restructuring of the regional economy. This phenomenon indicates that the regional economic structure is transforming from an agrarian to a natural resource-based industrial one, raising important questions about inter-sectoral competitiveness and structural inequalities between regions.

However, empirical studies specifically examining how mining expansion affects sectoral competitiveness at the regional level are still very limited. Most previous studies have focused on environmental, social, or fiscal impacts (Kurniawan et al., 2021; Irawati, 2020; Yusuf & Hasim, 2024), while research outlining the spatial-sectoral restructuring resulting from mining is still rare, particularly in Indonesia's nickel-producing regions. Research by Alwi et al. (2024) and Taufikurahman et al. (2023) indicates that mining expansion has resulted in reduced food crop production and changes in the employment structure, but they do not yet explain how these transformations affect sectoral competitiveness in the long term.

From the perspectives of classical and contemporary economic geography, Alonso (2022), Lösch (2023), and Barro & Sala-i-Martin (2021) emphasize the importance of the spatial dimension in understanding the linkages between economic growth, sectoral specialization, and interregional redistribution of activities. This framework allows for simultaneous analysis of sectoral and spatial dynamics. However, its application in the context of extractive-based industrial areas such as Konawe remains limited. A study by Sartika & Sulistiawati

(2024) in West Kalimantan found a failure of structural transformation due to stagnant labor mobility, while the Shift Share Analysis (SSA) approach used by Abadi et al. (2024) and Afriyanti et al. (2023) limited itself to identifying base sectors without exploring the competitive effect (Cij) component as an indicator of dynamic shifts in sectoral advantage.

Meanwhile, Montanía et al. (2023) emphasized the need to develop a comprehensive shift-share framework that considers the spatial dimension, and Bandara (2024) demonstrated its relevance in the context of regional labor shifts in the United States. However, most international literature still focuses on developed industrial regions such as China and the United States (Fu & Tang, 2024; Buchholz & Bathelt, 2021), thus failing to reflect sectoral-spatial interactions in the context of nickel mining in developing countries like Indonesia. Therefore, no research has simultaneously examined sectoral and spatial linkages in the context of nickel industrialization in Indonesia, particularly using a competitive effect-based SSA approach.

Considering the limitations of this study and the dynamics of natural resource-based economic transformation, it is essential to empirically investigate how the mining sector shapes regional economic structures and competitiveness. Addressing this research gap, the present study aims to answer the central question: How does the mining sector influence the restructuring of inter-sectoral competitiveness in Konawe Regency within the context of regional economic transformation during the 2010–2024 period? To address this question, the objectives of the study are to: a) analyze the dynamics of sectoral competitiveness in Konawe Regency from 2010 to 2024 across three main phases (2010–2014, 2014–2019, and 2019–2024); b) assess spatial competitiveness and structural disparities by emphasizing the strategic role of the mining sector; and c) evaluate the spatial-sectoral implications for economic inequality and regional dependency to formulate policy directions that promote inclusive and resilient economic diversification.

The novelty of this research lies in two main aspects. First, substantively, this study highlights an issue rarely studied specifically: the role of the mining sector as a catalyst for sectoral and spatial restructuring in the dynamics of new industrial areas such as Konawe Regency. Rather than focusing on its direct contribution to GRDP, this study analyzes its structural effects on sectoral competitiveness within the framework of long-term economic transformation. Second, methodologically, this study applies the Shift Share Analysis (SSA) approach, emphasizing the competitive effect (Cij) component as the main indicator of shifts in sectoral advantage, and combining it with the spatial dimension of the economy as recommended by Montanía et al. (2023). This approach provides a more comprehensive empirical picture of changes in sectoral competitiveness amidst the expansion of mining-based industrialization.

Therefore, this research contributes to filling the literature gap on natural resource-based structural transformation and provides an empirical basis for developing sustainable industrialization policies in eastern Indonesia. Practically, the findings are expected to support more inclusive, resilient, and sustainable economic transition policies for nickel-producing regions in Indonesia (Stiglitz et al., 2019; World Bank, 2022; Hasddin et al., 2022).

Materials and methods

Research design

This study employs a quantitative descriptive design, aiming to describe the structural dynamics of the regional economy through statistical analysis of numerical data. The design choice aligns with the study's objective - to characterize changes in inter-sectoral composition within the Gross Regional Domestic Product (GRDP) of Konawe Regency without testing causal relationships between variables.

According to Creswell (2021) and Field (2013), quantitative descriptive research is suitable for systematically portraying the characteristics of a particular phenomenon without hypothesis testing. Kerlinger & Lee (2000) and Hasddin et al. (2022) further emphasize that this approach is relevant for complex economic phenomena that cannot be experimentally manipulated. In this context, the research focuses on longitudinal observation of structural changes and competitive shifts among economic sectors over a 15-year period (2010–2024).

Location and time of research

The research was conducted in Konawe Regency, Southeast Sulawesi Province, Indonesia, a region designated as a national strategic industrial area for mineral downstreaming (Government of Indonesia, 2020). The selection of this location is based on three considerations: a) Its strategic role in Indonesia's mining-based industrial corridor; b) Observable disparities among sectoral contributions in the regional GRDP; and c) The absence of longitudinal studies examining the structural transformation of its economy.

The research implementation spanned five months (December 2024–April 2025), covering four main stages: a) Preparation of research design and data framework; b) Data collection and validation; c) Quantitative processing and Shift Share computation; and d) Interpretation and reporting of analytical findings. A location map of Konawe Regency is presented in Figure 1.

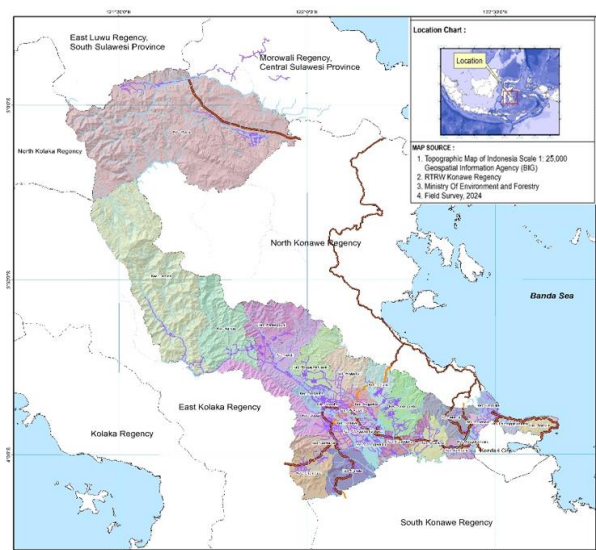


Fig. 1. Location Map of Konawe Regency, Indonesia

Research variables (focus)

The study focuses on a single analytical construct—the sectoral contribution structure within the regional GRDP. This construct is operationalized through three key indicators: (a) the GRDP growth rate at constant 2010 prices, (b) the sectoral GRDP contribution value based on industry classification, and (c) the distribution of sectoral shares within the total GRDP.

These indicators enable both longitudinal and comparative analyses across years and sectors, allowing the identification of leading and lagging industries. The operationalization procedure follows the framework proposed by Creswell (2014).

The unit of analysis is the economic sector (*i*) in Konawe Regency (*j*), observed annually over the 2010–2024 period. Spatial comparison units include the provincial level (Southeast Sulawesi) and the national level (Indonesia), which serve as reference structures for evaluating relative performance and structural transformation.

Types, data sources, and data collection techniques

This study uses secondary data, namely data that has been collected and published by other parties, such as the Central Statistics Agency and related official institutions, which are then reused for analysis purposes (Sekaran & Bougie, 2016; Creswell, 2014). The main data used in this study comes from the report on the Gross Regional Domestic Product (GRDP) of Konawe Regency according to the Business Sector in 2010–2024, which is available in the form of online publications. The selection of secondary data is based on considerations of time and cost efficiency, and because its availability allows for comprehensive longitudinal and spatial analysis (Creswell, 2014).

The data collection techniques used in this study include secondary data collection and documentation studies. Secondary data collection is carried out by obtaining data that is already available from official institutions such as the Central Statistics Agency (BPS), which is relevant to the research variables (Sekaran, 2016; Creswell, 2014). Meanwhile, the documentation study was conducted through a review of official documents and archives, especially the annual statistical reports of BPS regarding Gross Regional Domestic Product (GRDP) by business sector in Konawe Regency. All data and documents used in this study can be accessed online through the official website of BPS Konawe Regency at the following link: <https://konawekab.bps.go.id/id/publication/2024/04/04/>

Data analysis

This study applies the Shift Share Analysis (SSA) to decompose regional economic growth into three analytical components (Bandara, 2024; Montaña et al., 2023): a) National Growth Effect (N_{ij}) – reflects the expected growth if all sectors in the region grow at the same rate as the national economy; b) Industry Mix Effect (M_{ij}) – measures the influence of sectoral structure at the higher level (province/nation) on regional growth; and c) Competitive Effect (C_{ij}) – captures the region's sectoral competitiveness compared to the reference area.

The general formulation is as follows (Bandara, 2024; Montaña et al., 2023):

$$D_{ij} = N_{ij} + M_{ij} + C_{ij} \text{ or } D_{ij} = E_{ij}^* - E_{ij} \quad (1)$$

Influence of provincial economic growth:

$$N_{ij} = E_{ij} \times r_n \quad (2)$$

Measuring sector growth if it grows following the average provincial growth (rn):

$$rn = (\sum E_{in} \text{ final} - \sum E_{in} \text{ initial}) / \sum E_{in} \text{ initial} \quad (3)$$

Proportional shift or industry mix (industry mix effect) influence:

$$M_{ij} = E_{ij} (r_{in} - r_n) \quad (4)$$

Measuring the impact of the provincial sectoral structure on sector growth in Konawe:

r_{in} = Growth rate of sector i in the province.

If positive → the sector has good prospects nationally/regionally.

Effect of competitive advantage:

$$C_{ij} = E_{ij} (r_{ij} - r_{in}) \quad (5)$$

Measuring local superiority (Konawe) against the Province:

r_{ij} = Growth rate of sector i in Konawe.

If positive → the sector is more competitive or productive locally.

$$r_n = \frac{\sum_i E_{in}^* - \sum_i E_{in}}{\sum_i E_{in}}$$

$$r_{in} = \frac{E_{in}^* - E_{in}}{E_{in}}, \quad r_{ij} = \frac{E_{ij}^* - E_{ij}}{E_{ij}} \quad (6)$$

Description:

E_{ij} = Employment opportunities in sector i , region j

E_{in} = Employment opportunities in sector i , province

r_{ij} = Growth rate in sector i , region j

r_{in} = Growth rate in sector i , province

r_n = Economic growth rate of province.

*= data at the end of the analysis year.

Interpretation criteria:

Positive M_{ij} → sector aligns with high-performing industries nationally.

Positive C_{ij} → sector exhibits local competitive advantage.

Negative C_{ij} → sector lags behind the reference region.

The analytical sequence is conducted in five structured steps:

Compiling GRDP data by sector (2010–2024)

Calculating growth rates (r_{ij} , r_{in} , r_n)

Computing N_{ij} , M_{ij} , and C_{ij} values

Interpreting structural shifts and identifying leading sectors

Summarizing competitiveness dynamics into strategic implications.

All results are tabulated and visualized to show the long-term structural transformation and emerging economic patterns in Konawe Regency.

Analytical framework

The Shift Share results are interpreted within the framework of regional economic restructuring, linking quantitative findings to sectoral competitiveness and policy implications for

sustainable development. This approach allows triangulation between empirical data, theoretical assumptions, and policy relevance, ensuring that the analysis remains both statistically rigorous and contextually grounded.

Results

Sectoral competitiveness dynamics in Konawe Regency, 2010–2024

To analyze the dynamics of sectoral competitiveness in Konawe Regency, this study begins by evaluating the structure and growth trends of the regional economy using Gross Regional Domestic Product (GRDP) at constant 2010 prices. GRDP reflects the gross value added of all economic sectors and highlights structural changes over time. This initial analysis helps identify fast-growing, stagnant, or declining sectors.

The Shift Share Analysis (SSA) approach is then employed to assess sectoral competitiveness both absolutely and relatively, using the provincial aggregate as a benchmark. GRDP trends serve as the basis for identifying leading and lagging sectors that are essential for shaping regional development strategies. All GRDP data have been adjusted to constant 2010 prices in accordance with Statistics Indonesia (BPS) standards. The analysis covers the 2010–2024 period, divided into three five-year sub-periods for consistency with national development planning.

Table 1 presents GRDP data for Konawe Regency from 2010 to 2024, forming the empirical foundation for examining economic restructuring and sectoral competitiveness trends in the region.

Table 1. Konawe Regency GRDP at constant 2010 prices 2010–2024 (million rupiah)

Sectoral (Business field)	GRDP value (million rupiah)			
	2010*	2014	2019	2024
Agriculture, Forestry, and Fisheries	1,536,652.50	1,481,656.70	1,773,940.00	1,947,220.00
Mining and Quarrying	404,067.00	619,314.30	838,640.00	790,370.00
Manufacturing	191,377.50	270,666.00	1,136,680.00	6,250,750.00
Electricity and Gas Supply	1,348.40	2,279.90	2,980.00	3,820.00
Water Supply; Waste Management, Wastewater, and Recycling	4,637.70	5,826.60	6,860.00	6,560.00
Construction	489,587.20	613,254.40	853,070.00	892,920.00
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	353,810.40	494,925.30	728,800.00	897,100.00
Transportation and Warehousing	49,359.80	62,318.10	90,360.00	92,370.00
Accommodation and Food Service Activities	15,105.20	23,534.50	34,130.00	39,690.00
Information and Communication	35,550.30	46,221.60	69,580.00	86,740.00
Financial and Insurance Activities	39,050.30	73,347.20	102,530.00	123,550.00
Real Estate Activities	93,229.80	123,266.40	145,460.00	151,310.00
Business Services	4,855.90	6,925.70	10,200.00	11,020.00
Public Administration, Defense, and Compulsory Social Security	482,255.90	482,074.70	552,590.00	654,990.00
Education Services	207,200.80	285,620.30	377,380.00	422,700.00
Human Health and Social Work Activities	53,585.00	75,306.40	98,360.00	116,390.00
Other Services	42,608.80	66,269.80	83,210.00	86,360.00
Konawe Regency GDP	4,004,282.50	4,732,807.90	6,904,770.00	12,573,860.00

Note: The Gross Regional Domestic Product (GRDP) at constant prices (base year 2010) has been officially applied since 2010. Therefore, the analysis period for 2010–2014 includes only four years. This adjustment ensures consistency in the analytical framework for comparing the five-year periods between 2014 and 2024. Source: BPS-Statistics Indonesia Konawe Regency (2015), (2019), (2024), (2025a), (2025b).

Although it fluctuated in the early part of the decade, the long-term trend shows consistent growth in the GRDP of Konawe Regency. The GRDP increased from IDR 4.00 trillion in 2010 to IDR 4.73 trillion in 2014, marked by a decline in the agricultural sector's contribution and a significant rise in the mining sector from IDR 404 billion to IDR 619 billion. In the following five years (2014–2019), the GRDP rose substantially to IDR 6.90 trillion, supported by the strengthening of the mining sector (IDR 838 billion) and the rapid growth of the manufacturing sector, which surged from IDR 270 billion to IDR 1.13 trillion - indicating the initial phase of industrialization.

The most significant increase occurred between 2019 and 2024, when the GRDP nearly doubled to IDR 12.57 trillion, driven by the operationalization of the Morosi Industrial Zone. The manufacturing sector expanded sharply, reaching IDR 6.25 trillion, reinforcing the mining value chain even though the mining sector experienced a slight correction to IDR 790 billion by 2024.

Overall, over the past 15 years, Konawe's GRDP has more than tripled, reflecting a structural transformation from a primary-sector-based economy toward a secondary-sector-driven economy, supported by nickel downstreaming. This shift aligns with the national downstream policy agenda and the broader strategy to strengthen Eastern Indonesia's regional economy (Ministry of Investment, 2023; Bappenas, 2023). The full trend is illustrated in Figure 2.

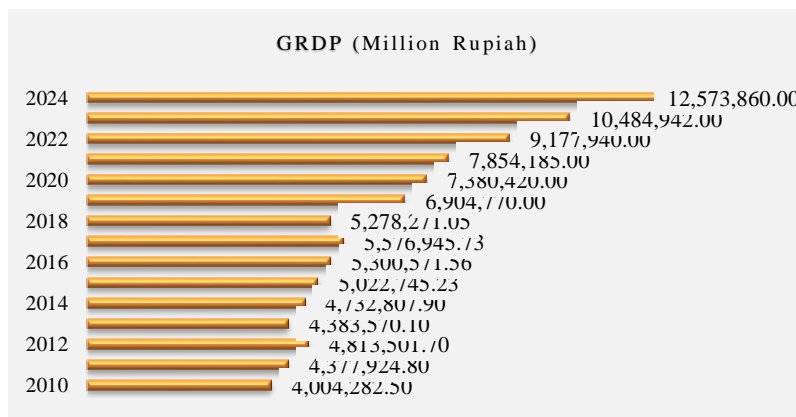


Fig. 2. Total GRDP of Konawe Regency 2010–2024. Source: BPS-Statistics Indonesia Konawe Regency (2015), (2019), (2024), (2025a), (2025b)

The surge in growth in the 2020–2024 period reflects the acceleration phase of the Konawe economy while also demonstrating its adaptive capacity to global disruption due to the COVID-19 pandemic. At a time when many regions experienced contraction, Konawe actually grew rapidly, driven by the expansion of the nickel processing industry in the Morosi Industrial Area. This shift marks the transition of the regional economy from dependence on the primary sector to downstreaming based on natural resources.

The development of the GRDP value from year to year not only shows quantitative growth, but also indicates structural transformation and strategic challenges within the framework of autonomy and industrialization in eastern Indonesia. To explore the direction of these changes, the following are the main points that reflect the strategic meaning and key findings of the 2010–2024 Konawe GRDP trend:

1. **Structural Transformation of the Regional Economy.** Data shows that Konawe has experienced a shift in economic structure from being dominated by the primary sector (especially agriculture and mining) to the secondary and tertiary sectors, with the metal processing industry as the main driver of growth. The strongest indicator is the surge in the value of the processing industry sector from IDR 270.6 billion (2014) to IDR 6.25 trillion (2024), coinciding with the operation of the Morosi Industrial Estate as the epicenter of national nickel downstreaming (Bappenas, 2023; Ministry of Investment, 2023).
2. **Polarization of Pre- and Post-2020 Growth.** Visually and empirically, the dynamics of Konawe's GRDP can be divided into two main phases:
 - a) The first phase (2010–2019): relatively slow and fluctuating growth, with an average of around 3–5% per year, reflecting a traditional sector-based economy that is vulnerable to global market volatility and climate.
 - b) The second phase (2020–2024): accelerative and consistent growth, with an increase of more than 70% in just five years. This indicates a structural inflection (structural break) triggered by a wave of foreign investment, especially from China and international consortiums (Prasetyantoko, 2022).
3. **Economic Resilience to Crisis.** The significant increase during the pandemic (2020–2021) is an indication that the Konawe economy has higher resilience than many other regions. This is due to its export-oriented production base, such as ferronickel and stainless steel processing. This finding is consistent with development literature which emphasizes that regions with strong downstream industries tend to be more resilient to external shocks (Rodrik, 2016).
4. **Confirmation of the Success of Downstream Policies.** The more than threefold growth in GRDP in 15 years is concrete evidence that the mineral downstream policy has not only had an impact at the macro level, but has also manifested itself in regional economic growth. In the context of Konawe, the Morosi Industrial Area has become the main lever for the local economy, as reflected in the 2020–2024 RPJMN Evaluation (Bappenas, 2023).
5. **Risk of New Dependence.** On the other hand, high dependence on the metal processing industry sector carries its own risks. This imbalance in the economic structure can increase vulnerability to global nickel price fluctuations, environmental pressures, and social issues due to rapid industrialization (World Bank, 2022). Therefore, a mitigation strategy is needed through strengthening regulations and economic diversification.
6. **Opportunities for Redistribution and Diversification.** High economic growth opens up opportunities for welfare redistribution and sector diversification. The resulting fiscal surplus can be directed to the development of industry-based MSMEs, vocational education, and strengthening industrial area governance institutions. This is in line with the inclusive growth approach in development economics (Stiglitz et al., 2019).

Overall, the 2010–2024 Konawe Regency GRDP data represents more than just economic figures; it reflects structural transformation, crisis responses, and new challenges in regional development. This long-term analysis emphasizes the importance of economic planning that is not only oriented towards quantitative growth, but also towards the quality of growth that is sustainable, inclusive, and resilient to global disruption.

As reinforcement, the following section presents real economic growth data for Konawe Regency based on the 2010 ADHK GRDP (Table 2). Reading this data is crucial to identify moments of acceleration, fluctuation, and structural inflection during the 2010–2024 period.

Table 2. Economic growth (GRDP) of Konawe Regency 2010-2024 (%)

Sectoral (Business field)	Economic growth (%)			
	2010*	2014	2019	2024
Agriculture, Forestry, and Fisheries	2.36	7.06	3.78	6.42
Mining and Quarrying	26.73	4.51	4.17	-4.25
Manufacturing	12.81	10.18	67.91	19.57
Electricity and Gas Supply	21.93	12.16	5.43	1.72
Water Supply; Waste Management, Wastewater, and Recycling	8.56	4.58	2.79	-1.05
Construction	7.21	5.10	6.79	5.78
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	13.59	8.21	8.07	6.86
Transportation and Warehousing	6.69	8.31	6.97	4.17
Accommodation and Food Service Activities	19.27	7.78	6.72	0.60
Information and Communication	1.97	5.08	6.46	8.30
Financial and Insurance Activities	22.31	12.13	6.40	2.23
Real Estate Activities	15.76	7.42	3.31	1.45
Business Services	13.57	16.71	4.94	-0.23
Public Administration, Defense, and Compulsory Social Security	3.62	11.56	2.79	14.52
Education Services	11.14	15.14	4.06	3.21
Human Health and Social Work Activities	8.01	14.50	8.30	3.04
Other Services	14.49	15.07	3.93	3.00
Konawe Regency	8.36	7.97	11.84	11.82

Source: BPS-Statistics Indonesia Konawe Regency (2015), (2019), (2024), (2025a), (2025b)

Table 2 presents the sectoral growth patterns of Konawe Regency from 2010 to 2024, reinforcing the narrative of structural economic transformation in the region. The data reveal a shift in economic orientation from primary sectors toward industry and services, with the mining sector playing a crucial transitional role.

Although GRDP growth declined to 11.82% in 2024, this figure still reflects a new post-boom stability following the 2022–2023 surge. Certain years stand out: for example, 2012 illustrates the dominance of primary sectors, particularly agriculture and mining, while 2023 marks the peak of nickel-based industrialization with the full operation of the Morosi Industrial Park. Conversely, 2020 represented a downturn due to the COVID-19 pandemic, although Konawe still recorded positive growth.

The year 2022 highlights a structural anomaly: while manufacturing grew rapidly, other sectors such as agriculture, trade, and services experienced downward pressure. At the same time, the mining sector began to show a decline in its relative contribution, indicating a shift from being a key growth driver to functioning primarily as a raw material supplier within the downstream value chain.

The year 2024 signals an economic consolidation phase, marking a transition from explosive growth to a more balanced and sustainable trajectory. The trends depicted in Table 2 and Figure 3 suggest that Konawe's economic dynamics are not merely short-term fluctuations, but rather reflect deep structural restructuring. To maintain sustainability, economic diversification and the strengthening of supporting sectors—such as trade, construction, communications, and financial services are essential. These visualizations serve as a critical foundation for the formulation of adaptive and evidence-based regional development policies.

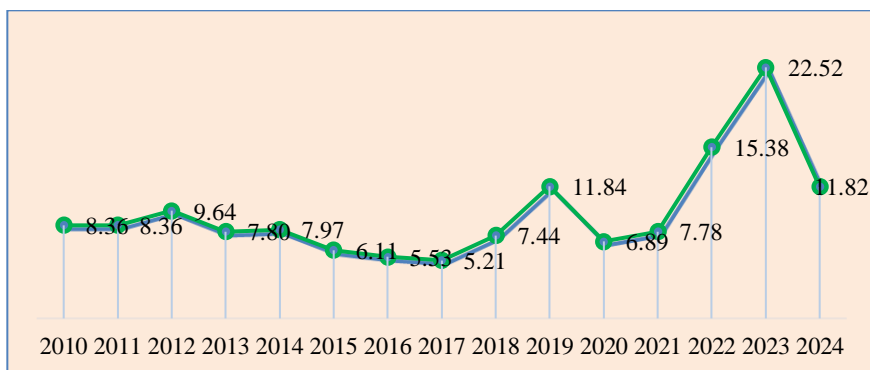


Fig. 3. Economic growth of Konawe Regency 2010-2024. Source: BPS-Statistics Indonesia Konawe Regency (2015), (2019), (2024), (2025a), (2025b)

An interesting fact is that the economic trajectory of Konawe Regency during the 2010–2024 period reveals a strong interrelationship between Gross Regional Domestic Product (GRDP) development and economic growth rates. These two indicators are not only linearly interconnected but also reflect the region's structural economic changes, which have unfolded across three main phases.

Phase I (2010–2014): Initial stability and dependence on traditional sectors

During this period, Konawe Regency experienced relatively stable economic growth, averaging above 7%, reflecting sound macroeconomic conditions supported by traditional sectors. The mining and quarrying sector recorded rapid growth of 26.73% in 2010, although this slowed to 4.51% by 2014. The construction, trade, education, and health service sectors also posted positive growth, indicating that a consumption-driven economy and basic services remained dominant. The manufacturing sector began to show an upward trend (10.18% in 2014), though its contribution to the overall economic structure was still minimal. GRDP rose from IDR 4,004 billion in 2010 to IDR 4,732 billion in 2014, indicating a solid economic foundation rooted in the primary sector and basic service industries.

Phase II (2015–2020): transition, fluctuations, and external pressures

This phase marked a period of structural transition accompanied by fluctuating economic dynamics. The manufacturing sector experienced a dramatic surge, growing by 67.91% in 2019, serving as a strong indicator of the onset of nickel downstreaming and industrialization agendas. However, the mining sector began showing signs of stagnation, growing by only 4.17% in 2019—significantly lower than its performance at the beginning of the decade. GRDP increased from IDR 5,022 billion in 2015 to IDR 6,904 billion in 2019, yet overall economic growth rates fluctuated, hitting a low of 5.21% in 2017 before rising again to 11.84% in 2019. External pressures, such as the global economic slowdown and the onset of the COVID-19 pandemic, further tested the resilience of the regional economy.

Phase III (2021–2024): acceleration, consolidation, and economic restructuring

After 2020, Konawe entered a phase of full-scale industrialization. The Gross Regional Domestic Product (GRDP) surged from IDR 7,380 billion in 2021 to IDR 10,484 billion in 2024, with projections reaching IDR 12,573 billion. Economic growth also accelerated significantly: 15.38% in 2022 and peaking at 22.52% in 2023, before correcting to 11.82% in 2024. The manufacturing sector remained the main driver of growth, expanding by 19.57%

in 2024. However, the mining sector experienced a contraction of -4.25%, signaling a diminishing role of extractive activities in the regional economic structure. Meanwhile, the government administration and communication sectors recorded rapid growth, reflecting the effects of fiscal policy responses and ongoing digitalization. This phase signifies the consolidation of economic gains following a period of expansion, while also highlighting emerging challenges in sustaining long-term growth.

The GRDP and economic growth of Konawe Regency: structural linkages and developmental implications

The GRDP data and economic growth trends in Konawe Regency reveal a synergistic, albeit not always proportional, relationship. Several key insights can be drawn from this relationship. First, there is a time lag between GRDP growth and overall economic growth. In many cases, increases in GRDP precede spikes in economic growth due to the lag between initial investment and the realization of real output.

Second, GRDP serves as a cumulative indicator, while economic growth reflects annual dynamics and efficiency. GRDP captures the total economic output, whereas growth rates indicate year-to-year performance. In Konawe's context, while GRDP has consistently increased, growth rates have fluctuated due to various structural factors. Third, the year 2020 represents a structural inflection point, marking a significant shift from a primary-sector-based economy to one increasingly driven by secondary industries, especially metal processing. Since then, GRDP expansion and growth performance have become more aligned and mutually reinforcing. Fourth, there are sectoral dependency risks. Over-reliance on the metal industry poses vulnerabilities to external shocks such as nickel price volatility and socio-environmental pressures, thus underscoring the need for economic diversification. Fifth, the direction of development planning must prioritize not only the quantity of growth but also its quality. This includes attention to sectoral distribution of GRDP, inclusiveness of local labor absorption, environmental sustainability, and the strengthening of supporting sectors such as MSMEs and logistics services.

Taking into account the three structural phases and the dynamic relationship between GRDP and economic growth, Konawe's economic transformation can be characterized as not merely quantitative but also fundamentally structural. These findings reinforce the urgency of formulating evidence-based, inclusive, and adaptive regional economic policies to address long-term development challenges.

Spatial competitiveness, economic transformation and structural inequality: the strategic role of mining in the Konawe region

To understand the dynamics of sectoral economic growth in Konawe Regency more contextually, the SSA approach is used with Southeast Sulawesi Province as a comparison area. This method separates changes in sectoral GRDP into three main components: national growth effect (Nij), industry mix effect (Mij), and competitive effect (Cij). The analysis was conducted in three five-year periods 2010–2014, 2014–2019, and 2019–2024 to observe changes in competitiveness and sectoral structure longitudinally. The results serve as the basis for identifying leading sectors that play a strategic role and sectors that have lost their relative advantages.

Dynamics of sectoral competitiveness (competitive effect/Cij) 2010–2014

In the early period (2010–2014), Konawe's economy was still supported by the primary sector, especially agriculture and mining. However, the SSA results show the emergence of sectors with local competitive advantages, especially in the construction and supporting services sectors. Details of the growth contribution of each sector and its components are presented in Table 3.

Table 3. SSA analysis of Konawe Regency against Southeast Sulawesi Province, 2010–2014 (in million rupiah)

<i>Sectoral (Business field)</i>	<i>Eij (2010-2014)</i>	<i>Δ GRDP (Dij)</i>	<i>Provincial Effects (Nij)</i>	<i>Industry Mix Effect (Mij)</i>	<i>Competitive Effect (Cij)</i>
Agriculture, Forestry, and Fisheries	1,536,652	-54,996	163,346	-133,535	6,454
Mining and Quarrying	404,067	215,247	42,952	73,661	-8,607
Manufacturing	191,378	79,289	20,343	-2,852	7,024
Electricity and Gas Supply	1,348	932	143	22	131
Water Supply; Waste Management, Wastewater, and Recycling	4,638	1,189	493	-265	169
Construction	489,587	123,667	52,048	7	2,168
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	353,810	141,115	37,618	-1,791	17,476
Transportation and Warehousing	49,360	12,958	5,248	-234	-2,122
Accommodation and Food Service Activities	15,105	8,429	1,605	137	-161
Information and Communication	35,550	10,671	3,779	-2,762	383
Financial and Insurance Activities	39,050	34,297	4,153	2,563	1,581
Real Estate Activities	93,230	30,036	9,915	-2,470	6,002
Business Services	4,856	2,070	516	-7	5
Public Administration, Defense, and Compulsory Social Security	482,256	-181	51,253	-33,777	2,453
Education Services	207,201	78,420	22,034	-2,836	3,488
Human Health and Social Work Activities	53,585	21,721	5,698	-2,259	861
Other Services	42,609	23,661	4,532	-470	421

Source: Analysis Results (2025)

Shift Share analysis for the 2010–2014 period reveals that the Mining and Quarrying sector served as the initial foundation for Konawe Regency's economic transformation, recording the highest absolute growth (Δ GRDP: IDR 215.247 million). This growth was primarily supported by the provincial growth effect (Nij: IDR 42.952 million) and the industrial mix effect (Mij: IDR 73.661 million), whereas the competitive effect (Cij) was negative (-IDR 8.607 million), indicating weak local competitiveness.

This finding underscores that high sectoral growth does not necessarily reflect competitive advantage, especially in sectors still reliant on raw material exports without sufficient downstream processing or supporting local infrastructure.

In contrast, several sectors with relatively lower GRDP contributions demonstrated stronger competitive performance, such as Trade (Cij: IDR 17.476 million), Manufacturing (Cij: IDR 7.024 million), and Real Estate (Cij: IDR 6.002 million), signaling the early emergence of a more diversified economic structure with potential for broader sectoral development. The Agriculture sector recorded a contraction (Δ GRDP: -IDR 54.996 million) and a negative mix effect, but still displayed a positive Cij (IDR 6.454 million), indicating untapped local potential. A similar pattern was observed in the Public Administration sector.

In general, almost all sectors exhibited positive Nij values, suggesting that provincial macroeconomic conditions were supportive of early growth. However, the Cij component emerges as the key indicator for assessing the sustainability and competitiveness of sectoral development.

Three main conclusions can be drawn from this period. First, the mining sector should be promoted through downstream industrialization strategies to enhance its local contribution. Second, the developing tertiary and secondary sectors are beginning to play a strategic role in the regional transformation process. Third, sectoral competitiveness (Cij) should be prioritized as a guiding metric in regional development planning to ensure growth that is not only high in nominal terms but also sustainable and based on local comparative advantages.

Dynamics of sectoral competitiveness (competitive effect/Cij) 2014–2019

The period 2014–2019 represents the initial structural transition phase in the economy of Konawe Regency, marked by a gradual shift from the dominance of the primary sector to strengthening the secondary and service sectors. Through the SSA approach, the dynamics of sectoral growth in this period are described into three main components, namely the general provincial growth effect (Nij), the structural mix effect (Mij), and the local competitive effect (Cij) as presented in Table 4.

Table 4. SSA analysis of Konawe Regency against Southeast Sulawesi Province, 2014–2019 (in million rupiah)

Sectoral (Business field)	Eij (2014-2019)	Δ GRDP (Dij)	Provincial Effects (Nij)	Industry Mix Effect (Mij)	Competitive Effect (Cij)
Agriculture, Forestry, and Fisheries	1,481,657	292,283	75,564	-37,338	17,780
Mining and Quarrying	619,314	15,981	31,585	-28,427	0
Manufacturing	270,666	138,404	13,804	-812	10,285
Electricity and Gas Supply	2,280	965	116	32	21
Water Supply; Waste Management, Wastewater, and Recycling	5,827	1,877	297	26	12
Construction	613,254	136,629	31,276	-3,050	-3,947
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	494,925	140,123	25,241	-3,157	6,340
Transportation and Warehousing	62,318	11,853	3,178	-1,068	506
Accommodation and Food Service Activities	23,535	9,602	1,200	-419	140
Information and Communication	46,222	8,101	2,358	-831	-10
Financial and Insurance Activities	73,347	21,438	3,740	685	-548
Real Estate Activities	123,266	25,820	6,290	-876	-591
Business Services	6,926	2,240	353	-6	30
Public Administration, Defense, and Com- pulsory Social Security	482,075	113,331	24,586	-4,013	4,383
Education Services	285,620	83,060	14,567	-417	793
Human Health and Social Work Activities	75,306	21,708	3,839	-24	23
Other Services	66,270	17,357	3,380	-528	80

Source: Analysis Results (2025)

The Mining and Quarrying sector, despite its historical dominance, demonstrates limitations in local competitive advantage. The sector's GRDP growth of IDR 15,981 million during this period was entirely attributable to the general growth effect (Nij: IDR 31,585 million) and a negative industrial mix effect (Mij: -IDR 28,427 million), with no contribution from the competitive effect (Cij: 0). This indicates that the sector's growth was driven by external factors such as global price fluctuations, national policies, and the dominance of large corporations, rather than by endogenous regional strengths.

In contrast, the Manufacturing sector began to exhibit positive dynamics. With the highest Cij among secondary sectors (IDR 10,285 million), this sector experienced competitive growth alongside the development of the Morosi Industrial Zone. Its GRDP growth of IDR 138,404 million was largely driven by internal factors, signaling the early establishment of a localized industrial base.

The Agriculture sector remained the largest nominal contributor (Δ GRDP: IDR 292,283 million), yet its competitiveness was limited (Cij: IDR 17,780 million), influenced more by external conditions than by local innovation. Several service sectors, such as Transportation and Accommodation, showed early signs of competitive growth, albeit at a small scale. Conversely, Financial Services and Real Estate recorded negative competitive effects, reflecting weak local contributions. Ultimately, the 2014–2019 SSA results classify sectors into four categories: (1) Competitive sectors such as Manufacturing, Trade, and Transportation; (2) Dominant but passive sectors like Mining and Agriculture; (3) Social development support sectors such as Education and Health; and (4) Modern service sectors that remain inefficient at the local level.

The stagnation in the competitiveness of the mining sector is a critical concern. The absence of a positive competitive effect reveals the lack of local control, integration, and downstream orientation. Thus, targeted policy strategies are needed to strengthen local roles through increased participation of local enterprises, inter-sectoral connectivity, and region-based downstreaming schemes. Without such efforts, the nominal dominance of the mining sector may exacerbate inequality and hinder an inclusive economic transformation.

Comparison of sectoral competitiveness (competitive effect/Cij) 2010-2014 and 2014-2019

To understand the direction of structural transformation of the regional economy longitudinally, this analysis compares the competitive effect (Cij) values between two five-year periods, namely 2010–2014 and 2014–2019. This comparison allows identification of the consistency of sectoral competitiveness, changes in the role of the main sectors, and shifts in sectoral contributions in the context of economic development of Konawe Regency. Details of changes in Cij between periods are presented in Table 5, which summarizes the Cij values of each sector and the difference in changes during the two periods.

Table 5. Comparison of sectoral competitiveness (Cij) of Konawe Regency 2010–2014 with 2014–2019

Sectoral (Business field)	Cij 2010–2014	Cij 2014–2019	Shifts in the Competitive Effect (Cij)
Agriculture, Forestry, and Fisheries	6.454	17.780	+11.326
Mining and Quarrying	-8.607	0.000	+8.607
Manufacturing	7.024	10.285	+3.261
Electricity and Gas Supply	131	21	-110
Water Supply; Waste Management, Wastewater, and Recycling	169	12	-157
Construction	2.168	-3.947	-6.115
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	17.476	6.340	-11.136
Transportation and Warehousing	-2.122	506	+2.628
Accommodation and Food Service Activities	-161	140	+301
Information and Communication	383	-10	-393
Financial and Insurance Activities	1,581	-548	-2.129
Real Estate Activities	6.002	-591	-6.593
Business Services	5	30	+25
Public Administration, Defense, and Compulsory Social Security	2.453	4.383	+1.930
Education Services	3.488	793	-2.695
Human Health and Social Work Activities	861	23	-838
Other Services	421	80	-341

Source: Analysis Results (2025)

The sectoral Δ GRDP trends in Konawe Regency indicate a significant structural shift. The manufacturing sector experienced accelerated growth, increasing from IDR 79.289 million to IDR 138.404 million, driven by the operationalization of the Morosi Industrial Zone, which catalyzed local industrialization. The agricultural sector rebounded from contraction to become the largest nominal contributor to GRDP growth (IDR 292.283 million), while the trade sector remained stable. Conversely, the mining sector experienced a sharp slowdown from IDR 215.247 million to only IDR 15.981 million—reflecting structural pressures and stagnant productivity, suggesting a limited contribution of local innovation.

The competitive effect (Cij) analysis reveals diverse sectoral dynamics. The agriculture sector recorded an increase in competitiveness (Cij: IDR 17.780 million), whereas the mining sector remained stagnant with a zero Cij value for two consecutive periods. This absence of competitive advantage underscores that the sector's growth was driven primarily by external actors and global commodity fluctuations rather than by local integration. In contrast, the manufacturing sector demonstrated consistently increasing competitiveness (Cij: IDR 10.285 million), positioning itself as a key driver of economic transformation. Several service sectors, such as transportation and accommodation, also began to show signs of competitiveness, while sectors like trade, real estate, and financial services experienced declining competitiveness due to local market stagnation and weak linkage with productive sectors.

Overall, these findings indicate that Konawe Regency is entering the early phase of economic restructuring toward secondary and supporting service sectors. However, the stagnation of the mining sector and the decline in modern service competitiveness pose serious challenges to the creation of an inclusive local economy.

Accordingly, future development efforts should focus on three strategic directions: a) Accelerating downstream processing and cross-sectoral connectivity; b) Integrating the agricultural sector into modern agro-industrial value chains; and c) Strengthening MSMEs and community-based services that are responsive to local demand dynamics. This approach is essential to ensure that Konawe's economic transformation is not only nominally expansive but also sustainable and grounded in local strengths.

Dynamics of sectoral competitiveness (Cij) 2019–2024

The Shift Share analysis for the period 2019–2024 provides the latest picture of the direction of economic transformation of Konawe Regency, especially in the context of the dynamics of sectoral competitiveness (competitive effect – Cij) on the economic performance of Southeast Sulawesi Province. By examining three main components—national/provincial growth effect (Nij), industry mix effect (Mij), and competitive effect (Cij)—this analysis is able to map sectors that grow due to external and structural influences, as well as sectors that develop based on local specific advantages. All estimation results are presented in detail in Table 6.

Table 6. SSA analysis of Konawe Regency against Southeast Sulawesi Province, 2019–2024 (in million rupiah)

Sectoral (Business field)	Eij (2014-2019)	Δ GRDP (Dij)	Provincial Effects (Nij)	Industry Mix Effect (Mij)	Competitive Effect (Cij)
Agriculture, Forestry, and Fisheries	1,773,940	173,280	95,792.76	-27,496.07	45,590.26
Mining and Quarrying	838,640	-48,270	45,286.56	7,044.58	-87,973.34
Manufacturing	1,136,680	5,114,070	61,380.72	86,160.34	74,907.21
Electricity and Gas Supply	2,980	840	160.92	-73.61	-36.06
Water Supply; Waste Management, Wastewater, and Recycling	6,860	-300	370.44	-445.90	3.43
Construction	853,070	39,850	46,065.78	-22,435.74	25,677.41
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	728,800	168,300	39,355.20	-12,316.72	22,957.20
Transportation and Warehousing	90,360	2,010	4,879.44	-984.92	-126.50
Accommodation and Food Service Activities	34,130	5,560	1,843.02	-395.91	-1,242.33
Information and Communication	69,580	17,160	3,757.32	1,676.88	340.94
Financial and Insurance Activities	102,530	21,020	5,536.62	-5,505.86	2,255.66
Real Estate Activities	145,460	5,850	7,854.84	-1,527.33	-4,218.34
Business Services	10,200	820	550.80	180.54	-754.80
Public Administration, Defense, and Compulsory Social Security	552,590	102,400	29,839.86	36,360.42	14,035.79
Education Services	377,380	45,320	20,378.52	-5,547.49	-2,717.14
Human Health and Social Work Activities	98,360	18,030	5,311.44	-59.02	-2,262.28
Other Services	83,210	3,150	4,493.34	-2,271.63	274.59

Source: Analysis Results (2025)

Despite previously serving as the main driver of Konawe Regency's GRDP, this sector experienced a contraction, with a ΔGRDP of -IDR 48.27 billion. More concerningly, its competitive effect (Cij) was the lowest across all sectors, at -IDR 87.97 billion, indicating a severe decline in local competitiveness. Although the national growth effect (Nij) and industry mix effect (Mij) still contributed positively (IDR 45.29 billion and IDR 7.04 billion, respectively), these findings suggest that the sector's growth is no longer rooted in internal strengths, but merely reflects broader regional and sectoral trends.

This regression reflects a structural shift in the role of mining within the local economy, which is increasingly oriented toward downstream processing and value-added industrial activities. The full operation of the Morosi Industrial Zone has reinforced the dominance of the manufacturing sector, displacing mining as the primary source of added value. Without local control over the supply chain and downstream processes, the mining sector faces productivity degradation and a disconnect from the real economy. Continued reliance on global commodity prices, centralized policy decisions, and the dominance of large-scale corporations hampers efforts to build local efficiency and innovation.

In contrast, the Manufacturing sector has demonstrated impressive performance, with the highest Cij value during this period (IDR 74.91 billion). The nickel downstreaming policy has had a tangible impact on the region's economic structure and has strengthened local capacity. Similarly, the Construction and Public Administration sectors recorded strong competitiveness, with Cij values of IDR 25.68 billion and IDR 14.04 billion, respectively, signaling improvements in infrastructure and governance that support medium-term economic transformation.

From a policy perspective, local governments must reconsider the strategic position of the mining sector to ensure it remains relevant and contributes to long-term growth. Key strategic interventions include: 1) Vertical integration between mining operations and local

processing industries; 2) Governance reform in licensing and environmental oversight; and 3) Allocation of mining revenues to strengthen other productive sectors such as modern agriculture, MSMEs, and public infrastructure. Without such interventions, Konawe risks maintaining an exclusive and extractive-oriented economic structure that is increasingly disconnected from local competitiveness and long-term development goals.

Comparison of sectoral competitiveness (Cij) 2010–2024: longitudinal approach

To gain a more comprehensive understanding of the dynamics of sectoral competitiveness in Konawe Regency, the Shift Share analysis approach was conducted longitudinally in three five-year periods: 2010–2014, 2014–2019, and 2019–2024. The main focus is on the competitive effect (Cij) component which represents the local advantage of a sector compared to the average performance of the same sector at the provincial level. The pattern of changes in Cij values over time reflects how much the sector's performance is driven by internal efficiency, institutional innovation, or strategic local policy support. The results of the analysis are presented in Table 7.

Table 7. Comparison of sectoral competitiveness (Cij) of Konawe Regency 2010–2014; 2014–2019; and 2019–2024

Sectoral (Business field)	Cij 2010–2014	Cij 2014–2019	Cij 2019–2024	Technical Classification
Agriculture, Forestry, and Fisheries	6,454.40	17,780.00	45,590.26	Consistently increasing
Mining and Quarrying	-8,606.70	0.00	-87,973.34	Continuously declining
Manufacturing	7,024.20	10,285.00	74,907.21	Consistently increasing
Electricity and Gas Supply	131.20	21.00	-36.06	Recent Decline
Water Supply; Waste Management, Wastewater, and Recycling	169.10	12.00	3.43	Recent Decline
Construction	2,167.70	-3,947.00	25,677.41	Fluctuating Trend
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	17,475.90	6,340.00	22,957.20	Fluctuating Trend
Transportation and Warehousing	-2,121.60	506.00	-126.50	Fluctuating Trend
Accommodation and Food Service Activities	-161.10	140.00	-1,242.33	Fluctuating Trend
Information and Communication	383.40	-10.00	340.94	Fluctuating Trend
Financial and Insurance Activities	1,581.10	-548.00	2,255.66	Fluctuating Trend
Real Estate Activities	6,001.70	-591.00	-4,218.34	Continuously declining
Business Services	5.20	30.00	-754.80	Continuously declining
Public Administration, Defense, and Compulsory Social Security	2,453.00	4,383.00	14,035.79	Consistently Increasing
Education Services	3,487.60	793.00	-2,717.14	Recent Decline
Human Health and Social Work Activities	861.30	23.00	-2,262.28	Recent Decline
Other Services	420.90	80.00	274.59	Fluctuating Trend

Source: Analysis Results (2025)

The Mining and Quarrying sector emerges as one of the main focal points of this evaluation due to its historically significant role in shaping the economic structure of Konawe Regency, particularly in the early 2010s. However, the competitiveness trend of this sector has shown a marked decline. During the 2010–2014 period, the competitive effect (Cij) registered a negative value of IDR 8,606.70 million, indicating underperformance compared to the average mining performance at the provincial level. The 2014–2019 period recorded a neutral Cij (IDR 0), signaling the absence of any meaningful local competitive advantage. The situation worsened drastically in 2019–2024, with the Cij plummeting to -IDR 87,973.34 million the lowest among all sectors reflecting a deterioration in local efficiency, productivity, and innovative capacity.

This steep decline occurred despite Konawe Regency's vast mineral potential, particularly in nickel. The erosion of competitiveness in the mining sector can be attributed to three key factors: first, a development shift from extraction to downstream industrialization following the full-scale operation of the Morosi Industrial Park; second, limited local participation in the mining supply chain, which remains dominated by large non-local corporations; and third, institutional constraints at the regional level in governing resource management and bridging upstream and downstream sectors in an integrated manner. Consequently, despite its resource potential, the sector is experiencing structural weakening within the regional economy.

In comparison, other sectors such as Manufacturing (Cij rising from IDR 10,285 million to IDR 74,907 million), Agriculture, and Public Administration have recorded significant improvements in competitiveness, clearly highlighting mining's relative decline. This underscores the fact that natural resources do not automatically translate into competitive advantage without institutional support and innovation. The mining sector now stands at a critical juncture. Without governance reform, stronger local actors, and an integrated, territory-based industrial strategy, this sector risks becoming a drag on Konawe's inclusive and sustainable economic transformation.

Strategic measures that should be urgently implemented include: (a) promoting vertical integration between mining operations and locally based processing industries to ensure that added value is both created and retained in Konawe; (b) revisiting investment regulations and benefit-sharing mechanisms so that revenues from the sector are more productively allocated to supporting sectors such as education, health, and MSME development; (c) strengthening the technical and institutional capacity of local government in licensing, environmental monitoring, and corporate negotiations; and (d) developing a spatial data-based monitoring system and resource digitalization platform to ensure transparency, accountability, and efficiency in mining governance.

The declining competitiveness of the mining sector is not merely a reflection of structural economic shifts, but a signal that this sector requires a redefinition of its strategic role in the local economy. Without a renewed vision and systematic policy intervention, the mining sector will continue to lose relevance within the development architecture of Konawe in the coming years.

Spatial-sectoral implications for regional development planning

Thematic narratives concerning the classification of sectoral competitiveness (Cij) based on Shift Share Analysis for Konawe Regency over the periods 2010–2014, 2014–2019, and 2019–2024 are illustrated in Figure 4. This visualization not only captures the longitudinal and comparative dynamics of competitive advantage across sectors, but also serves as a foundational framework for grouping sectoral and spatial development policy directions into four strategic categories: (1) sectors with consistently increasing competitiveness; (2) sectors exhibiting fluctuating competitiveness patterns; (3) sectors experiencing a declining competitive position; and (4) sectors with weak or neutral competitiveness.

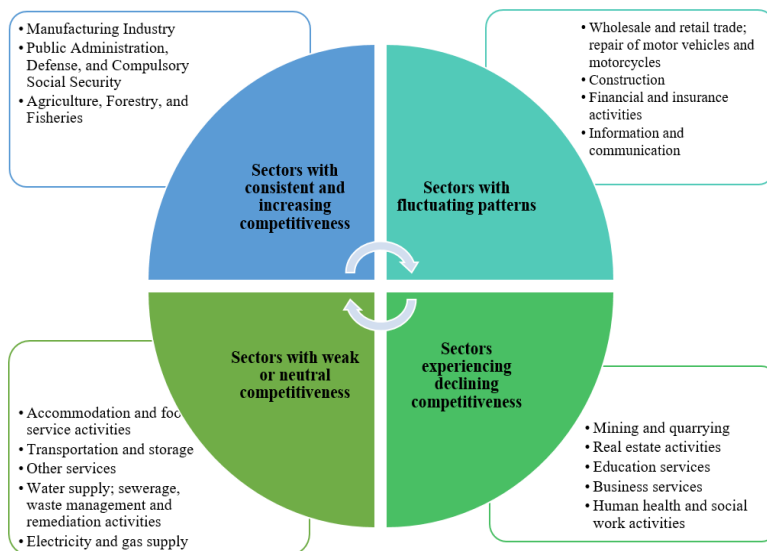


Fig. 4. Sectoral competitiveness classification (C_{ij}) of Konawe Regency Based on shift share analysis: 2010–2014, 2014–2019, and 2019–2024. Source: Analysis Results (2025)

The sectoral competitiveness classification presented in the visualization reflects the structural economic dynamics of Konawe Regency over the three analysis periods. This visual representation not only illustrates the relative position of each sector within the context of regional competition but also serves as a conceptual framework for guiding spatial-sectoral-based regional development strategies. The key implications are detailed as follows:

1. Fluctuating Sectors: Targets for Cross-Sectoral Integration
2. Sectors categorized as fluctuating—such as Trade, Construction, Financial and Insurance Services, and Information and Communication—exhibit flexibility in responding to shifts in demand, public expenditure, and technological innovation. The corresponding policy implications include: a) Consolidating supportive infrastructure and stabilization policies, particularly to strengthen financial services and digital transformation; b) Enhancing local and regional market absorption capacity so that trade does not remain reactive to short-term demand, but evolves into a long-term growth driver; and c) Developing inter-sectoral connectivity scenarios, linking construction with strategic projects (industry, transport, energy), to enable a more adaptive and proactive investment cycle.
3. Sectors Experiencing Declining Competitiveness: Structural Repositioning and Governance Reform
4. Sharp declines in competitiveness in sectors such as Mining and Quarrying, Real Estate, Education, Health, and Professional Services indicate institutional stagnation and weak inter-sectoral integration. Strategic responses should include: a) Redefining the role of the mining sector through localized downstreaming and spatial integration with industrial zones; b) Reforming education and health systems as foundational components of human capital development, by aligning service outputs with the needs of productive sectors; and c) Revitalizing real estate and professional services with a territorial-spatial approach to strengthen interregional connectivity, spatial zoning, and long-term investment incentives.

5. Weak or Neutral Sectors: Optimization of Supportive Roles and Value Chain Strengthening
6. Sectors such as Accommodation and Food Services, Transportation, Water and Waste Management, and Electricity and Gas are not yet primary economic drivers but serve strategic roles as productivity enablers. Policy implications include: a) Developing an integrated tourism ecosystem, particularly to support MSMEs and the informal sector; b) Spatial-based modernization of basic infrastructure, aimed at strengthening connectivity between growth centers and hinterland areas; and c) Enhancing energy and water infrastructure as key enablers for priority sectors (manufacturing, agriculture, logistics).
7. Directions for Economic Diversification and Structural Reorganization
8. The sectoral classification patterns provide a rational basis for future regional development policy formulation. Key spatial-sectoral directions include: a) Promoting adaptive advantage-based economic diversification, prioritizing fluctuating sectors with high growth potential through innovation and digitalization; b) Spatial restructuring of the GRDP composition, by reinforcing synergy between core sectors (manufacturing, agriculture, government) and fluctuating sectors through cluster-based policies; c) Enhancing inter-sectoral and interregional connectivity to stimulate the mobility of capital, labor, and infrastructure from stagnant sectors toward more dynamic ones; and d) Applying spatially sensitive approaches to sectoral planning to ensure that policies are not homogeneous but are tailored to the strengths and weaknesses of sectors within each development zone (urban–rural–industrial hinterlands).

Furthermore, a summary of sector classifications based on competitive effect (Cij), associated sectors, and recommended policy directions is presented in Table 8 below.

Table 8. Sector classification based on competitiveness (Cij) and policy direction

Competitiveness category	Related sectors	Policy direction
Consistent and Increasing	<ul style="list-style-type: none"> ▪ Manufacturing industry ▪ Public administration, defense, and compulsory social security ▪ Agriculture, forestry, and fisheries 	Strengthening the base of leading sectors, market expansion
Fluctuating pattern	<ul style="list-style-type: none"> ▪ Wholesale and retail trade; repair of motor vehicles and motorcycles ▪ Construction ▪ Financial and insurance activities ▪ Information and communication 	Cross-sector integration, facilitating policy stability
Decrease in competitiveness	<ul style="list-style-type: none"> ▪ Mining and quarrying ▪ Real estate activities ▪ Education services ▪ Business services ▪ Human health and social work activities 	Structural and governance reforms, improving the quality of human resources and public service infrastructure
Weak or neutral	<ul style="list-style-type: none"> ▪ Accommodation and food service activities ▪ Transportation and storage ▪ Other services ▪ Water supply; sewerage, waste management and remediation activities ▪ Electricity and gas supply 	Optimization of value chains and supporting infrastructure, synergy of local-based economic support sectors

Source: Analysis Results (2025)

Discussion

Sectoral Competitiveness Dynamics in Konawe Regency, 2010–2024

The Shift Share Analysis (SSA) results indicate that the economic structure of Konawe Regency underwent significant transformation during the 2010–2024 period, particularly following the expansion of the nickel-based processing industry. The processing industry sector recorded the highest positive competitive effect (Cij) value compared to other sectors, indicating that this sector possesses a competitive advantage that is growing faster than the provincial average. Conversely, the agriculture, forestry, and fisheries sector consistently exhibited negative Cij values, indicating a decline in structural competitiveness and a shift in the workforce from the primary to the secondary and tertiary sectors.

These changes reflect a shift in the economic base from agrarian activities to natural resource-based industrialization. This finding aligns with Rodrik's (2016) view of premature industrialization in developing countries, where commodity-based industrialization tends to result in rapid sectoral transformation but is not always accompanied by increases in aggregate productivity. On the other hand, this finding also strengthens the arguments of Porter (2003), and Content and Frenken (2016) that the success of regional economic restructuring is not only determined by output growth, but also by the sector's ability to create added value across the supply chain.

When compared with the research findings of Abadi et al. (2024) in Indonesia's west coast, the increasing competitive effect of the manufacturing sector in Konawe shows a similar trend, namely the formation of new industrial clusters replacing the dominance of the traditional agricultural sector. However, unlike that study, this analysis confirms that the competitive advantage of the manufacturing sector in Konawe is largely driven by the expansion of the nickel industry and foreign direct investment (FDI) concentrated in downstream industrial areas. This demonstrates the strong role of downstreaming policies and investment incentives in shifting the local economic structure.

Meanwhile, the negative pattern in the agriculture and fisheries sectors reinforces the findings of Alwi et al. (2024) that mining expansion has reduced local food production capacity and weakened the traditional economic base. This decline indicates a structural crowding-out effect, where labor resources and public investment are absorbed into the manufacturing sector, widening the productivity gap between sectors. This situation has the potential to increase regional economic vulnerability if dependence on the extractive sector is not offset by diversification into supporting sectors.

Furthermore, when compared to the research findings of Afriyanti et al. (2023) in Central Kalimantan, the growth pattern of the processing sector in Konawe exhibits a similar phenomenon, namely the spatial concentration of industry in certain areas without equitable growth across sub-districts. This pattern resonates with findings by Kadušić et al. (2021), who demonstrated through GIS-based spatial analysis that industrial clustering can intensify regional disparities when not supported by balanced territorial planning and infrastructure integration. This confirms that spatial aspects play a crucial role in shaping sectoral competitiveness, as explained by Alonso (2022) and Lösch (2023), who argued that location dynamics and intersectoral linkages determine the intensity of regional economic multiplier effects.

Overall, these findings indicate that the competitive advantage of the processing industry sector in Konawe is localized and policy-induced, rather than emerging organically from intersectoral connectivity. This contrasts with the balanced growth model described in da-Silva et al. (2021) study in Brazil, where mining specialization actually weakened long-term economic resilience due to a lack of structural economic diversification. Similar concerns regarding socio-environmental vulnerability in resource-dependent settlements were also raised by Delić (2025), emphasizing that industrial expansion without inclusive governance can erode local quality of life and environmental conditions. Thus, Konawe's competitiveness tends to be transitory, dependent on the stability of nickel industry investment and central government policy support.

Academically, this analysis reinforces the importance of understanding structural transformation as a complex spatial-sectoral process, not simply a shift in GRDP contributions between sectors. Konawe serves as an empirical example of how natural resource-based industrialization can create new sectoral competitiveness while deepening structural inequalities between regions. These results also complement the conclusions of Montanía et al. (2023) research, which emphasized the need for a comprehensive shift-share framework to capture sectoral and spatial interactions in the context of a rapidly transforming regional economy.

Spatial competitiveness, economic transformation, and structural inequality: the strategic role of mining in Konawe Region

The economic transformation of Konawe Regency during 2010–2024 demonstrated a complex spatial-sectoral configuration, marked by a shift in dominance from the primary sector to the manufacturing sector. The mining sector plays a dual role—as an initial catalyst for industrialization and simultaneously a potential source of structural inequality. The Shift Share (SSA) analysis shows that the competitive effect (Cij) component effectively reveals latent changes in sectoral competitiveness that are not reflected in aggregate GRDP growth figures.

Although the mining sector recorded high nominal growth in the early 2010s, the consistently declining Cij value—reaching a low of around (-)IDR 87.97 billion in the 2019–2024 period—indicates a weakening of local competitiveness compared to similar sectors in other regions. This pattern reflects the characteristics of an enclave economy as described by da-Silva et al. (2021) and Ericsson and Löf (2019), where mining expansion generates economic growth isolated from local economic engagement, institutional strengthening, or increased regional technological capacity. In other words, industrialization based on resource extraction has not automatically produced a sustainable local economic multiplier effect.

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words, industrialization based on resource extraction has not automatically produced a sustainable local economic multiplier effect.

In contrast, the manufacturing sector showed a steady trend of increasing competitiveness throughout the analysis period, coinciding with the operation of downstream nickel industrial parks such as the Indonesia Konawe Industrial Park (IKIP). This increase confirms the shift in added value from the extractive sector to the processing sector, supporting the importance of vertical integration in natural resource-based development strategies (Djamhari et al., 2024; Bappenas, 2023). However, this process remains asymmetrical as it is not accompanied by significant developments in the modern services and agricultural sectors. This demonstrates what Rodrik (2016) calls a dualistic structural transformation where growth in capital and technology intensive sectors coexists with stagnation in traditional sectors.

Spatially, regional disparities within Konawe Regency remain evident. Economic growth is concentrated in industrial areas, while buffer zones and the hinterland show signs of stagnation. This pattern aligns with the findings of Sartika & Sulistiawati (2024) in West Kalimantan and Afriyanti et al. (2023) in Central Kalimantan, which revealed that mining-based industrialization often results in spatially uneven development. Similarly, Kadušić et al. (2021), through GIS-based spatial analysis in Bosnia and Herzegovina, demonstrated that industrial concentration without integrated spatial planning can deepen intra-regional inequality and limit diffusion of industrial benefits to peripheral areas. In the case of Konawe, the unequal spatial distribution of economic value added indicates weak intersectoral connectivity and low local economic ties to large-scale processing industries.

From a regional planning perspective, these results highlight two key challenges. First, intra-regional spatial inequality persists because rapid growth in industrial clusters has not been accompanied by economic integration in surrounding areas. Second, structural inequality between sectors is increasingly prominent, resulting in a dualistic regional economy, where capital-intensive and technology-intensive sectors thrive alongside low-productivity traditional sectors. This situation indicates that Konawe's economic transformation remains inclusive, and its competitiveness is not evenly distributed.

Future development policies need to adopt a more integrative and evidence-based economic spatial framework. The role of the mining sector must be transformed from merely a contributor to GRDP to a driver of local economic strengthening through: a) Creating local value chains based on nickel minerals and derivative commodities; b) Reforming natural resource governance to strengthen regional accountability and participation; and c) Developing integrated economic clusters that link the agriculture, trade, and logistics services sectors with the manufacturing industry sector (Content & Frenken, 2016; McMahon & Moreira, 2014).

From an academic perspective, the results of this study broaden our understanding of how spatial and sectoral linkages interact in the process of natural resource-based economic transformation in developing countries. The SSA approach, which emphasizes the competitive effect (Cij) component, has been shown to capture the dynamics of local efficiency and regional institutional capacity more precisely than conventional aggregate measures. These findings support the decentralization agenda and

strengthen the argument that resilient regional development requires strengthened institutional capacity and balanced spatial-sectoral diversification.

As an emphasis, the mining sector cannot be excluded from the long-term narrative of economic transformation and spatial planning in Konawe. Instead, its strategic role needs to be directed towards strengthening intersectoral connectivity, distributing economic benefits more equitably, and building a regional economic structure that is adaptive to global and national pressures. Konawe, as the national nickel downstream center, serves as an important policy laboratory for Indonesia in testing the effectiveness of equitable and sustainable resource-based economic transformation.

Spatial–sectoral implications for regional development planning

The transformation of the economic structure in Konawe Regency (2010–2024) resulted in an increasingly unequal spatial-sectoral configuration: although aggregate GRDP growth showed an increase, economic benefits were distributed unevenly across sectors and regions. The SSA (competitive effect component/Cij) results revealed a concentration of competitive advantage in certain sectors and locations, while buffer zones tended to stagnate or experience declining competitiveness. This pattern is not simply a quantitative issue, but also a functional one where intersectoral integration and spatial linkages remain weak.

Sectorally, manufacturing emerged as the main winner in the 2019–2024 period (highest Cij ~ IDR 74.91 billion), closely related to the operation of the nickel downstreaming area (IKIP). This finding aligns with observations that downstream processing can shift added value from extraction to technology-based production (Djambhari et al., 2024). However, this shift in added value does not automatically result in a dissemination impact: mining & quarrying still shows a negative Cij (\approx -IDR 87.97 billion), indicating an erosion of local advantages despite its still high nominal contribution to GRDP. This condition confirms the enclave economy character noted by da-Silva et al. (2021) and Ericsson and Löf (2019), where mining growth remains detached from local linkages, institutional learning, or technological spillovers. In parallel, Delić (2025) found that resource-dependent settlements in Ugljevik, Bosnia and Herzegovina, experienced declining environmental quality and perceived well-being, underscoring how spatially concentrated extractive growth can undermine local sustainability and social equity.

When compared empirically, the Konawe pattern shares similarities and differences with other studies in Indonesia. As Abadi et al. (2024) and Afriyanti et al. (2023) note, new industrial “clusters” have emerged, replacing traditional sectors. However, unlike some cases in these studies, Konawe's manufacturing advantage appears to be tied more to downstreaming policies and centralized investment, rather than to more widespread diversification based on local potential. Furthermore, these findings confirm Rodrik's (2016) warning regarding the dual nature of sectoral transformation: rapid growth in some subsectors is not always accompanied by increased productivity and income equality.

Spatially, mapping results (Figure 4; Table 8) confirm that value-added and competitiveness are concentrated in corridors aligned with industrial infrastructure and investment flows. The weak spatial spillover effect where industrial growth fails to ra-

diate benefits into the hinterland produces two key consequences: (1) sectoral imbalances, as complementary sectors (trade, construction, and education services) fluctuate according to the industrial investment cycle; and (2) regional disparities, as agrarian-based villages face economic marginalization. Similar dynamics were identified by Sartika & Sulistiawati (2024) and Afriyanti et al. (2023) in Kalimantan's mining-based economies. Kadušić et al. (2021) further emphasized, through GIS-based spatial analysis in Tešanj Municipality (Bosnia and Herzegovina), that industrial concentration without integrated spatial planning can deepen intra-regional disparities and constrain diffusion of economic opportunities.

From a planning and policy standpoint, these findings call for a more integrated and differentiated regional strategy. First, clustering policies should internalize local value chains not merely by constructing processing facilities, but by strengthening local suppliers (logistics, engineering, and component industries) through local purchasing schemes, skills training, and financial inclusion for MSMEs. Second, interventions must tackle spatial connectivity constraints, such as improving transport and logistics networks linking hinterland areas to industrial corridors, and integrating agricultural markets into industrial supply chains. Third, institutional reforms are essential to ensure equitable benefit-sharing through clear local content rules, transparent regional fiscal mechanisms for mining revenues, and participatory investment governance.

Technically, Cij mapping and SSA-based diagnostics should be institutionalized as part of spatial and sectoral planning evaluation frameworks. Integrating these with geospatial information systems (GIS) linking competitiveness indicators, employment data, and infrastructure networks can enhance policy precision and spatial targeting. This is consistent with Montanía et al. (2023), Bandara (2024), and Kadušić et al. (2021), who collectively highlight that combining shift-share and spatial analytical tools increases the responsiveness of policy design to regional heterogeneity.

Finally, it is crucial to emphasize that sustainable transformation requires two parallel courses of action: strengthening the long-term competitiveness of leading sectors through innovation, productivity enhancement, and human capacity accumulation; and simultaneously protecting and empowering vulnerable sectors such as agriculture and basic services—through economic diversification and socio-economic inclusion programs. Without this dual approach, Konawe risks achieving high but fragile growth, heavily dependent on commodity cycles and foreign investment, as highlighted in the literature on regional resilience (da Silva et al., 2021; Stiglitz et al., 2019). Based on this premise, development planning in Konawe should shift its orientation from macro-level indicators, such as GRDP growth, toward more comprehensive indicators that reflect sectoral competitiveness, the spatial distribution of benefits, and institutional capacity. Only through a spatial–sectoral, evidence-based, and pro-inclusion policy framework can the region realize a transformation that is both equitable and resilient to external shocks.

Conclusion

This study presents a longitudinal analysis of sectoral competitiveness dynamics and economic transformation in Konawe Regency over the 2010–2024 period using the Shift Share Analysis (SSA) approach, with a specific emphasis on the competitive effect

(Cij) component as an indicator of local advantage. The findings confirm the occurrence of a profound and nonlinear regional economic restructuring, marked by a gradual shift in sectoral dominance from the primary sector to the secondary sector particularly manufacturing accompanied by complex spatial dynamics and structural disparities across sectors.

The manufacturing sector has emerged as a new engine of regional economic growth, exhibiting a significant surge in Cij values. This signals the early success of the national mineral downstreaming agenda, operationalized through the establishment of the Morosi Industrial Zone. Meanwhile, the agriculture sector shows signs of local competitiveness recovery, despite being under pressure from industrial spatial expansion and land-use conflicts.

In contrast, the mining and quarrying sector, despite playing a foundational role in the initial phase of regional economic acceleration and supplying key inputs to industry, has experienced a substantial decline in local competitiveness (recording negative Cij in two out of three periods). This reflects a high degree of structural dependence on external dynamics and a lack of vertical integration within the local economic structure. The findings underscore that nominal growth alone is insufficient to ensure sustainability unless accompanied by institutional strengthening, technology transfer, and inclusive economic benefit distribution.

Spatially, the structural transformation of Konawe Regency remains uneven across both sectors and regions, creating imbalances that demand urgent attention in long-term development planning and policy formulation. Overreliance on a single flagship sector risks entrenching the region in a structural transformation trap, wherein rapid development is undermined by vulnerability to external shocks.

From a policy perspective, this study affirms the importance of evidence-based, spatial sectoral planning approaches. Economic diversification strategies should prioritize the development of sectors with consistently positive competitiveness trends such as manufacturing, trade, construction, and public administration while reforming the mining sector to enhance its contribution to sustainable local value creation.

Thus, this study not only enriches the literature on resource-based development geography and regional economics, but also offers conceptual and methodological contributions for designing inclusive, resilient, and context-sensitive regional economic development pathways. The integration of spatial advantage, sectoral efficiency, and institutional reform is essential for sustaining economic growth in regions such as Konawe and other nickel-producing areas in Indonesia.

Substantively, the study contributes to strengthening the paradigm of spatial–sectoral dynamics in development geography and regional planning. The longitudinal approach adopted here highlights the importance of viewing economic structures not as static entities, but as systems undergoing continuous spatial and sectoral transformation in response to policy shifts, investment flows, and global dynamics. Within this context, the mining sector in regions like Konawe should not be analyzed solely as a GRDP contributor, but rather as a node of structural change one that requires spatial integration, local institutional empowerment, and equitable benefit distribution to support sustainable regional development.

Study limitations

This study employs the Shift Share Analysis (SSA) approach to examine sectoral competitiveness in Konawe Regency; however, it is subject to several methodological limitations. First, SSA is inherently descriptive and does not capture causal relationships between structural variables such as investment, employment, and fiscal policy. As a result, the model does not explain the underlying drivers of sectoral growth or decline.

Second, SSA does not account for spatial interdependence across regions. Consequently, external influences from neighboring regencies such as Kolaka and Bombana remain unquantified, potentially underestimating spillover effects and regional dynamics that shape local competitiveness. Third, the study has yet to integrate qualitative approaches that could illuminate socio-economic dynamics at the local level, including community perceptions, spatial conflicts, and institutional responses to rapid industrialization. Such insights are critical for contextualizing sectoral trends and policy impacts. Fourth, limitations in the resolution of spatial data constrain the analysis from capturing disparities at the micro-level (village/sub-district). This restricts the study's ability to inform granular, place-based planning, which is essential for promoting equitable and targeted regional development.

Recommendations for future research

In response to the methodological limitations identified in this study, several directions for future research should be considered to strengthen analytical depth and the policy relevance of regional development planning in mining-based economies.

First, the Shift Share Analysis (SSA) approach should be integrated with spatial econometrics and multi-regional input–output (MRIO) modeling to capture interregional and intersectoral linkages in a more systemic and dynamic manner. Second, further exploration of economic clustering and value chain formation is required, especially concerning the interconnections between the mining sector and local SMEs, logistics networks, and regional trade systems. Third, a micro-spatial approach utilizing high-resolution data such as Geographic Information Systems (GIS) and satellite imagery is essential to accurately assess disparities between industrial and non-industrial zones. Fourth, greater attention must be paid to social and institutional dimensions through socio-geographical approaches to understand community dynamics, spatial conflicts, and local adaptation to industrial transformation. Finally, the analytical outputs should be integrated into a Geospatial Decision Support System (GDSS) to inform spatial planning, including the formulation of regional and detailed spatial plans (RTRW/RDTR), and to enhance the technocratic capacity of local governments.

By adopting a multidisciplinary approach that combines spatial, sectoral, social, and institutional dimensions, future research can more effectively support a regional economic transformation that is equitable, adaptive, and sustainable.

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