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DYNAMICS OF INTERREGIONAL ECONOMIC INEQUALITY IN INDONESIA, 2024-2025

Pardomuan Robinson Sihombing¹

BPS-Statistics Indonesia, Jl.dr Sutomo No 6-8 Jakarta ¹

robinson@bps.go.id

ABSTRACT

Regional economic inequality remains one of the most persistent structural challenges in Indonesia's development trajectory. This study examines the dynamics of interregional inequality across Indonesia's 38 provinces during the 2024–2025 transition period, applying a multidimensional measurement strategy that combines the Theil Index, Hoover Index, Gini Ratio, Coefficient of Variation, and Williamson Index. Each province's index was computed from gross regional domestic product (GDP) and the population distribution of its constituent districts and cities, using official statistics published by Statistics Indonesia (BPS). Because the Shapiro-Wilk test indicated that all five indicators departed from normality, we used a Wilcoxon signed-rank test to compare 2024 and 2025 values and Spearman correlation to assess concordance among the indices. All five indicators increased between 2024 and 2025 ($p < 0.05$ in every case). The increases were modest in absolute magnitude. For example, the mean Gini Ratio rose from 0.258 to 0.261, but the direction was consistent across all indicators, and they were strongly correlated. Central Papua, Papua, Central Sulawesi, and North Maluku consistently ranked among the most unequal provinces across all five measures. These patterns are discussed in relation to core-periphery and structural-transformation perspectives on regional development, while noting that a two-year comparative design cannot establish the causal mechanisms capital-intensive investment, labor absorption, or fiscal decentralization among them that these perspectives invoke. Policy implications concerning fiscal transfer design, infrastructure redistribution, and economic diversification in eastern Indonesia are discussed as interpretive extensions rather than as findings directly demonstrated by the data.

Keywords: Core-Periphery; Indonesia ; Inequality Indices; Regional Inequality

1. INTRODUCTION

Inclusive and sustainable economic development remains a central strategic objective for developing economies, and Indonesia is no exception (Sutomo et al., 2024). However, accelerating national GDP growth does not automatically translate into an equitable distribution of welfare across regions (Lania et al., 2025). Interregional economic inequality has long been recognized as a structural feature of the

Indonesian economy, and Indonesia continues to register some of the widest subnational disparities in Southeast Asia. The 2020–2024 National Medium-Term Development Plan (RPJMN) set an explicit target of reducing the national Gini Ratio to 0.36 by the end of 2024; the persistence of spatial fragmentation at the provincial and district/city level, despite this policy commitment, motivates closer empirical scrutiny of how inequality is actually evolving (World Bank, 2023).

Much of this fragmentation traces to Indonesia's long-standing spatial-economic asymmetry: more than 58 percent of national GDP continues to be produced and consumed on the island of Java (Khoirudin and Musta'in, 2020). Regional autonomy and fiscal decentralization, introduced after the 1998 Reform era, were designed in part as redistributive instruments intended to narrow this gap and encourage convergence between regions (Alfons et al., 2024). Two and a half decades later, the empirical record on whether decentralization has achieved this aim remains mixed, which motivates renewed measurement of the underlying spatial pattern.

More recently, the expansion of downstream mineral processing (*hilirisasi*) in Sulawesi, Maluku, and Papua has altered the geography of Indonesian growth. These industries have raised provincial GDP figures substantially, yet the relationship between this growth and welfare outcomes for surrounding communities is not well established; several studies suggest that capital-intensive, resource-based expansion does not translate mechanically into broad-based local welfare gains (Farhan et al., 2025; Sutisna et al., 2025). This result creates a landscape of inequality that extends beyond the conventional "Java versus Outside Java" framing, and whose dynamics during the 2024–2025 transition period, when the fuller effects of recent downstreaming investment became visible in official statistics, have not yet been comprehensively documented.

A recurring limitation in this literature, discussed in more detail in Section 2, is that most empirical assessments of Indonesian regional inequality rely on a single indicator, typically the Gini Ratio, which is relatively insensitive to changes at the extremes of the income distribution (Sitompul and Syafii, 2025). Studies that measure inequality using several complementary indices across all provinces at a national scale remain scarce, and comparisons that isolate the 2024–2025 transition specifically are not yet available.

This study addresses that gap by measuring interregional inequality across all 38 Indonesian provinces in 2024 and 2025 using five complementary indices the Theil Index, Hoover Index, Gini Ratio, Coefficient of Variation, and Williamson Index testing the statistical significance and magnitude of the year-on-year change, examining the degree of concordance among the five measures, and interpreting the resulting patterns in light of core-periphery and structural-transformation perspectives on regional development. This contribution is not the introduction of new statistical instruments. However, it systematically triangulates existing instruments to provide a more robust, multidimensional picture of regional inequality during a specific and policy-relevant transition period, with explicit caution about what a two-year comparative design can and cannot establish.

2. LITERATURE REVIEW

2.1. Regional Economic Inequality as a Development Problem

Regional economic inequality, the uneven distribution of output, income, and opportunity across the subnational units of a country, has been a central concern of development economics since at least the mid-twentieth century. Williamson (Williamson, 1965) extended Kuznets's (Kuznets, 1955) inverted-U

hypothesis for interpersonal income inequality to the spatial dimension, proposing that regional disparities widen in the early stages of national development, as growth concentrates in a small number of leading regions, before narrowing as diffusion and factor mobility integrate lagging regions into the national economy. This spatial variant of the Kuznets curve provides a useful starting point for the subsequent literature on regional convergence and divergence, including recent Indonesian applications (Sutomo et al., 2024; Haryono and Ramlah, 2024).

2.2. The Kuznets Hypothesis and Structural Transformation

At the sectoral level, Kuznets (Kuznets, 1955) argued that industrialization initially widens income inequality as labor shifts from low-productivity agriculture into higher-productivity but narrowly absorbing industrial sectors, before inequality declines once the industrial sector matures and absorbs a larger share of the workforce. Lewis's (Lewis, 1954) dual-sector model offers a complementary mechanism: as long as the traditional sector retains a pool of surplus labor, wages in the expanding modern sector remain suppressed near subsistence levels, limiting the redistributive effect of industrial growth until that surplus is exhausted.

Applied to contemporary Indonesia, several authors argue that this transformation has not proceeded as the classical model predicts. Farhan et al. (Farhan et al., 2025) find that capital-intensive industrial expansion in the Riau Islands has been comparatively exclusive in its labor absorption, generating what they term a “structural change penalty”: a pattern in which structural transformation widens, rather than narrows, regional inequality. This finding is consistent with the broader observation that resource- and capital-intensive growth can raise aggregate output measures without producing a matching rise in local employment and income (Ginanjar et al., 2024).

2.3. Core-Periphery Theory and Spatial Concentration

A second theoretical strand explains persistent regional disparity through the spatial concentration of economic activity itself. Myrdal (Myrdal, 1957) described a process of circular and cumulative causation, in which initial advantages in a “core” region attract further capital and skilled labor away from the “periphery,” reinforcing the initial imbalance rather than correcting it.

Hirschman (Hirschman, 1958) offered a related but more optimistic account, distinguishing between polarisation effects, which concentrate growth in already-advanced regions, and trickling-down effects, through which demand, capital, and technology eventually diffuse outward to less-developed regions; the balance between the two determining whether spatial inequality narrows or persists.

Friedmann's (Friedmann, 1966) core-periphery model, developed from Latin American regional-planning experience, formalizes this relationship as a set of developmental stages through which peripheral regions may or may not be incorporated into a national urban-economic system. Krugman's (Krugman, 1991) new economic geography model supplies a further, more explicitly formal mechanism: under increasing returns to scale and non-trivial transport costs, manufacturing activity tends to concentrate endogenously in whichever region initially holds a larger market, producing a self-reinforcing core-periphery pattern rather than the smooth convergence predicted by neoclassical trade theory.

Sutisna et al. (Sutisna et al., 2025) apply this family of ideas directly to Indonesia, arguing that the historical concentration of foreign investment is consistent with an “underdevelopment trap” in the

country's eastern provinces, a reading reinforced by Maichal et al. (Maichal et al., 2024), whose findings indicate that foreign direct investment inflows across Indonesian provinces tend to be associated with rising, rather than falling, income inequality.

2.4. Trickle-Down Effects and Inclusive Growth

Whether growth in leading regions eventually benefits lagging regions is ultimately an empirical question, and the Indonesian evidence is mixed rather than uniformly negative. Sari and Santoso (Sari and Santoso, 2025) document that national economic growth over 2012–2023 has not been consistently accompanied by falling inequality, while Ghomzah et al. (Ghomzah et al., 2025) show that even within a single, relatively prosperous province such as the Special Region of Yogyakarta, intra-regional disparity between constituent districts can remain high despite two decades of aggregate growth.

These findings motivate caution about treating trickling-down as an automatic outcome of growth, without implying that the mechanism is absent. The present study's design, a two-year comparison of aggregate provincial indices, is not suited to adjudicating between a genuinely weak trickling-down effect and a merely delayed one, a point developed further in Section 6.

2.5. Measurement of Regional Inequality: Rationale for a Multidimensional Approach

Each of the five indices used in this study captures a distinct facet of spatial inequality, and the decision to report all five rather than a single summary statistic is motivated by the known limitations of any one measure taken alone.

The Gini Ratio is the most widely used inequality index in the Indonesian literature (Khoirudin and Musta'in, 2020; Ghomzah et al., 2025), but is comparatively insensitive to changes that occur at the extremes of the distribution, meaning that a small number of very unequal outlier regions can leave the Gini Ratio broadly unchanged even as inequality worsens meaningfully in absolute terms (Sitompul and Syafii, 2025).

The Theil Index, grounded in information-theoretic entropy, is more sensitive to this kind of extreme-value movement and is additively decomposable, making it well suited to detecting shifts driven by a small number of high-inequality provinces such as Central Papua or Central Sulawesi.

The Hoover Index, also known as the Robin Hood index, has a direct and interpretable meaning: the minimum share of regional GDP that would need to be redistributed to achieve perfect proportionality with population, giving it a natural policy interpretation that the other indices lack.

The Coefficient of Variation, unweighted across provinces, treats every province as an equally important observation regardless of population size, and is therefore useful for detecting dispersion among smaller provinces that would otherwise be numerically outweighed in a population-weighted measure.

The Williamson Index addresses this by explicitly weighting each province's deviation from the national mean by its population share. It is therefore the more appropriate index for assessing inequality from the standpoint of the population actually affected, rather than the province as an administrative unit.

Reporting all five together, rather than any one in isolation, therefore does not simply add statistical redundancy: it allows the analysis to distinguish inequality that is driven by a small number of extreme, low-population provinces from inequality that is broadly distributed across the national population, a

distinction of direct relevance to fiscal transfer design.

2.6. Previous Empirical Studies on Regional Inequality in Indonesia

Existing Indonesian studies of regional inequality tend to fall into two groups. The first applies a single index, typically the Gini Ratio or Williamson Index, to a specific province or island group over an extended time series; examples include Ghomzah et al.'s (Ghomzah et al., 2025) eleven-year Williamson Index analysis of Yogyakarta and Sitompul and Syafii's (Sitompul and Syafii, 2025) panel study of Sumatran provinces.

The second applies decomposition methods to a single national indicator, such as Ginanjar et al.'s (Ginanjar et al., 2024) Theil decomposition of the Human Development Index, which finds that within-province inequality contributes more to national disparity than between-province inequality.

Both groups make valuable contributions, but neither combines multiple complementary indices across all 38 provinces for a recent, tightly bounded transition period. The present study is positioned to fill this specific gap rather than to displace either strand of the existing literature.

2.7. Research Gap and Conceptual Framework

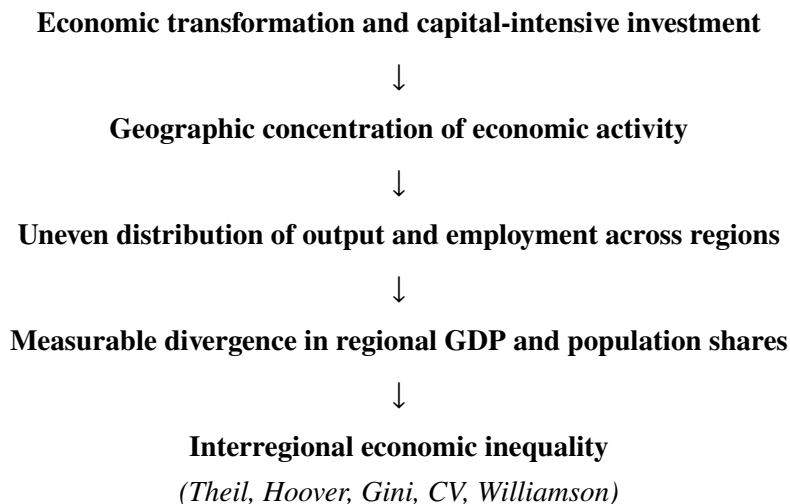
Synthesizing the preceding discussion, three gaps motivate the present analysis.

First, methodologically, single-indicator studies risk conflating genuine changes in the underlying distribution of economic activity with artifacts of the chosen index; a multidimensional approach, in which the five indices are checked against one another for concordance, provides a partial safeguard against this risk.

Second, empirically, no study to date has assessed all 38 Indonesian provinces jointly across the specific 2024–2025 transition, during which the effects of recent mineral downstreaming became more fully reflected in provincial GDP data.

Third, the existing literature tends to invoke structural-transformation and core-periphery perspectives descriptively, without clearly stating what pattern of evidence would be consistent or inconsistent with each.

The conceptual framework guiding the present study, summarized below, links these theoretical strands to the specific empirical quantities the study is positioned to observe.



Core-periphery theory (Myrdal, 1957; ?; Friedmann, 1966; Krugman, 1991) offers an account of why economic activity may remain spatially concentrated once an initial advantage is established; the structural-transformation perspective (Kuznets, 1955; Lewis, 1954; Farhan et al., 2025) offers an account of why industrial and resource-sector growth does not automatically translate into broad-based regional benefit.

Both perspectives predict that the five inequality indices computed here should move together and should be highest in provinces where capital-intensive, resource-based investment has recently expanded. The task of the present study is to determine whether the observed pattern of change between 2024 and 2025 is consistent with this joint prediction and to make explicit that such consistency supports, but does not by itself establish, either theoretical account as the causal mechanism at work.

3. METHOD

3.1. Research Design

This study adopts a descriptive-quantitative, comparative research design (Sugiyono, 2019), applied to a cross-sectional pair of observation points, 2024 and 2025, rather than a longitudinal panel. This design is well suited to describing the direction, statistical significance, and approximate magnitude of year-on-year change, and to comparing patterns across provinces and across indices within each year; it is not suited to establishing the longer-run convergence or divergence trajectories, or the causal mechanisms, that a multi-year panel design would be needed to identify. This limitation is revisited in Section 6.

3.2. Data, Unit of Analysis, and Aggregation Procedure

The underlying data are gross regional domestic product (GDP) at constant prices and mid-year population projections, published by Statistics Indonesia (Badan Pusat Statistik) for 2024 and 2025. The base observational unit is the district/city (kabupaten/kota); the dataset covers all 514 districts/cities, including the redistricted units resulting from the recent expansion of autonomous regions in Papua.

For each of the 38 provinces, the five inequality indices are computed using that province's own constituent districts/cities as the units of comparison. For province p , Y_{ip} and P_{ip} denote the GDP and

population, respectively, of district/city i within province p , and the indices summarized in Section 3.3 are calculated over the set of districts/cities within p .

This data yields one value per index, per province, per year, forming the basis of the 38×2 observations summarized in Table 1, and should be interpreted as a measure of intraprovincial spatial inequality: how unevenly economic activity and population are distributed among the districts/cities that make up each province.

The subsequent statistical comparisons (Sections 3.4 and 4) treat these 38 provincial values as the unit of analysis for assessing whether, and by how much, this intraprovincial inequality shifted between 2024 and 2025, and how it varies across provinces.

3.3. Measurement of Regional Inequality: Five Complementary Indices

In order to ensure the robustness of the analysis against the bias of any single instrument, five inequality measures drawn from spatial economics and entropy theory were computed for every province in both years: the Theil Index, Hoover Index, Regional Gini Ratio, Coefficient of Variation, and Williamson Index.

3.3.1 Theil Index

The Theil Index is calculated as:

$$T = \sum_{i=1}^n \frac{Y_i}{Y} \ln \left(\frac{Y_i/Y}{P_i/P} \right) \quad (1)$$

where Y_i is the GDP of district/city i within a given province, Y is the province's total GDP, P_i is the population of district/city i , and P is the province's total population.

3.3.2 Hoover Index

The Hoover Index, also known as the Robin Hood Index, is defined as:

$$H = \frac{1}{2} \sum_{i=1}^n \left| \frac{Y_i}{Y} - \frac{P_i}{P} \right| \quad (2)$$

The index represents the minimum share of regional GDP that would need to be redistributed to achieve proportionality between the distribution of GDP and population.

3.3.3 Regional Gini Ratio

The Regional Gini Ratio is calculated using the cumulative population and GDP shares:

$$G = 1 - \sum_{i=1}^n p_i (Q_i + Q_{i-1}) \quad (3)$$

where p_i represents the population share of district/city i , and Q_i represents the cumulative GDP share up to district/city i , with districts/cities ordered in ascending order according to their relevant

economic measure.

3.3.4 Coefficient of Variation

The unweighted Coefficient of Variation (CV) is calculated as:

$$CV = \frac{\sqrt{\frac{1}{n} \sum_{i=1}^n (y_i - \bar{y})^2}}{\bar{y}} \quad (4)$$

where y_i is the per-capita GDP of district/city i , $\bar{y}$ is the mean per-capita GDP across the province's districts/cities, and n is the number of districts/cities in the province.

3.3.5 Williamson Index

The population-weighted Williamson Index is calculated as:

$$V_w = \frac{\sqrt{\sum_{i=1}^n (y_i - \bar{y})^2 \frac{P_i}{P}}}{\bar{y}} \quad (5)$$

where P_i/P represents the population share of district/city i . Unlike the unweighted Coefficient of Variation, the Williamson Index explicitly weights each district/city according to its population share.

The rationale for reporting all five measures jointly, rather than relying on any single index, is discussed in Section 2.5. In brief, the indices differ in their sensitivity to extreme values (Theil), their direct redistributive interpretation (Hoover), their conventional comparability with prior Indonesian studies (Gini), their treatment of each province as an equally weighted unit regardless of population (CV), and their weighting toward the population actually affected by inequality (Williamson).

3.4. Statistical Procedure

Prior to comparing 2024 and 2025 values, the Shapiro–Wilk test, appropriate for a sample size of $N = 38$ (?), was used to assess whether each index's distribution across provinces departed from normality.

Because all five indices rejected the null hypothesis of normality ($p < 0.001$ in each case), a nonparametric Wilcoxon signed-rank test (Siegel and Castellan, 1988) was used for the paired 2024–2025 comparison rather than a paired t -test.

Effect sizes were computed as matched-pairs rank-biserial correlations, interpreted against the conventional small (≈ 0.10), medium (≈ 0.30), and large (≈ 0.50) benchmarks summarized for nonparametric applications by Tomczak and Tomczak (Tomczak and Tomczak, 2014) and originally proposed by Cohen (Cohen, 1988).

Finally, concordance among the five indices was assessed using Spearman rank correlation across the 38 provinces. This procedure was used to determine whether the different inequality measures produced broadly consistent rankings of provinces despite their differing mathematical properties and weighting structures.

4. RESULTS AND DISCUSSION

4.1. Results and Discussion

4.1.1 Descriptive Overview of the Five Inequality Indices, 2024–2025

Across the 38 provinces, all five inequality indicators consistently show an increase in regional inequality between 2024 and 2025. Although the magnitude of change is relatively modest, the consistency across conceptually different measures indicates that the observed pattern reflects a genuine shift in Indonesia's spatial economic structure rather than the behavior of a single statistical indicator.

The highest inequality values were consistently observed in Papua Tengah, Papua, Sulawesi Tengah, and Maluku Utara, whereas Kalimantan Utara, Kepulauan Bangka Belitung, Gorontalo, and Kalimantan Tengah remained the most equal provinces across nearly all indices.

Table 1: Highest and Lowest Provincial Inequality Values (2025)

Province	Theil	Hoover	Gini	CV	Williamson
Papua Tengah	0.830	0.577	0.648	1.702	1.407
Papua	0.801	0.560	0.602	1.690	1.544
Sulawesi Tengah	0.785	0.465	0.543	1.800	1.856
Maluku Utara	0.670	0.393	0.530	1.799	1.698
Kalimantan Utara	0.011	0.060	0.071	0.232	0.152
Kep. Bangka Belitung	0.016	0.081	0.099	0.178	0.179
Gorontalo	0.020	0.086	0.107	0.218	0.200
Kalimantan Tengah	0.025	0.096	0.127	0.227	0.224

Table 2 summarizes the descriptive statistics of all five inequality measures. Mean values increased across every indicator, ranging from a 0.6% increase for the Coefficient of Variation to approximately 2.6% for the Theil Index. The consistency of this directional change is more informative than the relatively small absolute increase observed within individual provinces.

Table 2: Summary Statistics of the Five Inequality Indices

Indicator	Year	Mean	SD	Minimum	Maximum
Theil Index	2024	0.170	0.216	0.011	0.943
	2025	0.175	0.219	0.011	0.830
Hoover Index	2024	0.205	0.120	0.060	0.624
	2025	0.207	0.120	0.060	0.577
Gini Ratio	2024	0.258	0.132	0.071	0.679
	2025	0.261	0.134	0.071	0.648
Coefficient of Variation	2024	0.618	0.448	0.187	1.890
	2025	0.622	0.450	0.178	1.800
Williamson Index	2024	0.577	0.395	0.155	1.811
	2025	0.586	0.412	0.152	1.856

The descriptive evidence suggests that regional inequality remains highly concentrated in resource-intensive provinces, particularly those experiencing rapid mineral downstreaming and extractive industrial expansion. In contrast, provinces with more diversified and service-oriented economic structures generally exhibit lower spatial disparities.

4.1.2 Distributional Assumptions and Paired-Difference Testing

Prior to comparing annual values, the Shapiro–Wilk test indicated that all five inequality indicators departed significantly from normality ($p < 0.001$). Consequently, the Wilcoxon signed-rank test was employed to evaluate paired differences between 2024 and 2025.

The results demonstrate statistically significant increases across every inequality measure (Table 3). Rank-biserial correlations range from -0.412 to -0.587 , indicating medium-to-large practical effects according to conventional benchmarks.

Table 3: Wilcoxon Signed-Rank Test of Paired Differences

Indicator	Z	p -value	Rank-Biserial r
Theil Index	-2.777	0.005	-0.517
Hoover Index	-3.154	0.001	-0.587
Gini Ratio	-3.053	0.002	-0.568
Coefficient of Variation	-2.212	0.026	-0.412
Williamson Index	-2.676	0.007	-0.498

These findings indicate that the increase in regional inequality is unlikely to be explained by random sampling variation alone. Although the numerical changes are relatively small, their consistency across provinces produces statistically meaningful shifts in Indonesia’s spatial economic distribution.

From a policy perspective, this result suggests that regional development initiatives implemented during the 2024–2025 period were insufficient to offset the concentration of economic activity in several rapidly growing provinces.

4.1.3 Comparative Pattern Across the Five Indices

To examine whether different inequality measures produce consistent regional rankings, Spearman rank correlations were calculated across the 38 provinces.

Table 4: Spearman Rank Correlation Among the Five Indices (2025)

	Theil	Hoover	Gini	CV	Williamson
Theil	1.000	0.969	0.983	0.954	0.993
Hoover	0.969	1.000	0.979	0.899	0.959
Gini	0.983	0.979	1.000	0.922	0.972
CV	0.954	0.899	0.922	1.000	0.952
Williamson	0.993	0.959	0.972	0.952	1.000

All pairwise correlations exceed 0.89, with most exceeding 0.95, demonstrating exceptionally strong agreement among the five inequality measures. The strongest relationship occurs between the Theil and Williamson indices ($\rho = 0.993$), reflecting their shared sensitivity to highly unequal provincial structures.

The weakest, though still substantial, relationship appears between the Coefficient of Variation and the Hoover Index ($\rho = 0.899$). This difference is theoretically expected because the Coefficient of Variation treats every province equally regardless of population size, whereas the Hoover Index explicitly incorporates the proportional relationship between GDP and population.

Perhaps the most important finding is the remarkable stability of provincial rankings. Papua Tengah, Sulawesi Tengah, Papua, Maluku Utara, and Jawa Timur consistently appear among the five most unequal provinces regardless of the measurement instrument employed. Likewise, Kalimantan Utara, Kepulauan Bangka Belitung, Kalimantan Tengah, Gorontalo, and Lampung consistently rank among the most equal provinces. Such agreement substantially strengthens confidence that the observed spatial disparities are structural rather than methodological artifacts.

4.1.4 Spatial Concentration, Structural Transformation, and the Limits of Trickle-Down

The empirical pattern documented above is broadly consistent with both the core–periphery framework and structural transformation theory. Provinces experiencing rapid resource-based industrial expansion also exhibit the highest levels of intraprovincial inequality, suggesting that recent economic growth has been geographically concentrated rather than broadly distributed.

Papua Tengah, Papua, Maluku Utara, and Sulawesi Tengah have attracted substantial investment in downstream mineral processing during the study period. While these investments substantially increased provincial GDP, the corresponding improvement in local welfare appears considerably less evenly distributed across districts. This pattern aligns with Hirschman’s polarization effect and with the structural change penalty described by Farhan et al., in which capital-intensive industries generate high output without proportional employment absorption.

Nevertheless, several methodological limitations prevent causal interpretation. First, the present dataset contains only GDP and population, not the underlying mechanisms responsible for inequality, such as foreign direct investment intensity, labor mobility, technology transfer, or environmental externalities. Consequently, these mechanisms remain theoretical interpretations rather than directly observed variables.

Second, the study compares only two consecutive years. A two-year comparison identifies short-run changes but cannot distinguish temporary fluctuations from long-term convergence or divergence. Provinces experiencing exceptionally large investment inflows during 2025 may temporarily exhibit elevated inequality before broader diffusion occurs.

Third, the research design is fundamentally correlational. Provinces with intensive downstream industrialization also differ systematically in geography, historical development, infrastructure quality, and institutional capacity. Any of these factors may contribute simultaneously to the observed inequality patterns.

Accordingly, the findings should not be interpreted as definitive evidence that the trickle-down mechanism has failed in Indonesia. A more defensible conclusion is that recent economic growth in resource-intensive provinces has not been accompanied by a proportional reduction in spatial inequality during the 2024–2025 transition period. This interpretation is consistent with, but does not conclusively establish, the causal mechanisms proposed by core–periphery and structural transformation theories.

From a policy standpoint, the distinction is important. Attributing inequality exclusively to a failure of trickle-down would imply a narrow policy response focused on redistribution alone. In contrast, recognizing the possibility of multiple interacting mechanisms supports a broader strategy combining fiscal equalization, infrastructure redistribution, human capital development, and economic diversification in eastern Indonesia.

5. CONCLUSION

Regional inequality increased in a statistically significant and directionally consistent manner between 2024 and 2025 according to all five indicators, although the absolute magnitude of the increase was modest. Substantial differences were observed across Indonesian provinces, with approximately a fortyfold range on most indices between the least unequal province, North Kalimantan, and the most unequal provinces, particularly Central Papua and Papua.

Despite measuring conceptually distinct dimensions of spatial inequality, the five indices demonstrated strong and consistent correlations with one another, with Spearman's ρ generally exceeding 0.90 in 2025. This high degree of concordance strengthens confidence that the observed 2024–2025 shift reflects an underlying feature of the spatial distribution of economic activity rather than an artifact of any single measurement choice.

The findings are consistent with the view that economic growth in Indonesia's resource-intensive regions has not, over this short observation window, translated proportionally into more spatially equitable development. However, the evidence should be interpreted as a pattern warranting continued monitoring and policy attention rather than as a definitive conclusion regarding the causal mechanisms underlying regional inequality.

On this basis, policy attention should focus on strengthening the redistributive function of fiscal decentralization, including the possibility of linking a larger share of the General Allocation Fund (Dana Alokasi Umum) to measurable reductions in intraprovincial inequality. Policy efforts should also consider the spatial redistribution of infrastructure investment and the diversification of the economic base of eastern Indonesia beyond extractive activities, so that the benefits of recent downstreaming investment can be distributed more broadly across regions and populations.

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AUTHOR CONTRIBUTION STATEMENT

The author is responsible for the research conceptualization, data collection, data analysis and interpretation, manuscript drafting, and finalization of the article. The author has read and approved the final manuscript for publication.

CONFLICT OF INTEREST STATEMENT

The author declares that there is no conflict of interest regarding the conduct of the research or the publication of this article..

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