

Research Article

Analysis Of Potential And Priority Economic Sectors In Regional Development Planning: Location Quotient, Klassen Typology, Shift-Share, And Topsis Approaches In Sukabumi City

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Abstract: Sukabumi City as an autonomous region faces challenges of fiscal dependency, suboptimal economic growth, and suboptimal utilization of regional leading sectors. This study aims to identify potential economic sectors and determine the priority sectors for economic development in Sukabumi City as a basis for managing regional revenue. The study uses a quantitative approach with secondary data on the GRDP of Sukabumi City and West Java Province for the 2010-2017 and 2018-2025 periods sourced from the Central Statistics Agency. The analytical methods used are Location Quotient (LQ), Klassen Typology, Shift-Share, and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) with eight assessment criteria. The results show that of the 16 economic sectors analyzed, nine sectors are classified as basic sectors ($LQ > 1$) in the 2018-2025 period, with the integration of the three analytical tools resulting in six potential sectors. The TOPSIS results determine the development priority order, namely Wholesale and Retail Trade ($V_i = 0.7487$) as the main priority, followed by Financial Services and Insurance ($V_i = 0.4548$), Corporate Services ($V_i = 0.3220$), Health Services and Social Activities ($V_i = 0.2817$), Education Services ($V_i = 0.2183$), and Construction ($V_i = 0.1928$). These findings confirm that the economic structure of Sukabumi City is characterized by a service-based economy with the Trade and Financial Services sectors as the main drivers. The research results can be an empirical reference for local governments in allocating development resources in a targeted and evidence-based manner.

Keywords: Leading Sectors, Location Quotient, Klassen Typology, Shift-Share, TOPSIS, Regional Economic Development

1. Introduction

Regional economic development is a process involving local governments and communities in optimizing available resources to create jobs and stimulate regional economic growth. The era of regional autonomy, marked by Law No. 22 of 1999 and Law No. 25 of 1999, provides broader authority for regional governments to independently explore and develop their region's potential. Consequently, regional governments are required to conduct comprehensive studies of potential, resources, and factors that support and hinder regional economic development.

Sukabumi City, as an autonomous region in West Java Province, recorded relatively stable Gross Regional Domestic Product (GRDP) growth in the range of 5.11-5.35 percent during the 2022-2025 period, consistently exceeding the average economic growth rate for West Java Province. However, Sukabumi City's GRDP contribution to the West Java economy remains medium-ranked, leaving significant room for optimizing the region's leading sectors. Key challenges include fiscal dependence on the central government, limited infrastructure, and the suboptimal identification and utilization of potential sectors as a basis for development planning.

Several previous studies have developed analytical frameworks for regional leading sectors. Widodo and Kuncoro (2017) used LQ, Shift-Share, and the Klassen Typology to show that regions specializing according to their comparative advantages recorded 2.3 percent higher economic growth. Prasetyo et al. (2021) applied input-output analysis to identify intersectoral linkages, while Tsvirkun et

al.'s (2022) study emphasized that regional economic planning models often lack an approach tailored to the local characteristics of a region. These studies generally use one or two analytical tools separately, thus failing to comprehensively integrate the dimensions of the economic base (LQ), growth-contribution dynamics (Klassen Typology), competitive advantage (Shift-Share), and multi-criteria prioritization (TOPSIS) within a single analytical framework for a medium-sized city like Sukabumi.

Based on these gaps, this study aims to: (1) identify and analyze potential economic sectors in Sukabumi City through the integration of LQ, Klassen Typology, and Shift-Share; and (2) analyze the priority of economic development sectors through the TOPSIS approach with eight assessment criteria. The results of this study are expected to provide strategic recommendations for local governments in formulating targeted development resource allocation policies based on empirical evidence.

2. Literature Review

Regional Economic Development

Regional economic development is a continuous process through which local governments, private sectors, and communities collaborate to improve economic performance, social welfare, employment opportunities, and the competitiveness of a region. Unlike macroeconomic development, regional economic development focuses on optimizing endogenous resources, strengthening local production systems, and improving spatial competitiveness to reduce regional disparities. The implementation of regional autonomy has further increased the responsibility of local governments to formulate evidence-based development policies that are capable of maximizing regional potential while maintaining sustainable economic growth.

Modern regional development is no longer merely associated with increasing Gross Regional Domestic Product (GRDP), but also with improving economic resilience, innovation capacity, institutional quality, investment attractiveness, and the ability of local industries to respond to structural changes. Regional economies are increasingly influenced by globalization, digital transformation, infrastructure connectivity, and industrial restructuring, making the identification of priority economic sectors an essential component of development planning. Consequently, regional development policies should not rely solely on historical growth performance but also consider competitiveness, productivity, comparative advantage, and long-term sustainability.

Regional development planning should therefore integrate economic, social, institutional, and spatial dimensions. Economic sectors with high productivity and strong intersectoral linkages are capable of generating multiplier effects that stimulate investment, employment, and regional income. Conversely, failure to identify strategic sectors may result in inefficient resource allocation, weak regional competitiveness, and slower economic transformation. Therefore, empirical identification of leading sectors becomes an important prerequisite for evidence-based policymaking and sustainable regional economic development.

Recent perspectives in regional science also emphasize that regional development should not merely focus on increasing output but should strengthen regional innovation systems, industrial networks, and local competitiveness. Regions capable of integrating industrial specialization, technological innovation, and effective governance generally demonstrate stronger economic resilience and higher adaptive capacity when responding to external economic shocks.

Economic Base Theory

Economic Base Theory remains one of the fundamental theories explaining regional economic growth. The theory distinguishes economic activities into two categories: basic sectors and non-basic sectors. Basic sectors generate income from outside the region through exports of goods and services, whereas non-basic sectors primarily satisfy local demand. Expansion of the economic base increases external income, stimulates household consumption, promotes business investment, and generates multiplier effects throughout the regional economy.

The multiplier mechanism explains why regions possessing strong export-oriented sectors generally experience faster economic growth than regions depending primarily on local consumption. Income generated by basic sectors circulates through supporting industries, transportation, trade, financial services, education, and other local services, thereby strengthening the regional economic structure. Consequently, identifying economic base sectors is essential for determining development priorities and allocating public investment efficiently.

However, modern regional economies are becoming increasingly complex. Industrial competitiveness is influenced not only by export specialization but also by technological capability, human capital, innovation ecosystems, infrastructure quality, institutional effectiveness, and digital transformation. Therefore, Economic Base Theory should be complemented with analytical approaches capable of evaluating comparative advantage, competitive advantage, sectoral dynamics, and structural transformation to obtain a comprehensive understanding of regional economic performance.

Location Quotient (LQ)

Location Quotient (LQ) is one of the most frequently applied analytical methods for identifying regional specialization and comparative advantage. The method measures the relative concentration of a particular economic sector within a region compared with a larger reference economy. Sectors with LQ values greater than one are considered basic sectors because they produce beyond local demand and potentially serve external markets, whereas sectors with LQ values below one are classified as non-basic sectors.

The popularity of LQ stems from its simplicity, straightforward interpretation, and ability to identify strategic sectors using readily available regional statistical data. Policymakers frequently employ LQ to determine which industries deserve priority support because specialized sectors generally possess stronger comparative advantages and greater potential to stimulate regional economic growth.

Nevertheless, LQ has several limitations. The method evaluates specialization at a single point in time and cannot explain whether sectoral growth is driven by increasing competitiveness or merely reflects historical industrial concentration. Moreover, LQ does not measure productivity improvement, structural change, or future development potential. Consequently, LQ results are commonly integrated with other analytical approaches, including Klassen Typology and Shift-Share analysis, to improve the reliability of regional economic evaluation.

Klassen Typology

Klassen Typology classifies economic sectors based on two principal indicators: sectoral growth rate and sectoral contribution to regional income. Combining these indicators produces four development quadrants representing advanced and rapidly growing sectors, advanced but declining sectors, developing sectors, and relatively underdeveloped sectors.

The primary strength of Klassen Typology lies in its ability to distinguish development priorities according to sectoral performance rather than specialization alone. Sectors experiencing rapid growth and high contribution generally require expansion strategies, whereas declining sectors require restructuring or policy intervention to restore competitiveness.

Although Klassen Typology provides valuable insights regarding sectoral development stages, the method does not directly evaluate comparative advantage or regional competitiveness. Therefore, integrating Klassen Typology with LQ enables researchers to distinguish sectors that are not only growing rapidly but also possess comparative advantages relative to broader regional economies. Previous methodological developments have also demonstrated the possibility of extending Klassen Typology through fuzzy systems and integrated clustering approaches to improve the classification of regional development patterns.

Shift-Share Analysis

Shift-Share analysis is a decomposition technique used to identify the sources of regional economic growth by separating observed changes into national growth effects, industrial mix effects, and regional competitive effects. This decomposition enables policymakers to determine whether sectoral growth is primarily driven by macroeconomic expansion, favorable industrial structures, or genuine regional competitiveness.

Among these components, the differential shift (competitive effect) receives particular attention because it reflects the ability of regional industries to outperform comparable industries in the reference economy. Positive differential shift values indicate stronger regional competitiveness, whereas negative values suggest weaker productivity, lower efficiency, or structural disadvantages.

Recent methodological developments have improved the statistical foundations of Shift-Share analysis by addressing inference issues arising from regional industrial composition and cross-regional correlations. These improvements increase the robustness of Shift-Share applications in empirical regional economic research and reinforce its usefulness as an analytical tool for evaluating sectoral competitiveness.

Because Shift-Share evaluates competitive performance rather than specialization, it complements Location Quotient and Klassen Typology. The combination of these methods enables researchers to identify sectors that simultaneously possess comparative advantages, favorable growth dynamics, and competitive performance.

TOPSIS in Regional Development Planning

The Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) is one of the most widely applied Multi-Criteria Decision-Making (MCDM) methods for prioritizing alternatives based on multiple evaluation criteria. Unlike conventional ranking approaches that rely on a single indicator, TOPSIS simultaneously considers numerous quantitative and qualitative criteria, thereby producing a more balanced and objective ranking.

Regional development planning increasingly requires multi-criteria evaluation because economic sectors contribute differently to employment, investment, fiscal revenue, productivity, industrial linkages, environmental sustainability, and social welfare. Therefore, prioritizing development sectors cannot rely solely on GRDP contribution or growth rates. Instead, decision makers should evaluate multiple strategic criteria simultaneously to ensure efficient allocation of development resources.

TOPSIS provides this capability by measuring the relative distance of each alternative from an ideal positive solution and an ideal negative solution. Alternatives closest to the positive ideal and farthest from the negative ideal receive higher preference values, making TOPSIS particularly suitable for regional planning involving complex policy objectives.

Previous Studies and Research Gap

Previous studies investigating regional economic potential have predominantly employed Location Quotient, Klassen Typology, or Shift-Share analysis individually. Although these methods successfully identify specialization patterns, development stages, and competitive performance, each approach focuses on a single analytical dimension. Consequently, policymakers often receive fragmented information that is insufficient for determining integrated development priorities.

Several methodological studies have attempted to combine Klassen Typology and Location Quotient with clustering techniques to improve regional classification accuracy. These integrated approaches demonstrate that combining multiple analytical techniques provides richer information than applying each method separately.

Nevertheless, relatively few studies integrate comparative advantage (LQ), growth classification (Klassen Typology), competitive performance (Shift-Share), and multi-criteria prioritization (TOPSIS) into one comprehensive framework for regional development planning. Most previous studies stop at identifying leading sectors without translating analytical findings into actionable development priorities.

Therefore, this study proposes an integrated analytical framework combining Location Quotient, Klassen Typology, Shift-Share analysis, and TOPSIS. The framework enables the systematic identification of basic sectors, classification of sectoral development stages, evaluation of regional competitiveness, and prioritization of strategic sectors based on multiple development criteria. Such integration is expected to provide stronger empirical support for evidence-based regional planning, particularly for medium-sized cities such as Sukabumi, where development resources are relatively limited and policy prioritization becomes increasingly important.

3. RESEARCH METHOD

This study uses a quantitative-descriptive approach with secondary data in the form of GRDP at constant prices for Sukabumi City and West Java Province for two observation periods, namely 2010-2017 and 2018-2025, sourced from publications of the Central Statistics Agency (BPS) of Sukabumi City and West Java Province. The use of two observation periods is intended to trace the dynamics and changes in the position of the 16 economic sectors that make up GRDP over time.

The first stage of the analysis uses the Location Quotient (LQ) to identify the basic ($LQ > 1$) and non-basic ($LQ < 1$) sectors of Sukabumi City relative to the economic structure of West Java Province. The second stage uses the Klassen Typology to classify sectors into four quadrants based on the dimensions of growth and sector contribution: Quadrant I (Potential/Prime Sectors), Quadrant II (Developing Sectors), Quadrant III (Advanced but Depressed Sectors), and Quadrant IV (Underdeveloped Sectors). The third stage uses Shift-Share Analysis to decompose sector growth into components of the national growth effect, proportional shift, and differential shift (competitive effect), where a positive differential shift value indicates a competitive advantage of the sector over the provincial average.

The integration of the three analytical tools resulted in a number of potential sectors which were then used as alternatives in the fourth stage, namely the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) analysis, to determine sector development priorities. The TOPSIS assessment

criteria consist of eight criteria: GRDP contribution (C1), sector growth (C2), potential Regional Original Income (C3), labor absorption capacity (C4), competitiveness/LQ (C5), investment potential (C6), support for MSMEs (C7), and conformity with the RPJMD (C8). Criteria C1, C2, and C5 were obtained from BPS quantitative data, while C3, C4, C6, C7, and C8 were obtained through expert justification in Focus Group Discussions (FGD) with stakeholders on a scale of 1-5. The TOPSIS calculation stages include normalizing the decision matrix, weighting (equal weight), determining positive and negative ideal solutions, calculating Euclidean distances (D^+ and D^-), and determining preference values (V_i) for alternative ranking.

4. RESULTS AND DISCUSSION

Identifying Base Sectors through Location Quotient

The results of the LQ calculation for the 2018-2025 period show that of the 16 economic sectors analyzed, nine sectors are classified as basic sectors ($LQ > 1$), namely Water Supply, Waste Management, Waste and Recycling ($LQ = 1.45$); Wholesale and Retail Trade ($LQ = 2.73$); Transportation and Warehousing ($LQ = 1.88$); Information and Communication ($LQ = 1.03$); Financial Services and Insurance ($LQ = 4.11$); Corporate Services ($LQ = 3.96$); Government Administration ($LQ = 2.11$); Educational Services ($LQ = 1.33$); and Health Services and Social Activities ($LQ = 2.44$). The highest LQ value was achieved by the Financial Services and Insurance sector, which increased from 4.02 (2010-2017) to 4.11 (2018-2025), confirming Sukabumi City's role as a regional financial services center. On the other hand, the Agriculture ($LQ = 0.45$) and Processing Industry ($LQ = 0.12$) sectors are classified as non-basic, as is common in cities with limited land availability.

Classification of Klassen Typology and Shift-Share Competitiveness

The Klassen Typology results show that in the 2018-2025 period, the Construction and Financial Services and Insurance sectors are in Quadrant I (Potential Sectors), while the Manufacturing Industry, Wholesale and Retail Trade, Transportation and Warehousing, and Government Administration are in Quadrant II (Developing Sectors) – experiencing a positive shift from Quadrant IV in the previous period. Nine other sectors are in Quadrant III (Advanced but Depressed), while only the Agriculture sector remains in Quadrant IV (Lagging Behind) in both observation periods.

Shift-Share analysis shows significant improvements in competitiveness between periods. In the 2010-2017 period, 15 of 16 sectors recorded negative differential shift values (not competitive compared to the provincial average). In the 2018-2025 period, nine sectors recorded positive differential shift values, with the highest value in Wholesale and Retail Trade (96.1), followed by Financial Services and Insurance (43.8) and Other Services (33.9), indicating accelerated competitiveness as a major driver of Sukabumi City's aggregate economic improvement.

Potential Sector Classification

The integration of the LQ, Klassen Typology, and Shift-Share results in Table 1 produces six potential sectors divided into two main categories: strategic leading sectors (Financial Services and Insurance; Wholesale and Retail Trade) that have comparative and competitive advantages, and potential priority development sectors (Corporate Services; Educational Services; Health Services and Social Activities) that have strong specialization but still need to strengthen their contribution. The Construction Sector is also considered due to its position in Quadrant I even though its LQ is still below one.

Table 1. Integration of LQ Results, Klassen Typology, and Shift-Share of Potential Sectors in Sukabumi City (2018-2025).

Economic Sector	LQ 2010-2017	LQ 2018-2025	Quadrant Class	Diff. Shift 2018-2025	Competitive Status	Classification
Financial Services and Insurance	4,02	4,11	I (Potensial)	43,8	Competitive	Strategic Excellence
Wholesale & Retail Trade	2,67	2,73	II (Developing)	96,1	Competitive	Strategic Excellence
Construction	0,80	0,81	I (Potensial)	0,8	Competitive	Considered
Corporate Services	3,90	3,96	III (Advancing/Depressed)	16,8	Competitive	Priority Potential
Educational Services	1,36	1,33	III (Advancing/Pressed)	29,4	Competitive	Priority Potential
Health Services & Social Activities	2,42	2,44	III (Advancing/Pressed)	15,8	Competitive	Priority Potential

Source: BPS data processing results, 2025

Sector Priorities through TOPSIS Analysis

The six potential sectors were then evaluated through TOPSIS with eight criteria to determine development priorities. The ranking results in Table 2 show that the Wholesale and Retail Trade sector ranked first with the highest preference value (V_i) of 0.7487, far exceeding other sectors, supported by a dominant contribution to GRDP (40.36 percent), high competitiveness, the largest labor absorption capacity, and strong support from MSMEs. Second place was occupied by Financial Services and Insurance ($V_i=0.4548$) which excels in the dimensions of competitiveness (LQ=4.11) and investment potential. The Corporate Services, Health Services and Social Activities, and Education Services sectors ranked third to fifth with relatively close preference values (0.22-0.32), indicating comparable and complementary potential. The Construction sector ranked last ($V_i=0.1928$) due to an LQ value below one despite its quite good growth.

Table 2. TOPSIS Ranking Results of Priority Economic Sectors in Sukabumi City

Rank	Economic Sector	D+	D-	Preference Value (V_i)	Category
1	Wholesale and Retail Trade; Automobile and Motorcycle Repair	0,0452	0,1378	0,7487	Top Priority
2	Financial Services and Insurance	0,0965	0,0849	0,4548	Priority II
3	Corporate Services	0,1274	0,0628	0,3220	Priority III
4	Health Services and Social Activities	0,1310	0,0510	0,2817	Priority IV
5	Educational Services	0,1360	0,0316	0,2183	Priority V
6	Construction	0,1242	0,0421	0,1928	Priority VI

Source: Results of TOPSIS data processing with 8 criteria (C1-C8), 2025

The consistency of the results of the four analytical tools (LQ, Klassen Typology, Shift-Share, and TOPSIS) provides strong confidence that the Wholesale and Retail Trade and Financial Services and Insurance sectors deserve to be the main focus (prime mover) of Sukabumi City's economic development policy. This finding is in line with the results of Widodo and Kuncoro (2017) which show that specialization according to comparative advantage is correlated with higher economic growth, and enriches the literature by showing that determining sector priorities cannot rely solely on a single growth indicator, but rather needs to consider the sector's real contribution to the economy

comprehensively, as seen in the case of the Construction sector which has good growth but relatively low contribution and competitiveness

5. CONCLUSION

This study concludes that of the 16 economic sectors in Sukabumi City, nine sectors are classified as basic sectors in the 2018-2025 period, with the integration of LQ, Klassen Typology, and Shift-Share resulting in six potential sectors. The TOPSIS results determine Wholesale and Retail Trade as the main priority for regional economic development, followed by Financial Services and Insurance, Corporate Services, Health Services and Social Activities, Education Services, and Construction. The economic structure of Sukabumi City is characterized by a service-based economy that needs to be supported by policies to strengthen the trade and financial services ecosystem. The local government is advised to prioritize the allocation of investment incentives in two strategic leading sectors without neglecting the strengthening of other service sectors that show positive growth trends. Further research is recommended to expand the TOPSIS criteria with more comprehensive primary data on all eight criteria and compare the results with similar cities in West Java.

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