ANALYSIS OF REGIONAL INEQUALITY AND ECONOMIC POTENTIAL IN THE SPECIAL REGION OF YOGYAKARTA 2020–2024

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Abstract

This study classifies district/city economic growth patterns, analyzes regional inequality, and identifies potential economic sectors in the Special Region of Yogyakarta during 2020-2024. Secondary data are processed from a research workbook containing constant-price GRDP, 17-sector GRDP, population, and GRDP per capita. The analytical methods include Klassen Typology, Williamson Index, Theil Index, Location Quotient (LQ), and Shift-Share. Mathematical formulas are explicitly presented to clarify the calculation basis, following the presentation style of the reference article by Al Majiid and Woyanti (2023). The results show that Yogyakarta has a polarized economic structure. Sleman is classified as an advanced and fast-growing region, Yogyakarta City as advanced but pressured, Kulon Progo as fast-growing, while Bantul and Gunungkidul are relatively underdeveloped. The Williamson Index increased from 0.5707 in 2020 to 0.5782 in 2024, while the Theil Index was relatively stable but increased again in 2023-2024. Sectoral findings indicate that construction in Sleman, transportation and warehousing as well as mining and quarrying in Kulon Progo, and several base-competitive sectors in Gunungkidul represent potential growth nodes that should be managed through interregional value-chain policies. This study confirms that aggregate growth in Yogyakarta is insufficient to reduce inequality unless it is accompanied by connectivity, base-sector productivity, and value-added redistribution strategies.

Keywords: Regional Inequality; Economic Potential; Klassen Typology; Williamson; Theil; LQ; Shift-Share; Yogyakarta

INTRODUCTION

Regional Domestic Product (GRDP), but also by a region's ability to distribute the benefits of economic growth relatively equitably. In the post-pandemic context, this issue has become increasingly important, as economic recovery has often occurred unevenly across regions. The World Bank (2024) reports that Indonesia's economy has remained resilient; however, the quality of growth, fiscal capacity, and the equitable distribution of development benefits continue to be major policy challenges. At the same time, the National Medium-Term Development Plan (RPJMN) 2025–2029 identifies reducing regional disparities as a key national development priority, making the analysis of inequality at the provincial and district/city levels both academically relevant and practically significant. (Ministry of National Development Planning/Bappenas, 2025).

Regional inequality essentially arises because each region has different capacities to access markets, infrastructure, productive labor, investment, and local resources. These differences can lead to the emergence of core regions that grow more rapidly, while peripheral regions lag behind in generating value added. Regional economic literature emphasizes that growth concentrated in agglomeration centers can enhance economic efficiency, but it may also widen regional disparities if there are no effective mechanisms for the spillover of growth to surrounding areas (Iammarino et al., 2019; Sjafrizal, 2008). Recent studies in Indonesia continue to employ a combination of the Klassen Typology, Williamson Index, Theil Index, Location Quotient (LQ), and Shift-Share analysis, as these five analytical tools provide an integrated assessment of regional growth, inequality, economic base sectors, and regional competitiveness (Ernah et al., 2025; Nasution & Benardin, 2025).

Strengthening the use of citations from 2022–2025 is important because post-pandemic regional inequality in Indonesia is increasingly being examined through the interrelationships among economic growth, investment, digitalization, and access to public services. Novianti and Panjaitan (2022) demonstrate that the Theil Index and Williamson Index remain relevant tools for assessing the increase in regional inequality during the pandemic period. Hakim and Rosini (2022) argue that while investment can stimulate economic growth, it may also exacerbate regional disparities if it is not accompanied by more equitable access to quality education and digital infrastructure. Kartiasih et al. (2023) show that Indonesia's digital divide exhibits a distinct spatial pattern, with digital development being concentrated in major urban centers and the western part of the country. Similarly, Maichal et al. (2024) find that provincial GRDP per capita and foreign direct investment (FDI) are positively correlated with the provincial Gini coefficient, suggesting that investment-led growth should be evaluated alongside indicators of income distribution. These findings reinforce the argument that the analysis of the Special Region of Yogyakarta (DIY) should not be limited to GRDP growth alone, but should also incorporate spatial structure, sectoral economic bases, and the extent to which the benefits of development are distributed equitably.

The Special Region of Yogyakarta (DIY) presents an interesting case because, despite its relatively small geographical area, its economic structure is far from homogeneous. The City of Yogyakarta functions as the primary center for services, education, government administration, trade, and high-intensity urban activities. Sleman serves as an agglomeration area for higher education, residential development, services, construction, and the expansion of urban activities. Kulon Progo has emerged as the western development corridor, closely associated with transportation, logistics, and changes in spatial structure. Meanwhile, Bantul

and Gunungkidul have distinct economic bases, characterized respectively by agro-industry, micro, small, and medium-sized enterprises (MSMEs), tourism, agriculture, local trade, and basic public services. Data published by the Statistics Indonesia (BPS) for the Special Region of Yogyakarta indicate that the *DIY in Figures 2025*publication provides a comprehensive cross-sectoral database for monitoring regional development, while the *Gross Regional Domestic Product of DIY by Industrial Origin, 2020–2024* publication presents GRDP at both current and constant prices across 17 industrial sectors (Statistics Indonesia of the Special Region of Yogyakarta, 2025a, 2025b).

The main issue addressed in this paper is whether the increase in regional economic output in the Special Region of Yogyakarta (DIY) during 2020–2024 has been accompanied by convergence among its districts and municipalities. Based on the research data, DIY's total Gross Regional Domestic Product (GRDP) increased from IDR 101,693.93 billion in 2020 to IDR 124,421.20 billion in 2024. However, this aggregate growth alone is insufficient to explain the distribution of prosperity across regions. The City of Yogyakarta records a GRDP per capita that is substantially higher than that of the other districts, while Bantul, Kulon Progo, and Gunungkidul remain below the provincial average. This situation raises important questions regarding the pattern of economic growth, the extent of regional inequality, and the potential sectors that could serve as instruments for promoting more equitable regional development. Based on this background, this study aims to: (1) classify the patterns of economic growth across the districts and municipality of the Special Region of Yogyakarta during 2020–2024; (2) analyze the level of regional inequality using the Williamson Index and the Theil Index; (3) identify basic and potential economic sectors through Location Quotient (LQ) and Shift-Share analysis; and (4) formulate policy implications for regional development that are more spatially differentiated and oriented toward equitable growth.

Table 1. Economic growth rate of DIY regencies/cities in 2021-2024 (%)

Regency/City	2021	2022	2023	2024	Avg
Yogyakarta City	5,16	5,12	5,08	5,05	5,10
Sleman	5,61	5,15	5,09	5,19	5,26
Bantul	5,00	5,19	5,06	5,04	5,07
Kulon Progo	4,37	6,58	5,65	4,77	5,34
Gunungkidul	5,31	5,37	5,04	4,81	5,13

Source: Statistics Indonesia (BPS), processed by the authors.

Table 2. GRDP per Capita of Regencies and the Municipality in the Special Region of Yogyakarta, 2020–2024 (Million IDR)

Regency/City	2020	2021	2022	2023	2024

Yogyakarta City	72,32	75,70	79,52	83,52	87,72
Sleman	31,27	31,53	32,81	34,14	35,57
Bantul	19,11	19,94	20,79	21,66	22,56
Kulon Progo	19,41	20,17	21,37	22,46	23,41
Gunungkidul	18,09	19,02	20,00	20,97	21,94

Source: Statistics Indonesia (BPS), processed by the authors.

Table 1 shows that all regencies and the municipality recorded positive economic growth during 2021–2024. However, the relatively narrow variation in growth rates, clustered around 5 percent, did not automatically lead to a more equitable distribution of economic development, as the initial levels of GRDP per capita differed substantially across regions. Table 2 indicates that the City of Yogyakarta's GRDP per capita was approximately 2.65 times the provincial average in 2024, while Bantul, Kulon Progo, and Gunungkidul remained below the provincial average. Therefore, the main challenge facing the Special Region of Yogyakarta is not merely achieving higher economic growth, but addressing the spatial imbalance in economic output and the concentration of value added in the urban service center.

RESEARCH METHOD

This study employs a descriptive quantitative approach. The unit of analysis consists of the five regencies and the municipality in the Special Region of Yogyakarta (DIY): the City of Yogyakarta, Sleman Regency, Bantul Regency, Kulon Progo Regency, and Gunungkidul Regency. The analysis covers the period from 2020 to 2024. The data include total Gross Regional Domestic Product (GRDP) at constant prices, GRDP per capita, population, and sectoral GRDP across 17 industrial sectors. The data were processed from the research Excel dataset and contextually validated using the 2025 publications of Statistics Indonesia (BPS) for the Special Region of Yogyakarta.

The mathematical formulas and analytical procedures presented in the Methods section are explicitly structured following the format of the reference article (387-749-1-PB), where each analytical tool is described in terms of its purpose, mathematical equation, explanation of variables, and interpretation criteria. This format enables readers to trace the analytical process from the Excel dataset to the resulting tables while clearly distinguishing the function of each method: the Klassen Typology for classifying regional development status, the Williamson and Theil Indices for measuring regional inequality, the Location Quotient (LQ) for identifying basic sectors, and Shift-Share analysis for evaluating regional competitiveness and structural economic change.

Klassen Typology

The Klassen Typology is used to describe the economic structure and growth pattern of each region. The classification is determined by comparing a region's economic growth rate

with the average economic growth rate of the Special Region of Yogyakarta (DIY), as well as its GRDP per capita with the provincial average GRDP per capita. The regional economic growth rate is calculated as follows.

$$r_i = [(PDRB_{it} - PDRB_{i,t-1}) / PDRB_{i,t-1}] \times 100\%$$

Where is the economic growth rate of region *i*; is the Gross Regional Domestic Product (GRDP) of region *i* in year *t*; and is the GRDP of region *i* in the previous year. The Klassen Typology classification matrix is presented in Table 3.

Table 3. Klassen Typology Matrix

Criteria	Clasification
r_i > r and y_i > y	Quadrant I: advanced and rapidly growing region
r_i < r and y_i > y	Quadrant II: advanced but under pressure region
r_i > r and y_i < y	Quadrant III: rapidly developing region
r_i < r and y_i < y	Quadrant IV: relatively underdeveloped region

Source: Adapted from Aswandi and Kuncoro (2002), Iskandar and Saragih (2018), and Al Majiid and Woyanti (2023).

Williamson Index

The Williamson Index is used to measure regional development inequality by considering the deviation of a region's GRDP per capita from the regional average, weighted by its population size. The formula used in this study follows the presentation format of the reference article, as follows.

$$Vw = \sqrt{\{\Sigma[(y_i - \bar{y})^2 \times (f_i / N)]\}} / \bar{y}, \quad 0 < Vw < 1$$

Where Vw is the Williamson Index; yi is the GRDP per capita of regency/municipality *i*;y is the average GRDP per capita of the Special Region of Yogyakarta (DIY); f is the population of regency/municipality *i*; and N is the total population of all regencies and the municipality. A value closer to 0 indicates a more equitable distribution of regional development, whereas a value closer to 1 indicates a higher level of regional inequality.

Theil Index

The Theil Index is used as an alternative measure of regional income distribution inequality. This index is based on the concept of entropy and in this study is calculated using population weights as shown in the following formula.

$$T = \Sigma[(f_i / N) \times (y_i / \bar{y}) \times \ln(y_i / \bar{y})]$$

Description: T is the Theil Index; f_i/N is the proportion of the population of region i to the total population; y_i is the GRDP per capita of region i; and ȳ is the average GRDP per capita of DIY. A larger Theil value indicates a higher concentration of regional income.

Location Quotient (LQ)

The Location Quotient is used to identify the base sector. A sector is called base if its proportion in the regional economy is greater than the proportion of the same sector in the reference economic region.

$$LQ = (S_i / S) / (N_i / N)$$

Description: S_i is the added value of sector i in the district/city; S is the total GRDP of the district/city; N_i is the added value of sector i in the Special Region of Yogyakarta; and N is the total GRDP of the Special Region of Yogyakarta. If LQ > 1, then the sector has a comparative advantage or is a basic sector. If LQ < 1, then the sector is not a basic sector. If LQ = 1, then the role of the regional sector is the same as the role of the sector in the reference region.

Shift-Share

Shift-Share is used to observe changes in the economic structure of a region compared to a reference region. Changes in sector i in region j are decomposed into components of general growth, industrial mix, and competitive advantage.

$$D_{ij} = N_{ij} + M_{ij} + C_{ij}$$

$$D_{ij} = Y^*_{ij} - Y_{ij}$$

$$N_{ij} = Y_{ij} \cdot r_n$$

$$M_{ij} = Y_{ij} (r_{in} - r_n)$$

$$C_{ij} = Y_{ij} (r_{ij} - r_{in})$$

Description: D_ij is the change in sector i in region j; N_ij is the general growth component; M_ij is the industrial mix component; C_ij is the differential change component or competitive advantage; Y_ij is the GRDP of sector i in region j in the base year; Y*_ij is the GRDP of sector i in region j in the final year; r_n is the total growth of DIY; r_in is the growth of sector i in DIY; and r_ij is the growth of sector i in region j. Priority sectors are selected from sectors with an average LQ > 1 and positive C_ij.

RESULTS AND DISCUSSION

Economic Growth Patterns

The Klassen Typology results show that the growth structure of the Special Region of Yogyakarta (DIY) is uneven. With an average regional economic growth of around 5.18 percent and an average GRDP per capita of around Rp 35 million, only Sleman is in the advanced and fast-growing category. Yogyakarta City remains the region with the highest GRDP per capita, but its growth rate is below average, making it categorized as advanced but suppressed. Kulon Progo is in the fast-developing category because its growth is higher than average, but its GRDP per capita is still below average. Bantul and Gunungkidul are in the relatively underdeveloped category.

Table 4. Results of the DIY Regency/City Classification Typology for 2020-2024.

Regency/Municipality	Average Economic Growth, 2021–2024 (%)	Average GRDP per Capita, 2020–2024 (Million IDR)	Klassen Typology
City of Yogyakarta	5.10	79.76	II: Advanced but Under Pressure

Sleman Regency	5.26	33.06	I: Advanced and Rapidly Growing
Bantul Regency	5.07	20.81	IV: Relatively Underdeveloped
Kulon Progo Regency	5.34	21.36	III: Rapidly Developing
Gunungkidul Regency	5.13	20.00	IV: Relatively Underdeveloped

Source: Statistics Indonesia (BPS), processed by the authors.

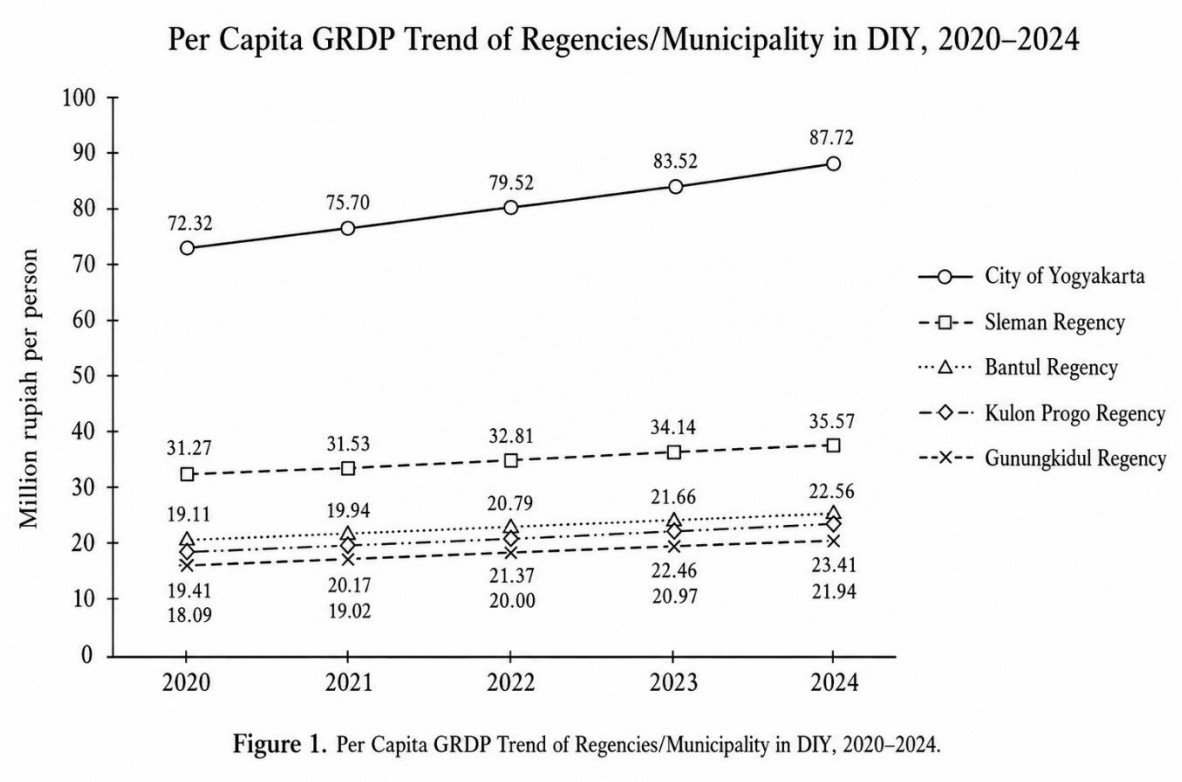


Figure 1. Per Capita GRDP Trend of Regencies/Municipality in DIY, 2020–2024.

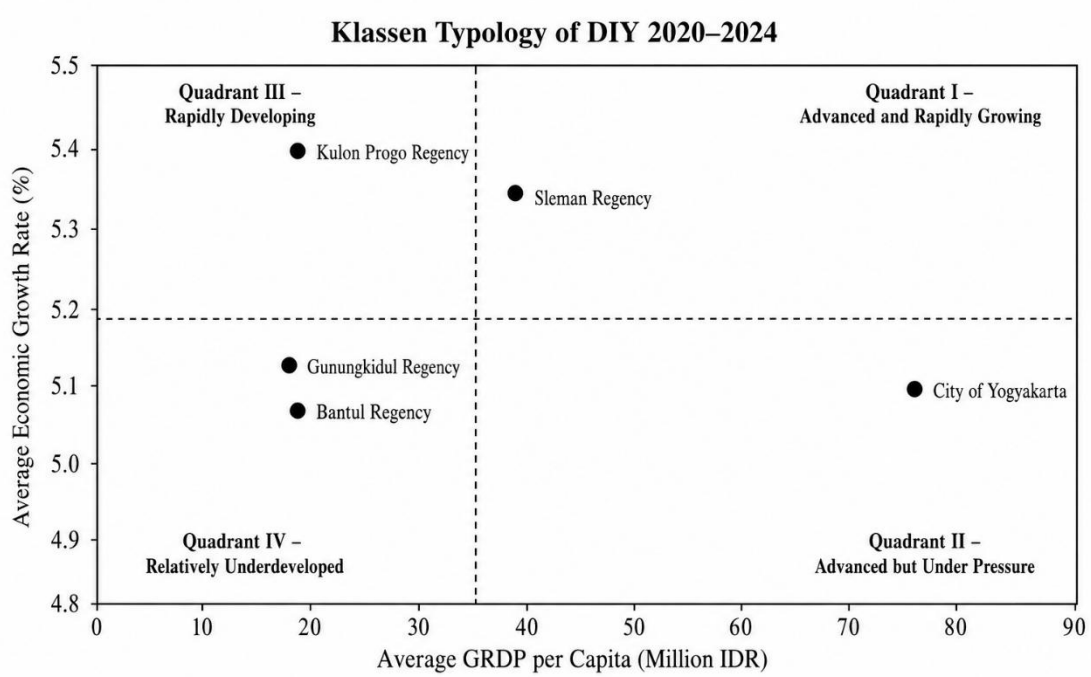


Figure 2. Klassen Typology Classification of Regencies/Municipality in DIY, 2020–2024.

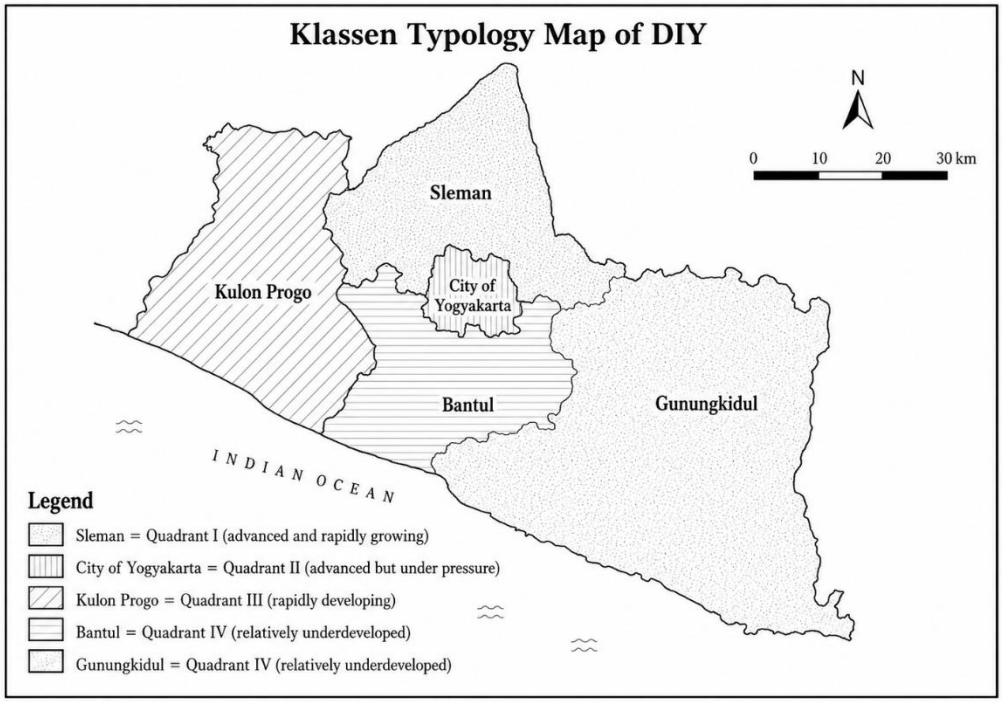


Figure 3. Schematic thematic map of the Klassen Typology of DIY, 2020–2024.

Figure 1 confirms that per capita GRDP increases occurred in all regencies/cities, but the gap between Yogyakarta City and other regencies remains very wide. Yogyakarta City's per capita GRDP increased from IDR 72.32 million in 2020 to IDR 87.72 million in 2024. During the same period, Gunungkidul only increased from IDR 18.09 million to IDR 21.94 million.

This means that positive growth does not result in absolute convergence. Figures 2 and 3 demonstrate a core-periphery pattern: Yogyakarta-Sleman City is the main hub of economic activity, Kulon Progo is a fast-growing transition region, while Bantul and Gunungkidul still face relatively low income levels.

Substantively, Yogyakarta City's position as a developed but depressed region cannot be interpreted as economic decline. This position more reflects the maturity of urban service centers. Regions with very high per capita incomes tend to have more limited room for output growth than regions undergoing infrastructure expansion or economic structural changes. Conversely, Kulon Progo, which is in the rapidly developing quadrant, shows catch-up momentum, but it is not yet strong enough to shift the region's per capita income above the Yogyakarta Special Region average.

Regional Inequality

Table 5. Williamson Index and Theil Index DIY 2020-2024.

Year	Average GRDP per Capita in the Special Region of Yogyakarta (Million IDR)	Williamson Index	Theil Index
2020	28.0490	0.5707	0.1278
2021	29.0191	0.5720	0.1267
2022	30.3516	0.5728	0.1266
2023	31.7011	0.5751	0.1271
2024	33.0951	0.5782	0.1281

Source: Statistics Indonesia (BPS), processed by the authors.

Table 5 shows that the Williamson value increased from 0.5707 in 2020 to 0.5782 in 2024. This increase may seem small, but it is significant because it occurred when all regions recorded positive growth. This means that DIY's economic growth during the study period was not equitable. The Theil index moved from 0.1278 in 2020, declined slightly in 2021-2022, and then rose again to 0.1281 in 2024. This pattern suggests that output concentration has not decreased structurally. The second index conveys the same message: inequality has not worsened drastically, but remains persistent and tends to widen slightly.

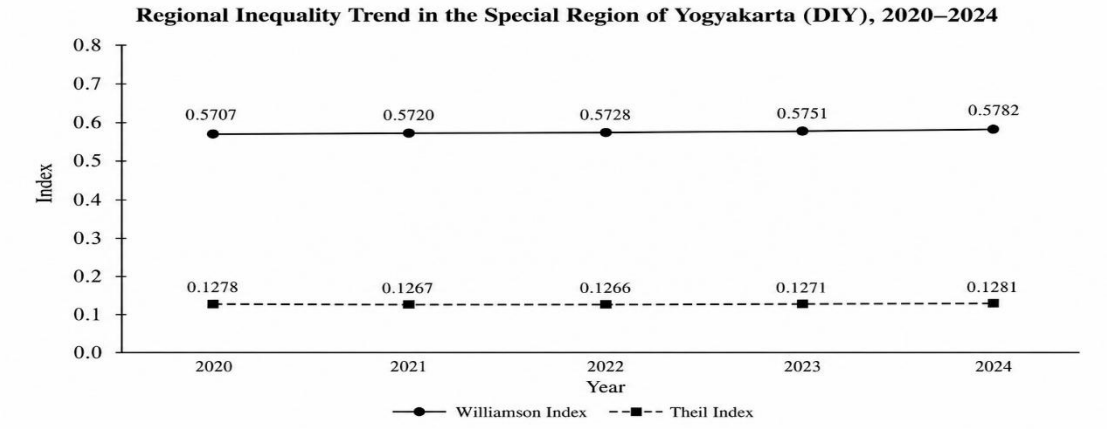


Figure 4. Williamson and Theil Index Trends in the Special Region of Yogyakarta, 2020–2024.

Table 6. Relative structure of the DIY economy in 2024.

Regency/Municipality	Share of Provincial GRDP (%)	Share of Provincial Population (%)	GRDP per Capita, 2024 (Million IDR)	Ratio to the Provincial Average
City of Yogyakarta	26.494	9.995	87.722	2.651
Sleman Regency	33.402	31.080	35.567	1.075
Bantul Regency	18.457	27.071	22.564	0.682
Kulon Progo Regency	8.380	11.845	23.413	0.707
Gunungkidul Regency	13.267	20.008	21.944	0.663

Source: Statistics Indonesia (BPS), processed by the author.

The main sources of persistent inequality are evident in Table 6. The cities of Yogyakarta and Sleman together contribute approximately 59.90 percent of Yogyakarta Special Region's GRDP, while their population share is approximately 41.08 percent. Conversely, Bantul, Kulon Progo, and Gunungkidul accommodate a larger proportion of the population compared to their output. Yogyakarta City is the most extreme case, contributing 26.49 percent of Yogyakarta Special Region's GRDP with only approximately 10 percent of the population. The ratio of Yogyakarta City's GRDP per capita to the average for Yogyakarta Special Region is 2.65 times. This pattern indicates a concentration of added value in urban service centers.

From a policy perspective, this situation has two implications. First, reducing inequality is not simply about encouraging growth across all regions, as core regions have a much stronger productivity and service base. Second, achieving equality requires designing economic linkages between regions, for example through supply chains, logistics connectivity, tourism integration, strengthening MSMEs, and downstreaming local products. Thus, the policy objective is not to weaken growth centers, but rather to enhance the ability of peripheral regions to capture the spillover added value from growth centers.

Regional Economic Potential

The LQ analysis reveals sectors with comparative advantages. However, the basic sector certainly does not yet possess dynamic competitiveness. Therefore, the LQ results need to be compared with the Shift-Share, especially the C_ij component. Sectors with LQ > 1 and positive C_ij are treated as priority sectors because they not only have relative characteristics but also demonstrate competitive performance compared to similar sectors in the reference region.

Table 7. Average LQ results for DIY regencies/cities in 2020-2024

Code	Sector	Yogyakarta City	Sleman Regency	Bantul Regency	Kulon Progo Regency	Gunungkidul Regency
A	Agriculture, Forestry, and Fishing	0.01	0.67	1.17	1.46	3.27
B	Mining and Quarrying	0.01	0.69	0.93	2.33	3.04
C	Manufacturing	0.98	0.98	1.14	0.90	0.95
D	Electricity and Gas Supply	1.47	0.81	1.02	0.59	0.77
E	Water Supply, Sewerage, Waste Management and Remediation Activities	1.33	0.44	0.78	1.17	1.96
F	Construction	0.63	1.14	0.88	1.57	1.19
G	Wholesale and Retail Trade; Repair of Motor	0.79	0.87	0.98	1.51	1.46

	Vehicles and Motorcycles					
H	Transportation and Storage	0.74	0.80	0.96	2.14	1.36
I	Accommodation and Food Service Activities	1.13	1.00	1.16	0.39	0.88
J	Information and Communication	1.25	0.99	0.93	0.53	0.92
K	Financial and Insurance Activities	1.60	0.83	0.72	0.68	0.83
L	Real Estate Activities	1.24	1.12	0.93	0.46	0.65
M	Professional, Scientific and Technical Activities	1.00	1.66	0.47	0.30	0.52
N	Public Administration and Defence; Compulsory Social Security	1.16	0.76	0.87	0.91	1.53
O	Education	1.09	1.15	0.81	0.61	0.93
P	Human Health and Social Work Activities	1.45	0.91	0.71	0.51	1.03
Q	Other Service Activities	0.93	0.84	0.79	1.22	1.70

Source: Statistics Indonesia (BPS), processed by the author.

Table 8. Five sectors with the largest competitive shift values per district/city

Regency/City	Top Five Sectors with the Largest Cij Values (billion rupiah)
Yogyakarta City	Mining and Quarrying (-0.4); Electricity and Gas Supply (-3.3); Water Supply, Sewerage, Waste Management and Remediation Activities (-5.9); Professional, Scientific and Technical Activities (-7.2); Agriculture, Forestry, and Fishing (-14.5)
Sleman Regency	Construction (17.5); Information and Communication (7.7); Electricity and Gas Supply (-0.4); Water Supply, Sewerage, Waste Management and Remediation Activities (-2.4); Professional, Scientific and Technical Activities (-18.2)
Bantul Regency	Electricity and Gas Supply (-1.5); Professional, Scientific and Technical Activities (-1.7); Water Supply, Sewerage, Waste Management and Remediation Activities (-2.0); Information and Communication (-14.1); Financial and Insurance Activities (-20.6)
Kulon Progo Regency	Transportation and Storage (186.5); Mining and Quarrying (92.3); Information and Communication (14.5); Electricity and Gas Supply (-0.4); Professional, Scientific and Technical Activities (-0.6)
Gunungkidul Regency	Agriculture, Forestry, and Fishing (2,244.0); Construction (783.0); Manufacturing (779.2); Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles (762.2); Public Administration and Defence; Compulsory Social Security (745.9)

Source: Statistics Indonesia (BPS), processed by the author.

Table 9. Synthesis of potential sectors based on average LQ and Shift-Share

Regency/City	Dominant Base Sectors (Average LQ 2020–2024)	Priority Sectors (Synthesis of LQ and Shift-Share)
Yogyakarta City	Financial and Insurance Activities (1.60); Electricity and Gas Supply (1.47); Human Health and Social Work Activities (1.45); Water Supply, Sewerage, Waste Management and Remediation Activities (1.33)	No strong overlap of LQ > 1 and positive Cij yet

Sleman Regency	Professional, Scientific and Technical Activities (1.66); Education (1.15); Construction (1.14); Real Estate Activities (1.12)	Construction
Bantul Regency	Agriculture, Forestry, and Fishing (1.17); Accommodation and Food Service Activities (1.16); Manufacturing (1.14); Electricity and Gas Supply (1.02)	No strong overlap of LQ > 1 and positive Cij yet
Kulon Progo Regency	Mining and Quarrying (2.33); Transportation and Storage (2.14); Construction (1.57); Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles (1.51)	Mining and Quarrying; Transportation and Storage
Gunungkidul Regency	Agriculture, Forestry, and Fishing (3.27); Mining and Quarrying (3.04); Water Supply, Sewerage, Waste Management and Remediation Activities (1.96); Other Service Activities (1.70)	Agriculture, Forestry, and Fishing; Mining and Quarrying; Water Supply, Sewerage, Waste Management and Remediation Activities; Other Service Activities; Public Administration and Defence; Compulsory Social Security; Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles; Transportation and Storage; Construction; Human Health and Social Work Activities

Source: Statistics Indonesia (BPS), processed by the author.

Tables 7 to 9 demonstrate that the economic potential of the Special Region of Yogyakarta (DIY) is highly differentiated across regencies and the municipality. The City of Yogyakarta has a strong economic base in high value-added service sectors, including financial and insurance services, electricity and gas supply, human health and social work activities, information and communication, and real estate. However, not all of these sectors exhibited a strong competitive shift during the 2020–2024 period. This suggests that the City's development strategy should focus not merely on quantitative expansion, but on enhancing productivity, accelerating service digitalization, improving the quality of education and healthcare services, and strengthening the integration of urban services with surrounding regions.

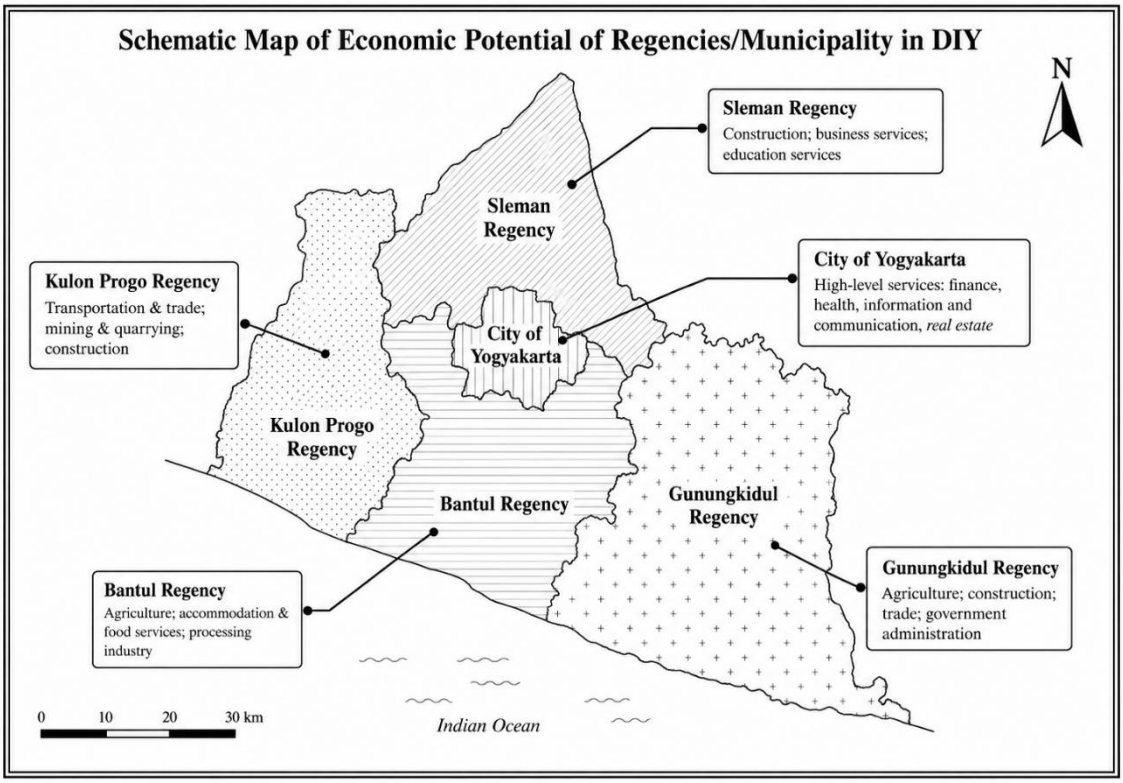


Figure 5. Schematic map of economic potential of regencies/municipality in DIY.

Sleman exhibits the most stable profile as an emerging urban agglomeration. The construction sector stands out as both a basic and competitive sector, while business services and education services provide strong support for the regional economic structure. These findings are consistent with Sleman's role as an area of urban expansion, residential development, higher education, and service-based economic activities. Nevertheless, the continued growth of the construction sector should be carefully managed to avoid excessive spatial pressure, the conversion of productive land, and increasing inequality in access to housing and infrastructure.

Kulon Progo displays a distinct economic profile. Transportation and warehousing, mining and quarrying, and construction are key sectors reflecting its strategic role as the western transportation and logistics corridor. These findings indicate that Kulon Progo has significant catch-up potential, provided that infrastructure and transportation development are effectively linked to local economic activities. However, there is a risk that growth may become overly dependent on land-intensive or infrastructure-based sectors without generating strong linkages to local employment and micro, small, and medium-sized enterprises (MSMEs).

Bantul's economic base is concentrated in agriculture, accommodation and food service activities, and manufacturing. However, the combined results of the Location Quotient (LQ) and Shift-Share analyses indicate that these base sectors have not yet developed into highly competitive sectors. Therefore, Bantul requires a strategy centered on modernizing its existing economic base rather than simply expanding output. Relevant policy priorities include strengthening agro-industry, improving the quality and competitiveness of

MSME products, integrating local production with the southern tourism corridor, and enhancing market connectivity with the City of Yogyakarta and Sleman.

Gunungkidul represents an important case because, although it remains classified as a relatively underdeveloped region under the Klassen Typology, it possesses several sectors that are both basic and competitive. Agriculture, construction, trade, public administration, and basic public services can serve as key drivers of development in the eastern and southern parts of the province. The primary challenge is not the absence of potential sectors, but rather its relatively low initial income level, limited agglomeration economies, and inadequate regional connectivity. Accordingly, the development strategy for Gunungkidul should prioritize agricultural downstreaming, the strengthening of local trade, improvements in basic public services, and better transportation links to regional market centers.

Spatial Synthesis and Policy Implementation

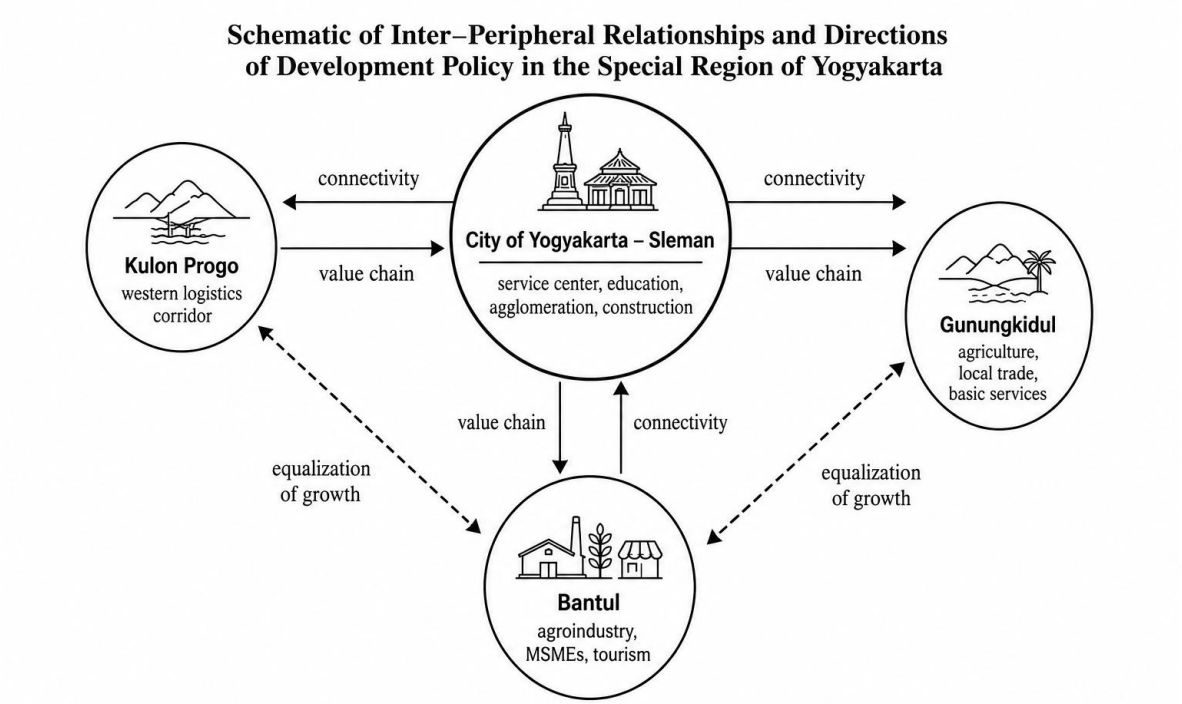


Figure 6. Schematic of inter–peripheral relationships and directions of development policy in DIY.

Figure 6 summarizes the core-periphery pattern of the Special Region of Yogyakarta (DIY). The cities of Yogyakarta and Sleman can be viewed as growth cores, generating concentrations of services, education, agglomeration, construction, and high-value-added activities. Kulon Progo serves as a western logistics corridor; Bantul as a region for agro-industry, MSMEs, and tourism; and Gunungkidul as a region for strengthening agriculture, local trade, basic services, and natural resource-based tourism. DIY development policies need to connect these four functions within a single regional economic system, rather than treating districts/cities as stand-alone units.

The policy implications are as follows. First, DIY needs to develop interregional value chains, for example, connecting the markets of Yogyakarta and Sleman with the agro-industrial products of Bantul and Gunungkidul and the logistics functions of Kulon Progo.

Second, basic sectors in peripheral areas need to increase their productivity through technology, access to financing, quality standardization, and market institutions. Third, infrastructure development should be directed at strengthening access for underdeveloped regions to value-added centers, not simply accelerating mobility to core areas. Fourth, policy evaluations need to use distribution indicators, such as those from Williamson and Theil, so that development success is not measured solely by aggregate GRDP.

CONCLUSION

This study concludes that the economic growth of the Special Region of Yogyakarta (DIY) from 2020 to 2024 has not yet resulted in equitable distribution across regencies/cities. Sleman is considered a developed and fast-growing region; Yogyakarta City is developed but under pressure; Kulon Progo is developing rapidly; while Bantul and Gunungkidul are relatively lagging behind. This structure indicates a concentration of growth in the Yogyakarta-Sleman City corridor, while other regencies remain at relatively lower income levels.

Regional inequality in DIY is persistent. The Williamson Index increased from 0.5707 in 2020 to 0.5782 in 2024. The Theil Index remained relatively stable but increased again at the end of the period. The output concentration is primarily due to the dominance of Yogyakarta City and Sleman, which generate nearly 60 percent of DIY's GRDP, accounting for approximately 41 percent of the population. This indicates that the increase in aggregate GRDP has not automatically improved the distribution of regional value added.

Sectorally, DIY's economic potential is not homogeneous. Sleman is strong in construction, business services, and education services. Kulon Progo has strong potential in transportation and warehousing, mining and quarrying, and construction. Bantul requires upgrading in agriculture, accommodation and food and beverage, and the processing industry. Gunungkidul has several competitive-based sectors but still faces limited income and connectivity. Yogyakarta City needs to maintain its role in high-value services while strengthening growth spillovers to surrounding areas.

Recommendation

The Yogyakarta Special Region (DIY) government needs to establish development policies that are not uniform across regions. The cities of Yogyakarta and Sleman should be directed as centers for high-value services and innovation. Kulon Progo needs to be developed as a western logistics corridor connected to MSMEs and local production. Bantul needs to be strengthened as an agro-industry, MSME, and tourism region. Gunungkidul needs to prioritize downstream agricultural development, local trade, connectivity, and basic services. For future research, this analysis can be analyzed using spatial polygon data, spatial weight matrices, Moran's I, and LISA so that inequality patterns can be interpreted not only descriptively but also spatially and inferentially.

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