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STRUCTURE AND DYNAMICS OF THE ECONOMY IN BANDUNG CITY

Bayu Kharisma[1] Sutyastie S. Remi[2]

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Coresponding:
Departemen Ilmu Ekonomi Universitas Padjadjaran, Jawa Barat, Indonesia
Email:
bayu.kharisma@unpad.ac.id

Abstract

This study analyzes the structure and dynamics of the economy by examining the potential of economic sectors and identifying the leading sectors in Bandung City from 2010 to 2023. The methods used are LQ analysis, MRP, Overlay, Shift-Share, and Klassen Typology. The results of the study indicate a strong dominance of the tertiary sector as the central pillar, with 13 out of 17 sectors identified as base and prospective sectors. The Information and Communication, Health Services and Social Activities, Business Services, and Other Services sectors demonstrate competitive advantages and high contributions, making them priorities for development. Although positive growth is supported by competitive advantages (141.35 percent), the negative industrial mix (-113.08 percent) suggests potential for a structural slowdown. The Agriculture and Manufacturing sectors are relatively underdeveloped. Meanwhile, the results of the class typology indicate that various sectors in the city of Bandung fall into the categories of advanced and rapidly growing sectors, rapidly developing sectors, advanced but constrained sectors, and relatively lagging sectors, based on the economic growth conditions of each sector. Development in leading and promising sectors must be prioritized, along with innovative strategies for lagging sectors to achieve inclusive and sustainable economic growth.

Department Ilmu Ekonomi Universitas Padjadjaran, Jawa Barat, Indonesia[2]
Email: sutyastie.remi@unpad.ac.id

INTRODUCTION

Economic development encompasses changes in a society's overall economic structure (Lestari, Pasha, Oktapianti, & Noviarita, 2021). Economic growth is a necessary condition, provided that there must be changes in the composition of production, changes in the allocation of production resources between business categories, changes in the distribution pattern, changes in the institutional framework, and changes in the lives of the entire society (Todaro & Smith, 2011). Therefore, economic development cannot be achieved simply by removing barriers to prevent economic progress (Otero et al., 2020). The primary factors driving economic growth are efforts to conserve resources (economy), enhance knowledge or applications in the field of production, and increase the availability of capital or other sources. Political, psychological, social, and cultural conditions are the exact requirements of the economic situation. Cairncross (Jhingan, 2012) states that development is not only a matter of big money and economic phenomena but also all aspects of the accuracy of business relations, including institutions related to community behavior, law and order enforcement, and national income—relationships, such as family, can also contribute to illiteracy.

The primary requirement for economic development is that the growth process must be based on domestic economic capabilities (Muklis, Rachmadi, & Muslim, 2019). The desire to improve one's lot and the initiative to create material progress must arise from the country itself. The country must initiate its development and cannot be imposed from outside. External forces should stimulate and assist national forces. Foreign aid can only stimulate development, but it cannot sustain it. The spirit of development must come from within. One method to evaluate economic growth is to compute the Gross Domestic Product (GDP) using constant prices from the base year (Mankiw, 2007). At the regional level, it is referred to as Gross Regional Domestic Product (GRDP). Economic growth occurs in each district every year, but the sectors that drive this growth remain unknown. This is crucial for identifying the region's economic potential. Development will not be possible if it is not pleasing to the people. The second requirement relates to eliminating market imperfections.

Market imperfections cause factor immobility, hindering categorical expansion and development. To eliminate them, socio-economic institutions must be improved and replaced with better ones. The goal of the economy is thus to maximize the utilization and efficient use of available resources. The primary requirement is to seek a radical change in the field of production, pushing outward and not just focusing on production. Regional development is an integral part of national development, aiming to benefit all people and Indonesian communities (Djadjuli, 2018). Regional development activities aim to equalize and disseminate development, harmonizing, balancing, and integrating all activities. Regional development must enhance the standard of living and welfare of the populace through cohesive and coordinated advancement across various sectors. Successful regional development through economic advancement must be customised to the specific conditions and potential of each region and necessitates coordinated planning across diverse categories. Development planningn this context aims to thoroughly analyze the region's potential.

Existing economic sectors, which have not yet been identified, are those that have competitiveness and specialization potential. Therefore, the current economic growth is limited to quantitative figures. This requires identifying the basic sectors in all regions and sectors with competitive potential and specialization so that economic growth is not limited to numerical indicators. Another issue is the lack of sector prioritization in development. Seventeen sectors in Bandung have programs related to economic activity, but not all sectors can implement them simultaneously. Planning documents, such as the RPJMD (Regional Medium-Term Development Plan), are typically strategically and financially binding. Therefore, sectors not included in the priority scale receive less attention, despite their potential for growth and development. This indicates a lack of focus on economic activity. Without centralized priorities, economic impacts are suboptimal or spread too thinly (scattered impact). This is limited by RPJMD programs and budgets allocated for "urgent

interests." This requires prioritizing development sectors to optimize budget constraints. The existence of regional autonomy allows all regions and cities to develop their territories independently. However, as the central government acts as a coordinator between regencies and cities, the government needs to identify which regions can serve as examples of development.

Limited resources in a region, including natural, human, financial, and other resources, are a common problem faced by most regions, hindering their ability to mobilize the entire economy, the main driver of spurring the pace of development in a region. The policies determined do not have to be the same as national policies or those of other regions because the economic conditions of a region are not necessarily the same as those of the national economy or other regions. The implemented policies must be contingent to the specific characteristics and circumstances of the location. Economic growth is a fundamental component of regional economic development. The policy implications are extensive, recognizing that the development process is influenced not only by economic factors—such as natural resources, capital accumulation, organization, technological advancement, division of labor, and production scale—but also by non-economic factors, including social, human, political, and administrative elements. The discourse over the framework and factors influencing regional economic growth is intensifying in the era of autonomy. Regions vie to enhance regional economic development. Local governments must assess the initiatives undertaken to foster economic growth in the region (Sjafrizal, 2008). Economic growth is defined as the advancement of economic activity. This indicates an augmentation in the goods and services generated by society

Previous research on leading sectors, such as the analysis of Manado's mainstay economic sector from 2001 to 2010, is known to enhance economic structure. It increased the 4 (four) leading economic sectors to 5 (five) (Hidayat, 2013). The SLQ-DLQ, Shift-Share, and spatial analysis revealed that the leading sectors in the Kerto Susila Gate Area (GKS) during 2009-2010 were the agricultural sector, processing industry, trade and restaurants, and services (L.Ratnasari, 2017). SQL analysis in the Kebumen District showed no shift in economic structure. Klassen Typology results show that the advanced and rapidly-growing sectors are the excavation and services sector and the mining sector. However, the agricultural and financial sectors, as well as rental and service companies, were classified as an advanced but depressed sector. Manufacturing is a potential sector (E. D. Ratnasari, 2014). Putra & Yadnya, (2018) used Klassen, LQ, and Overlay Typology data analysis techniques in the Sarbagita Region to identify the leading sectors. Veransiska & Imaningsih, (2022) identifies 10 basic sectors, with the highest LQ value in the construction sector (F) at 2.503. The results of Klassen's typology analysis show that Semarang City falls into quadrant II. Based on the results of the simple regression analysis, it can be concluded from the significance value that the variables of the basic economic sector (X1) and the non-basic economic sector (X2) affect the growth variable (Y). There are five sectors with growth potential: agriculture, forestry, and fisheries; wholesale and retail trade, automobile and motorcycle repair; information and communication; real estate; government administration, defense, and mandatory social security; education services; and health services. The Tulungagung Regency Government prioritizes development based on sectors with potential, while also paying attention to less developed sectors so that one sector can influence the development of other sectors (Nafi'ah, Luthfi, & Wibisono, 2022).

The purpose of this study is to analyze economic structure and dynamics by examining the potential of economic sectors and analyzing key sectors in Bandung City. This study is considered crucial because it can determine the direction and focus of development by analyzing the economic structure (the composition of sectors in GRDP). This enables the local government to determine which sectors are most dominant and contribute significantly to the regional economy, as well as identify sectors that are growing rapidly, stagnant, or even declining in the city of Bandung. Additionally, this research identifies untapped local economic potential, understands local economic dynamics and challenges, supports sustainable and inclusive development, and provides a basis for evidence-based policy decision-making.

RESEARCH METHOD

The data utilised in this study were obtained from the Central Bureau of Statistics (BPS) for the analysis period from 2010 to 2023. Analytical instruments to characterise and ascertain the condition of Kota Bandung, encompassing LQ (Location Quotient) analysis, MRP (Growth Ratio Model), overlay, SS (shift share), and class typology. LQ analysis helps identify the base sector of an area (Adawiyah, Nurhayati, Maulina, & Handaka, 2023). This approach elucidates the extent to which the degree of specialisation in the primary or dominant sector differs throughout a region. LQ analysis has two types: Static Location Quotient (SLQ) and Dynamic Location Quotient (DLQ) analysis. SLQ is an analysis that identifies the base and non-base sectors within an economy during a certain timeframe (static) (Kharisma, Wardhana, & Nur, 2022; Dessriadi, Harsuti, Muntahanah, & Murdijaningsih, 2022). Meanwhile, DLQ analysis is a development of SLQ (Tarigan, 2009). DLQ is an LQ analysis conducted in the form of time series/trends (Hashfi, 2023). The evolution of LQ can be analysed for a certain sector throughout many periods, revealing whether it has diminished or augmented over time. The formulas employed in the computation of SLQ and DLQ are as follows:

$$SLQ = (S_i/S) / (N_i/N) \quad \text{.....(1)}$$

$$DLQ = \left[\frac{(1+gi)}{(1+gt)} / \frac{(1+Gi)}{(1+Gt}\right]^t \quad \text{.....(2)}$$

where Si and S denote the value added by sector i in Bandung City and the whole GRDP of Bandung City, respectively; Ni and N represent the value added by sector I and the total GRDP of West Java Province, respectively; gi and gt signify the average growth rates of GRDP for sector i and the total for Bandung City, respectively. Gi represents the growth rate of the Gross Regional Domestic Product (GRDP) of sector i in West Java, while Gt is the growth rate of the overall GRDP of West Java.If SLQ exceeds 1, the sector is categorised as a basic sector. This indicates that urban specialisation surpasses that of the state level. The output of the product in question surpasses local consumption requirements, allowing for the surplus to be exported beyond the region of production. An SLQ rating of less than 1 signifies that the sector is categorised as non-basic. This indicates that urban specialisation is inferior to the state level. A DLQ number exceeding 1 signifies that the sector in Bandung City will progress more rapidly than in West Java.

Table 1.
Combined Sector Classification of LQ and DLQ Results

Results	DLQ>1	DLQ<1
SLQ>1	**Type I (basic, prospective)**	**Type III (basic, not prospective)**
	The economic sector will continue to be a fundamental component both presently and in the future	The economic sector will transition from a basic sector to a non-basic sector in the future.
SLQ<1	**Type II (non-basic, prospective)**	**Type IV (non-basic, not prospective)**
	This sector of the economy will transition from a non-base to a base sector in the future	The economic sector will continue to be a non-core sector both presently and in the future.

Source: Arsyad, (2010)

SLQ and DLQ analysis can then be combined to determine the sectoral category to which each sector in Bandung City belongs. The sectoral categories include leading, prospective, or lagging (Kuncoro, 2010). A more precise explanation of the sectoral categories is provided in Table 1. The Growth Ratio Model Analysis is an analytical instrument employed to delineate prospective economic

activities (economic sectors), specifically the economic framework of Bandung City, predicated on the growth criteria of the regional economic structure, both domestically and internationally (Devi Rahayu Handayani & Haryatiningsih, 2022). This MRP analysis is further divided into two criteria, namely the Study Area Growth Ratio (RP) and the Reference Area Growth Ratio (RPr). The growth ratio of the study area (RPs) is the ratio between the income growth of the GDRP sector in the study area and the growth of the GDRP sector's i in the reference area (Kharisma & Hadiyanto, 2019). Meanwhile, the reference area growth ratio (RPr) is the ratio between the growth rate of activity i income in the reference area and the total growth rate of activities (GRDP) in the reference area (i.e., the Province). The formulas used in calculating RPs and RPr are as follows (Hariyanti, Syahza, Zulkarnain, & Nofrizal, 2024).

$$RPs = (\Delta E_{ij}/E_{ij}) / (\Delta E_{in}/E_{in}) \quad (3)$$

$$RPr = (\Delta E_{in}/E_{in}) / (\Delta E_{n}/E_{n}) \quad (4)$$

ΔEij and Eij represent the change in Gross Regional Domestic Product (GRDP) of sector i in region j and the GRDP of sector i in region j during the base year, respectively. Similarly, ΔEin and Ein denote the change in GRDP of sector i in the province and the GRDP value of sector i in the province during the base year. ΔEin and Ein represent the variations in Gross Regional Domestic Product (GRDP) and the GRDP values for the base year, respectively. RPs over one are shown with a positive sign (+), signifying that sector growth in the study region (district/city) surpasses that of the reference area (national province). Conversely, a value of RPs < 1 is represented by a negative sign (-), signifying that the sector growth in the study area (district/city) is inferior than the sector growth in the reference region (province). Simultaneously, a value of RPr > 1 is denoted positively (+), signifying that the growth of a specific sector in the reference region (province) surpasses the overall GRDP growth of that region (province). If RPr < 1 is assigned a negative sign (-), it signifies that the growth of a specific sector in the reference region (province) is inferior to the overall GRDP growth of that region (province).

Overlay analysis identifies superior sectors based on contribution and growth by integrating the findings of LQ analysis and MRP analysis (Setiawan, Enardi, & Kamarni, 2022). This analysis comprises three elements: Location Quotient (LQ), Reference Area Growth Ratio (RPr), and Study Area Growth Ratio (RPs) (Abadi, 2020). Each component is thereafter either a positive notation (+) or a negative notation (-). If the component coefficient exceeds one, it is assigned a positive notation (+); if it is less than one, it is assigned a negative notation (-). The sector with the highest rating (+) in the analytical method employed is the one that the local government should cultivate to enhance its local revenue.

This research is a beneficial approach for evaluating structural changes in the regional economy and its overall economic framework. This analysis seeks to assess the performance or productivity of regional economic activities by comparing them to a broader area (Arsyad, 2010). Shift-share analysis comprises national share, proportionate shift, and differential shift (Montanía, Márquez, Fernández-Núñez, & Hewings, 2024). The national share denotes the regional value-added that would have transpired had it grown at the same rate as the national growth rate over a designated period. Deviations from the national ratio in regional employment growth are referred to as shifts. This disparity is beneficial in relatively impoverished regions. Proportional Shift measures the relative degree of change, expansion, or recession in a region compared to the whole economy as a benchmark. It allows us to determine whether the regional economy is concentrated in industries that are growing more swiftly than the benchmark economy. Differential Shift aids in evaluating the competitiveness of the local industry in comparison to the benchmark economy. Thus, if the differential shift of an industry is positive, that industry demonstrates more competitiveness relative to the corresponding industry in the benchmark economy.

The Shift share analysis is a model commonly employed to examine regional growth patterns and rates of national productivity. The Shift component in the shift-share analysis indicated the variations in

the share component value resulting from sector-specific factors and local economic difficulties. This strategy encompasses four components (Hariyanti et al., 2024).

a) Regional Share (RS) constitutes a facet of regional economic growth influenced by external influences. Moreover, RS has exhibited a rise in regional economic activity as a result of existing national policies.
b) Proportional Shift (PS) is a component of regional economic growth attributable to a robust economic structure, especially in rapidly expanding sectors.
c) Differential Shift (DS) results from competitive, region-specific conditions that fostered regional export expansion.
d) Shift Share (SS) comprises the aggregate of Regional Share, Proportional Share, and Differential Share.

These four elements are formulated below in order to examine the advantages of the area.

$$RS_{ij} = y_{ijo}\left(\frac{y_t}{y_o} - 1\right) \quad PS_{ij} = y_{ijo}\left(\frac{y_{it}}{y_{io}} - \frac{y_t}{y_o}\right) \quad DS_{ij} = y_{ijo}\left(\frac{y_{ijt}}{y_{ijo}} - \frac{y_{it}}{y_{io}}\right) \quad SS_{ij} = RS_{ij} + PS_{ij} + DS_{ij} \qquad \text{……(5)}$$

Note:
Yt =GDP of the reference area for the final year period.
Yo =GDP of the reference area for the initial year period.
Yit =GDP of the reference area of the i sector for the final year period.
Yio =GDP of the reference area of the i sector for the initial year period.
Yijt =GRDP of the i-sector analysis area for the final year period.
Yijo =GRDP of the i-sector analysis area for the initial year period.

The measurement results above were interpreted as follows: (1) When PSij >0, it means the sector i in an analysis area grows faster than that of the reference area, and vice versa. (2) When DSij >0, it indicates the competitiveness of sector i in an analysis area is higher than that of the reference area and vice versa. (3) When SSij >0, then there is an increase in absolute value or an increase in the regional economic performance of sector i in the analysis area.

The final analysis is using Klassen Typology analysis. The use of the Klassen Typology analysis tool enables the description of a region's economic growth conditions, aligning with the realization and similar to the results of other analytical tools, such as previous research (Pratiwi, Apsari Anandari, & Dyastari Saskara, 2023). Klassen Typology analysis can generally be applied through two approaches: the regional approach and the sectoral approach (Niken Pratiwi, Santoso, & Khusnul Ashar, 2018). In this study, the Klassen typology analysis was employed in conjunction with the regional approach. The Klassen typology of the regional approach categorizes regions according to two primary indicators: economic growth and per capita gross regional domestic product (GRDP). Klassen's regional typology methodology was employed to assess the economic growth circumstances of each industry in Bandung City. This investigation discovered four main kinds of economic growth conditions: developed and rapidly growing regions, developed but stagnant regions, rapidly growing regions, and relatively underdeveloped regions. Klassen's typology analysis was utilized to ascertain the positioning of economic sectors inside regencies and cities, with the economic sector serving as the reference region.

RESULTS AND DISCUSSION

This section delineates the findings of the analysis derived from the GRDP data of Bandung City, spanning the years 2010 to 2023. The analysis will encompass Location Quotient analysis, Development Ratio Model (MRP), overlay analysis, and Klassen Typology analysis. Table 2 presents the results of Location Quotient analyses, both static and dynamic, for Bandung City from 2010 to

2023. Between 2010 and 2023, the static calculation method utilized in Bandung City across 17 sectors indicated that only three sectors are classified as non-base sectors, demonstrating SLQ values below 1: the Agriculture, Forestry and Fisheries Sector (0.01), the Manufacturing Industry Sector (0.48), and the Electricity and Gas Procurement Sector (0.21). Furthermore, the Mining and Quarrying Sector cannot be acknowledged due to a lack of data. Thirteen sectors are designated as fundamental sectors with SLQ>1 values: Information and Communication (3.21), Financial and Insurance Services (2.15), Water Supply, Waste Management, and Recycling (2.08), Construction (1.06), Wholesale and Retail Trade, and Car and Motorcycle Repair (1.81), Transportation and Warehousing (1.49), Accommodation and Food Supply (1.81), Real Estate (1.08), Corporate Services (1.84), Government Administration, Defence, and Compulsory Social Security (1.29), Educational Services (1.16), Health Services and Social Activities (1.32), and Other Services (1.61). This signifies that the sectors in Bandung City are predominantly essential, demonstating a higher level of secialization relative to those in West Java Province.

Table 2.
Combined Analysis of SLQ and DLQ in Bandung City

Code	Sector	SLQ	DLQ	SLQ Description	DLQ Description	Explanation
A	Agriculture, Forestry and Fisheries	0.0144	1.2017	Non Basic	Prospective	Non Basic and Prospective
B	Mining and Quarrying	-	-	-	-	-
C	Manufacturing Indsutry	0.4892	1.0271	Non Basic	Prospective	Non Basic and Prospective
D	Electricity and Gas	0.2189	1.1909	Non Basic	Prospective	Non Basic and Prospective
Code	**Sector**	**SLQ**	**DLQ**	**SLQ Description**	**DLQ Description**	**Explanation**
E	Water supply, Sewerage, Waste Management and Remediation Activities	2.0833	1.0638	Basic	Prospective	Basic and Prospective
F	Construction	1.0639	1.0214	Basic	Prospective	Basic and Prospective
G	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	1.8127	1.045	Basic	Prospective	Basic and Prospective
H	Transportation and Storage	1.497	2.1944	Basic	Prospective	Basic and Prospective
I	Accommodation and Food Service Activities	1.813	1.3592	Basic	Prospective	Basic and Prospective
J	Information and Communication	3.2136	1.0297	Basic	Prospective	Basic and Prospective
K	Financial and Insurance Activities	2.1593	1.0627	Basic	Prospective	Basic and Prospective
L	Real Estate Activities	1.0841	1.0195	Basic	Prospective	Basic and Prospective
M,N	Business Activities	1.8459	1.0548	Basic	Prospective	Basic and Prospective
O	Public Administration and Defence; Compulsory Social Security	1.2971	1.04	Basic	Prospective	Basic and Prospective
P	Education	1.1636	1.0942	Basic	Prospective	Basic and Prospective
Q	Human Health and Social Work Activities	1.3323	1.0453	Basic	Prospective	Basic and Prospective
R,S,T,U	Other Services Activities	1.616	1.2755	Basic	Prospective	Basic and Prospective

Source : Author's calculation

Simultaneously, the DLQ calculation results in Bandung City indicated that all sectors possess a DLQ value over 1. This signifies that all sectors in Bandung City possess opportunities for future development and exhibit more potential for advancement compared to the same sectors in the West Java Province. Conversely, due to the absence of data, the Mining and Quarrying Sector could not be delineated. The data indicate that Bandung City comprises 13 primary sectors, underscoring their importance as critical sectors both presently and in the future. The sectors include Water Procurement, Waste Management, Waste and Recycling, Construction, Wholesale and Retail Trade, Automotive Repair, Transportation and Warehousing, Accommodation and Food Supply, Information and Communication, Financial and Insurance Services, Real Estate, Corporate Services, Government Administration, Defence and Compulsory Social Security, Education Services, Health Services, Social Activities, and Other Services. The thirteen sectors exhib t SLQ and DLQ values exceeding one, indicating a high level of specialization and accelerated growth in Bandung City compared to the same sectors in West Java Province.

The thirteen sectors do not undergo repositioning; they maintain their status as the current base sector and will continue to serve as the base in the future. Three sectors are classified as mainstay sectors: agriculture, forestry and fisheries; manufacturing industry; and electricity and gas procurement. The three sectors exhibit DLQ>1 and SLQ<1 values, indicating that despite being categorized as non-base sectors, they possess the potential for growth due to higher development levels relative to the same sectors in West Java Province (Pertiwi & Hidayat, 2022). Consequently, the sector may be reclassified as a basic sector due to the DLQ value surpassing one.

Table 3.
Results of the Growth Ratio Model (MRP) Calculation for Bandung City 2010-2023

Code	Industry	MRP		SLQ
		RPs	RPr	
A	Agriculture, Forestry and Fisheries	0.13	0.32	0.01
B	Mining and Quarrying	-	-	0.00
C	Manufacturing Indsutry	0.76	0.92	0.49
D	Electricity and Gas	5.58	0.12	0.22
E	Water supply, Sewerage, Waste Management and Remediation Activities	0.48	1.34	2.08
F	Construction	0.99	1.33	1.06
G	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	1.24	0.86	1.81
H	Transportation and Storage	0.78	1.48	1.50
I	Accommodation and Food Service Activities	0.98	1.37	1.81
J	Information and Communication	1.17	4.82	3.21
K	Financial and Insurance Activities	0.97	1.17	2.16
L	Real Estate Activities	0.76	1.76	1.08
M,N	Business Activities	1.22	1.53	1.85
O	Public Administration and Defence; Compulsory Social Security	0.73	0.14	1.30
P	Education	0.80	2.03	1.16
Q	Human Health and Social Work Activities	1.19	1.98	1.33
R,S,T,U	Other Services Activities	1.04	1.83	1.62

Source : Author's calculation

Table 3 displays the findings of the MRP study for Bandung City. The preliminary classification consists of five sectors, distinguished by RPs and RPr values surpassing one, indicating that the economic activity within these sectors hold equivalent importance at both urban and provincial levels. The sectors include Information and Communication, Corporate Services, Health Services, Social Activities, and other Services. In the second classification, sectors with RP values above one and RPr values below one signify substantial economic activity at the city level. The sectors include Wholesale and Retail Trade, as well as Automobile and Motorcycle Repair. In the third classification, an RPr

below one and an RPr value above one signify that the economic sector activities in the province are advancing more significantly than those at the city level. The industries included in the third classification are Water Procurement, Waste Management, Waste and Recycling, Construction, Transportation and Warehousing, Accommodation and Food Services, Financial and Insurance Services, Real Estate, and Education Services. The fourth categorization, marked by RPs and RPr values below one, indicates that econmic activity in some sectors within both the study area (Bandung City) and the reference area (the province) has not undergone growth and is therefore insignificant. The sectors encompassed in the fourth classification are Agriculture, Forestry, Fisheries, and the Processing Industry.

Table 4 displays the results of the sectoral overlay analysis for Bandung City. The sectors classified under the initial category encompass Information and Communication, Health Services, Social Activities, and Other Services, all demonstrating a favorable overall worth. This indicates that these sectors demonstrate considerable growth and contribute more significantly to Bandung City than to West Java Province. This indicates that the industry is competitive owing to its advantages at both municipal and provincial levels, necessitating future growth (Nofa Martina Ariani, Brian Pradana, Muhammad Indra Hadi Wijaya, & Bagus Nuari Priambudi, 2021).

Table 4.
Results of Overlay Analysis of Bandung City 2010-2023

Code	Industry	LQ	MRP		Description
			RPs	RPr	
A	Agriculture, Forestry and Fisheries	-	-	-	- - -
B	Mining and Quarrying	-	+	+	- + +
C	Manufacturing Indsutry	-	-	-	- - -
D	Electricity and Gas	-	+	-	- + -
E	Water supply, Sewerage, Waste Management and Remediation Activities	+	-	+	+ - +
F	Construction	+	-	+	+ - +
G	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	+	+	-	+ + -
H	Transportation and Storage	+	-	+	+ - +
I	Accommodation and Food Service Activities	+	-	+	+ - +
J	Information and Communication	+	+	+	+ + +
K	Financial and Insurance Activities	+	-	+	+ - +
L	Real Estate Activities	+	-	+	+ - +
M,N	Business Activities	+	+	+	+ + +
O	Public Administration and Defence; Compulsory Social Security	+	-	-	+ - -
P	Education	+	-	+	+ - +
Q	Human Health and Social Work Activities	+	+	+	+ + +
R,S,T,U	Other Services Activities	+	+	+	+ + +

Source : Author's calculation

The economic sector categorized in the second categorization exhibits a negative symbol on the RPr side and a positive symbol on the LQ and RPs side; this sector is Wholesale and Retail Trade, including Car and Motorcycle Repair. The sector demonstrates moderate growth in West Java Province while exhibiting strong growth and contribution in Bandung City. Consequently, the sector signifies a specialization of economic activity in Bandung City. Both sectors exhibit subdued growth relative to the overall GRDP growth of West Java Province. The third classification encompasses two economic sectors: agriculture, forestry, and fisheries, as well as the processing industry. Both sectors have witnessed minimal growth in Bandung City and West Java Province, with lower sectoral contributions in Bandung City relative to the province of West Java. Both industries exhibit low competitiveness owing to their absence of advantages in Bandung City and West Java Province.

Consequently, these sectors are categorized as lacking competitive advantages. Neither industry possesses vible foundations in the present or foreseeable future.

The overlay analysis results categorized economic sectors into three classifications based on existing provisions. The first and second classifications represent sectors that the Bandung City regional government should prioritize for development, as they are anticipated to enhance the economic growth rate in the Bandung City region. This sector exhibits considerable growth potential and distinct comparative advantages. (Arsyad, 2010).

Table 5.
Shift-share Analysis for Bandung City for the Period 2010 to 2023

Code	Industry	Components			Economic Structure Shift
		National Growth (Nij)	Industrial Mix (Mij)	Competitive Advantage (Cij)	Growth (Dij)
A	Agriculture, Forestry and Fisheries	136.78	-171.53	40.49	5.74
B	Mining and Quarrying	-	-	-	0.00
C	Manufacturing Indsutry	21,841.03	-33,166.20	26,558.64	15,233.47
D	Electricity and Gas	100.38	-110.97	75.44	64.85
E	Water supply, Sewerage, Waste Management and Remediation Activities	168.11	-274.04	213.02	107.09
F	Construction	6,889.84	-11,211.05	13,378.52	9,057.31
G	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	25,070.00	-37,569.01	39,109.00	26,609.99
H	Transportation and Storage	5,626.66	-9,334.30	10,224.94	6,517.30
I	Accommodation and Food Service Activities	3,887.88	-6,365.73	7,713.94	5,236.09
J	Information and Communication	6,739.71	-13,167.70	44,586.84	38,158.85
K	Financial and Insurance Activities	4,647.79	-7,389.64	7,998.88	5,257.03
L	Real Estate Activities	1,210.20	-2,068.34	2,467.92	1,609.79
M,N	Business Activities	587.35	-979.87	1,485.77	1,093.24
O	Public Administration and Defence; Compulsory Social Security	3,265.59	-3,668.29	729.70	327.00
P	Education	2,547.12	-4,455.35	6,012.48	4,104.25
Q	Human Health and Social Work Activities	729.75	-1,271.55	2,256.83	1,715.03
R,S,T,U	Other Services Activities	2,487.58	-4,278.37	6,508.00	4,717.20
	Total	85,936	-135,482	169,360	119,814
	Percentage of growth (Dij)	71.72	-113.08	141.35	100.00

Source : Author's calculation

The findings of the shift-share study shown in Table 5 reveal that from 2010 to 2023, the sectoral GRDP value of Bandung City has experienced alterations or advancements. The Gross Regional Domestic Product (GRDP) increased by 119,814.23 billion rupiah. This advancement is shaped by the national growth factor (Nij), industrial composition (Mij), and competitive edge (Cij). The national growth component calculation indicates that national economic growth has contributed 85.936 billion rupiah, 71.72 percent, to the economic growth of Bandung City. Nonetheless, the progression of Bandung City's GRDP is influenced by two more components: the industrial composition and competitive advantage.

The industrial mix component signifies the extent of the alteration in the area economy due to the industrial mix. The analysis results demonstrate that the industrial composition adversely affects

Bandung City's economic development, leading to a loss of 135.482 billion rupiah, which corresponds to a 113.08 percent decline. A negative score signifies that the sector composition of Bandung City's GRDP is inclined towards a generally slow-growing economy. The computation of the competitive advantage element is conducted in three methods. The initial technique, referred to as conventional Shift-share analysis, produces a competitive advantage value (Cij) of 169.360 billion rupiah, equivalent to 141.35 percent, as illustrated in Table 6. This value signifies that the competitive advantage produced will bolster the economic development of Bandung City, given that other values are favorable. These results are consistent with previous findings that regions in Turkey have a negative industrial mix component, meaning that slow-growing sectors are located in these regions (Elburz & Gezici, 2012).

Table 6.
Analysis of Typology Klassen in Bandung City

Industry	2010-2023				Quadrant	Description
	West Java Province		Bandung City			
	Average growth	Average contribution	Average growth	Average contribution		
Agriculture, Forestry and Fisheries	0.019	7.903	0.003	0.117	4	Relatively lagging sector
Mining and Quarrying	-0.018	2.183	0	0	3	Potential sectors or those that can still develop rapidly
Manufacturing Indsutry	0.045	43.298	0.036	21.387	4	Relatively lagging sector
Electricity and Gas	0.009	0.459	0.035	0.098	3	Potential sectors or those that can still develop rapidly
Water supply, Sewerage, Waste Management and Remediation Activities	0.06	0.081	0.034	0.171	2	Progressing but under pressure
Construction	0.061	8.026	0.06	8.583	2	Progressing but under pressure
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	0,044	15,488	0,051	28,138	1	A sector that is advanced and growing rapidly
Transportation and Storage	0,065	4,576	0,059	6,953	2	Progressing but under pressure
Accommodation and Food Service Activities	0,062	2,537	0,063	4,635	1	A sector that is advanced and growing rapidly
Information and Communication	0,135	3,947	0,146	12,597	1	A sector that is advanced and growing rapidly
Financial and Insurance Activities	0,055	2,435	0,053	5,27	2	Progressing but under pressure
Real Estate Activities	0,073	1,229	0,06	1,334	2	Progressing but under pressure
Business Activities	0,069	0,407	0,077	0,75	1	A sector that is advanced and growing rapidly

Industry	2010-2023				Quadrant	Description
	West Java Province		Bandung City			
	Average growth	Average contribution	Average growth	Average contribution		
Public Administration and Defence; Compulsory Social Security	0,009	2,05	0,006	2,699	2	Progressing but under pressure
Education	0,08	2,631	0,068	3,032	2	Progressing but under pressure
Human Health and Social Work Activities	0,079	0,731	0,088	0,965	1	A sector that is advanced and growing rapidly
Other Services Activities	0,075	2,019	0,079	3,27	1	A sector that is advanced and growing rapidly

Source: Author's calculation

Table 6 illustrates the calculation of the Klassen typology classification. Quadrant I encompasses the wholesale and retail trade sector, automotive and motorcycle maintenance, hotel and food services, information and communication, corporate services, healthcare services, social activities, and various other services, as determined by their growth rates and average contributions. Sectors that are both advanced and expanding swiftly are comprised of Quadrant I. Typically, this sector is an area with substantial potential that has been effectively utilised to benefit the local community, and it is anticipated to continue developing in the future. The Electricity and Gas Procurement sector is a rapidly developing or potentially significant sector in Quadrant II.

This implies that the sector has grown more rapidly than the GRDP of West Java Province; however, its contribution to the province remains negligible. The sector in Quadrant III of Bandung is relatively advanced; however, its development rate has declined in recent years due to the depressed main activities of the area. Consequently, despite the substantial development potential of this sector, it is anticipated that its growth rate will be less rapid in the future, even in an advanced region. Water supply, waste management, waste and recycling, construction, transportation and warehousing, financial services and insurance, real estate, government administration, defence, mandatory social security, and education services are among the relatively advanced but depressed sectors that fall under Quadrant III. Agriculture, forestry, and fisheries comprise Quadrant IV, which categorises relatively underperforming sectors. The primary reason for the lower development and contribution of these sectors compared to those of West Java Province is the city of Bandung's lack of agricultural land (Prihatin, 2016). In addition, the lagging of the processing industry is due to a lack of processed products, the dominance of raw sales, and limited skilled labour, which hinders the diversification of the economy (Elfiani & Marpaung, 2025).

CONCLUSIONS AND RECOMMENDATIONS

A comprehensive analysis of Bandung City’s economy from 2010 to 2023, conducted through the integration of LQ, MRP, Overlay, Shift-Share, and Klassen Typology methods, consistently reveals the strong dominance of the tertiary sector as the central pillar. The majority of service sectors (13 out of 17 sectors) are identified as base sectors, reflecting the high level of economic specialization in Bandung City compared to West Java Province. Significant growth prospects are also seen from the DLQ value > 1 in almost all sectors (except Mining and Quarrying, for which data is not available), indicating the potential for a shift in base status in the future, even for sectors that are currently still non-base such as Agriculture, Manufacturing Industry, and Electricity and Gas Supply.

The integration of LQ and MRP analysis through Overlay further identifies strategic sectors, including Information and Communication, Health Services and Social Activities, Corporate Services, and Other Services, which consistently demonstrate competitive advantages and high growth contributions at both the local and regional levels. Although the overall sectoral GRDP growth of Bandung City is positive and driven by significant competitive advantages, the Shift-Share Analysis highlights structural challenges. The industrial mix component shows a negative impact, indicating that the sector composition in Bandung City still tends towards relatively slow growth at the national level. This pattern is reinforced by the Klassen Typology, which categorizes sectors such as Agriculture, Forestry, and Fisheries Manufacturing Industry as "Relatively Underdeveloped," with lower growth and contribution compared to the provincial level. Land limitations in Bandung City are a significant limiting factor for the agricultural sector, underscoring the need for innovative development strategies. Thus, the economy of Bandung City during this period is characterized by strong vitality in the service sector and bright growth prospects. The policy implications that the Bandung City Government can implement include prioritizing development in sectors identified as superior and promising (Classifications I and II in the overlay analysis). This policy should focus on strengthening the ecosystem that supports these sectors, including increasing investment, facilitating innovation, and developing human resources. Additionally, innovative approaches must be formulated for prospective sectors that lack a solid foundation, and creative solutions must be found to revitalize or reorient relatively lagging sectors (particularly agriculture and processing industries) through product diversification, technological development, or identifying new market niches. This is crucial for optimizing budget constraints and driving the overall pace of regional economic growth. Klassen's typology classifies various sectors in Bandung into four categories: advanced and rapidly developing industries, rapidly developing industries, advanced but declining sectors, and relatively lagging sectors, based on the economic growth conditions of each industry.

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