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Fiscal Decentralization and Its Impact on Income Inequality in Western and Eastern Indonesia

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Abstract
Income inequality across regions in Indonesia remains persistently high despite a stable national economy and ongoing fiscal reforms. This study examines disparities between Western and Eastern Indonesia by analyzing the roles of fiscal decentralization, economic growth, and unemployment from 2010 to 2022. Using a fixed effects model on 34 provinces, the analysis captures regional and temporal variations that shape inequality dynamics. The findings show that fiscal decentralization reduced inequality in Eastern Indonesia during 2010–2016 and in Western Indonesia during 2017–2022. Economic growth significantly increased inequality in Western Indonesia during 2010–2016, while unemployment reduced inequality in the same region and period. However, these effects weaken when control variables and time segmentation are introduced, indicating sensitivity to institutional and structural contexts. The implications of these findings underscore the importance of formulating fiscal policies tailored to regional characteristics, thereby strengthening the relevance of the theory of fiscal federalism and the kuznets hypothesis for future research aimed at addressing inequality in other developing countries.

Keywords: Fiscal Decentralization; Economic Growth; Unemployment; Income Inequality.

1. Introduction

Inclusive growth is a key objective of sustainable development, characterized by substantial economic expansion and income equality (Katuka *et al.*, 2024). The correlation between economic growth, improved fiscal governance, and reduced inequality is not always there. A previous discussion by Hung and Thanh (2022) demonstrated that once economies achieve a sufficient level of growth, there will be varying degrees of impact on income inequality due to fiscal decentralization, depending on the stage of development of each region. Then, Kassouri *et al.* (2025) Provide strong evidence that income inequality among African populations decreases with rising economic activity. In contrast, higher economic growth leads to widening income disparities across Côte d'Ivoire, Gabon, The Gambia, and Senegal, respectively. Ultimately, researchers may conclude that the augmentation of economic growth does not necessarily lead to a reduction in inequality.

Indonesia has seen this problem in recent decades. According to Statistics Indonesia, the

2011 Gini coefficient was recorded at 0.41, slightly declining to 0.397 in 2016. Nevertheless, attaining this Gini ratio still falls well short of the Indonesian government's objective of reaching 0.36 by the end of 2019. Indonesia is ranked 4th in global inequality, with a Gini ratio of 0.39. Nevertheless, an examination of economic growth indicators reveals that the Indonesian economy has the potential to expand by approximately 5 percent. An analysis of economic growth indicators suggests that Indonesia's economy has not yet reached its full potential, primarily due to regional economic disparities (Badriah and Arintoko, 2024).

The evaluation of economic development should not solely rely on economic growth indicators. However, it should also consider the degree to which high economic growth is experienced by the entire population, including low-income or impoverished communities, to attain a more equal state of wealth. Excessive emphasis on economic growth alone might lead to drawbacks, such as diminished utilization of sustainable resources and a contradiction with the SDGs' objective of decreasing overall use of natural resources (Eisenmenger *et al.*, 2020). Disregarding environmental and societal constraints while concentrating only on economic expansion can result in ecological deterioration, exhaustion of resources, and heightened inequality (Zhao and Ehigiamusoe, 2024).

Regarding empirical data, there are disparities when examining the mean rate of economic expansion in the Eastern Indonesia (EI) and Western Indonesia (WI) regions. The EI region experienced an estimated annual economic growth of 6.48 percent. The aforementioned data exhibits a greater magnitude compared to the economic growth of the WI region, which demonstrates a growth rate of only 5.41 percent annually. Income inequality in Indonesia is volatile and tends to worsen, as indicated by the average Gini coefficient score of 0.40. The EI region contributes most significantly to inequality, with an average inequality achievement of 0.38 points.

According to Muryani *et al.* (2021) the increasing inequality in income distribution is often associated with uneven geographical conditions, allocation of development funds, economic growth, and infrastructure development that are more concentrated in Java. The disparity in employment rates between the EI and WI regions also indicates the level of development or success in these regions. Inequality arises due to inter-regional disparity in resources and other production factors. One of the challenges of production capital arises because of labor issues, namely the presence of workers and producers in the informal economy sector, which generally causes inefficiencies (Kartiasih *et al.*, 2023).

At the same time, low-income individuals receive only a meager portion of the overall revenue (GDP). A higher Gini index corresponds to a wider income distribution gap, while a lower Gini ratio suggests a more equal income distribution among the population (Agussalim *et al.*, 2024). Economic inequality pertains to the uneven allocation of resources, opportunities, and wealth among individuals or groups within a community, which favors only one side (Choga *et al.*, 2024). Recent studies deepen the understanding of fiscal decentralization's multidimensional effects on inequality, measured through the Gini coefficient (Siburian, 2020; Syahrini *et al.*, 2025). Zubair *et al.* (2024) demonstrated that socioeconomic differences, strongly linked to economic status, drive inequality development, primarily affecting the poorer class. Moreover, the dynamics of income inequality are considered directly in the presence of the unemployment rate as a key factor (Rolim, 2024). These findings demonstrate the significance of government policy in fostering enhanced economic development, encompassing areas such as education, unemployment reduction, and equitable investment allocation.

The disparity in income between the western and eastern regions of Indonesia can vary significantly, despite the absence of a formal or popularly acknowledged division in the country. The method employed to address inequality in Indonesia, as implemented by the WI and EI regions, is founded on recognizing that Indonesia is a vast nation with notable disparities in economic growth, infrastructure, social services, and other indices of well-being among different

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regions. Historically, there has been a prevailing notion that the western region of Indonesia, particularly Java, exhibits greater advancement and prosperity than the eastern region of Indonesia (Muryani *et al.*, 2021; Kartiasih *et al.*, 2023; Agussalim *et al.*, 2024). This research is exciting because it combines public policy and macroeconomic issues in the context and diversity of Indonesia's vast geography (Badriah and Arintoko, 2024). Separating the two time periods makes this research current and contributes to enriching the global development literature.

Regional economic development should positively influence the overall well-being of society (Rauf *et al.*, 2021). Nevertheless, empirical evidence demonstrates that several domestic and international studies have consistently revealed that economic expansion in developing areas does not consistently result in equitable wealth distribution (Mdingi and Ho, 2021; Duong, 2025). Multiple factors, supported by theoretical frameworks and empirical studies, influence income disparity. Digdowiseiso *et al.* (2020) analyzed fiscal decentralization across 32 Indonesian provinces from 2005 to 2014, distinguishing between vertical and horizontal inequality. According to their findings, fiscal decentralization strengthens vertical inequality under democratic conditions, whereas it weakens horizontal inequality when socio-capital aspects are considered.

In their study, Feky *et al.* (2023) found that areas with higher regional inequality are typically developing countries, due to their traditional and more centralized systems, as well as lower institutional quality. However, a phenomenon exists that developing countries in Africa with high GDP per capita show high inequality levels, but most countries with medium GDP per capita show average income inequality (Asogwa *et al.*, 2021). The research results by Basumatary *et al.* (2024) show that unemployed people do not have a significant enough impact on inequality in low-income, lower-middle-income, and high-income nations. However, their study also found that the unemployment coefficient is negative and significant in countries with upper-middle-income levels, so it is better to increase labor productivity to achieve a favorable outcome in revenue distribution rather than reducing unemployment rates.

Moreover, several studies strongly prove that only high-income countries are in line with the Kuznets Curve model, whereas middle and low-income countries tend to follow a U-shaped curve of interdependence between economic development and income inequality (Kavya and Shijin, 2020; Wang *et al.*, 2023). In more complex terms, research by Akita *et al.* (2020) explores fiscal disparities among Indonesian districts during the decentralization era and reveals mixed outcomes of intergovernmental transfers. While the General Allocation Grant initially reduced inequality, its redistributive effect weakened after 2006, whereas the Profit Sharing Fund tended to widen disparities. These findings highlight that decentralization alone cannot ensure equitable outcomes, as its impact depends on the design and implementation of fiscal mechanisms. Building on these insights, this study distinguishes between Western and Eastern Indonesia across different periods to better capture each region's structural challenges and to provide policy implications for more equitable and region-specific development strategies in the future.

Scholars have disagreed on the disparities in empirical findings regarding income inequality and its influential determinants, including fiscal decentralization, economic growth, and unemployment. This study poses the key research question: to what extent do fiscal decentralization, economic growth, and unemployment affect income inequality in Eastern and Western Indonesia? To address inter-regional disparities, this paper empirically investigates the comparative effects of these variables across the two regions. This study addresses the research gap by examining fiscal decentralization, economic growth, and unemployment through a regional and temporal lens. By separating Indonesia into Western (WI) and Eastern (EI) regions and comparing two periods (2010–2016 and 2017–2022), the analysis captures how inequality evolves within the country's diverse economic and social contexts.

2. Literature Review

Theory of Fiscal Federalism by Oates explores the transfer of fiscal responsibility from the central government to regions that better understand local conditions, thereby creating policies that focus on effectively solving problems at the regional level (Canare *et al.* 2020). This theory emphasizes that fiscal decentralization fosters equitable development when accompanied by robust institutions, equitable transfers, and accountable governance. The Kuznets Hypothesis posits that throughout the stages of one country's development, an inverted U-shaped curve expresses the association between economic growth and income inequality. An inverted U-shaped curve shows a high Gini index when growth starts, but eventually fails as economic growth increases in the later stages (Abate and Sitotaw, 2024). Urbanization, industrialization, and the transition from agrarian to modern economies increase income inequality, as unequal access to capital, education, employment, and infrastructure favors specific groups (Abbasi *et al.*, 2024). During this period, unemployment and labor market segmentation are also prominent, as economies struggle to absorb rural labor into productive sectors. Moreover, public policy and institutional capacity in developing countries are often limited in scope and redistributive effectiveness, resulting in weaker social protection and less progressive fiscal systems (Masi *et al.*, 2024).

As countries mature economically, however, state institutions generally become more capable of implementing inclusive policies. Expanded education, improved labor absorption, progressive taxation, and targeted fiscal transfers can collectively reduce inequality (Lian *et al.*, 2024). Hence, the Kuznets framework can be extended beyond pure economic growth to encompass broader socio-political dynamics, such as employment structures and policy evolution, that determine income distribution across stages of development. The debate on how fiscal decentralization and economic growth affect inequality can be framed through a theoretical dialectic. This thesis is based on the Theory of Fiscal Federalism and the Kuznets Hypothesis. Perspective of Govind (2025) In France, it is suggested that well-designed decentralization improves allocation efficiency and responsiveness to local needs, while Gradín (2024) argues that long-term economic growth ultimately reduces inequality as institutions mature and opportunities expand. These theories reflect an optimistic view, in which policy autonomy and sustainable growth naturally lead to a more equitable distribution of income.

In contrast, the antithesis highlights the risks that arise when these conditions are not met. Critics argue that fiscal decentralization can reinforce inequality if fiscal capacity and institutional quality are uneven across regions or if political elites control local resources (Bargain *et al.*, 2025). An alternative view of the Kuznets Hypothesis also notes that in many developing countries, economic growth actually widens inequality, as its benefits are concentrated among certain groups, while structural barriers for people experiencing poverty remain (Khatatbeh and Moosa, 2023). From this theory arises a synthesis that acknowledges fiscal decentralization and economic growth do not exert a uniform effect but vary according to governance quality, institutional capacity, and regional characteristics. Both perspectives understand that policies cannot follow a one-size-fits-all approach but must remain sensitive to local contexts and developmental stages (Chuluunbaatar *et al.*, 2024). Building on this synthesis, the present study establishes its conceptual foundation to examine how these dynamics evolve differently in Western and Eastern Indonesia, while providing empirically grounded and socially relevant insights. To explore these theoretical foundations, the study conducts empirical comparisons that both support and challenge the expected roles of decentralization, growth, and employment in reducing inequality.

In the fiscal decentralization literature, several recent studies suggest that decentralization can reduce income inequality by increasing responsiveness to local needs, enhancing public service delivery, and facilitating a more effective allocation of resources. Syahrini *et al.* (2025) in their study on Sumatra Island demonstrate that decentralization contributes to narrowing income disparities, particularly those directly related to policies, such as local government spending. Similarly, Kebalo and Zouri (2024) argue that fiscal additionality

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can help better distribute wealth, leading to a decline in income inequality. So the policy implications for decentralization measures should be appropriate. Siburian (2020) also suggests that fiscal decentralization can lead to more equitable income distribution, as local governments have the authority to allocate resources and design development programs tailored to the unique characteristics of each region. These findings support the theoretical claim that well-structured decentralization enhances fiscal equity and social inclusion.

In contrast, other scholars provide counterarguments to this presumed effect. Feld *et al.* (2021) argue that fiscally decentralized representation, as measured by municipal tax revenue sharing, does not reduce income inequality when the level of jurisdictional fragmentation is high. Then, Hayat *et al.* (2023) show that fiscal decentralization through special allocation funds is a way to reduce inequality. Fiscal decentralization reduces income inequality under systematic implementation, yet aggravates inequality under weak management (Feky *et al.* 2023). These imbalances represent the impact of decentralization, shaped by regional quality and capabilities.

H1: Fiscal decentralization affects income inequality in Indonesia across regions and time periods.

Similar to the Kuznets Hypothesis, economic growth is directly linked to income inequality across various stages of development. Empirical research shows that developed countries have low income inequality, whereas poor or developing countries have high income inequality (Brida *et al.*, 2020). Some studies revealed that economic growth reduces income inequality (Akpa *et al.*, 2024; Kouadio and Koffi, 2024). While these studies support the theoretical prediction of Kuznets, other empirical findings suggest a more complex or even contradictory relationship. Nguyen (2021) stated that economic growth tends to exacerbate income inequality. Then Agussalim *et al.* (2024) stated that economic growth does not immediately lead to lower inequality, thus implying a fair distribution gap.

H2: Economic growth influences income inequality in Indonesia, and its effects may vary across regions and time periods.

The Kuznets Hypothesis posits that in its early stages, territorial development exhibits a high degree of labor market segmentation and limited employment opportunities. As the economy grows but fails to provide adequate employment opportunities, income inequality tends to increase due to unequal access to the productive labor market. Furthermore, according to Černiauskas and Čiginas (2020), Zungu *et al.* (2022), and Rolim (2024) Increased unemployment will further improve inequality. Unemployment widens the gap in income distribution in developing countries, causing income inequality to deteriorate further (Wang *et al.*, 2023). However, Ramaekers *et al.* (2023) suggest that the unemployment rate and its associated changes do not moderate income inequality.

H3: Unemployment contributes to changes in income inequality in Indonesia, with possible variations between regions and time periods.

The inclusion of control variables in this study is based on evidence that inequality is influenced not only by fiscal and macroeconomic factors but also by political and socio-structural conditions. Democratic quality shapes redistribution and social inclusion (Zafirovski, 2025), while GDP per capita reflects development levels that determine whether growth is broadly shared (Ganaie, Bhat and Kamaiah, 2018). Women's participation in professional work and years of schooling are linked to access to opportunities and human capital, both of which are associated with lower income disparities (Kuhn and Ravazzini, 2017; Shahabadi, Nemati and Hosseinidoust, 2018). Internet access also represents digital inclusion, which can help reduce regional inequality (Houngbonon and Liang, 2021). Together, these variables help account for structural differences across provinces, allowing a more straightforward interpretation of the effects of fiscal decentralization, economic growth, and unemployment.

3. Methods

3.1 Data Description

This study derives its data from secondary sources provided by the Central Bureau of Statistics. The time series data span from 2010 to 2022 and encompass the Eastern Indonesia (EI) and Western Indonesia (WI) regions. Meanwhile, cross-sectional data are employed to examine the two locations in particular. The EI region includes the islands of Kalimantan, Sulawesi, Nusa Tenggara, Papua, and Maluku, whereas the WI region encompasses the islands of Sumatra, Java, and Bali.

The representation of the income inequality dimension in this study involves using the Gini coefficient, also known as the Gini Index. Bodea *et al.* (2021), Carnazza *et al.* (2023), Huynh (2021), Khan *et al.* (2023), Odhiambo (2023), Vo *et al.* (2023), Kebalo and Zouri (2024), Lian *et al.* (2024), Nikolić *et al.* (2024), Oumarou and Saha (2024), Mwakalila and Muba (2025), as well as Vuković and Damijan (2025) employ this measure of inequality in their studies. Statistics Indonesia (BPS) releases the Gini Index, considered a comprehensive measure of inequality, ranging from zero to one.

Table 1. Definitions of All Variables

Variable	Operational Definition	Measurement	Data Source
Dependent Variable			
Income Inequality (GINI)	Annually measured in terms of the Gini Index, using data collected from the March household survey.	Index value	Statistics Indonesia
Independent Variable			
Fiscal Decentralization (FD)	The share of regional government in total government spending.	Percentage	Ministry of Finance, Indonesia
Economic Growth (GR)	The gross domestic product (GDP) rate at constant prices measures the expansion of goods and services in a country or region over a specific period.	Percentage	Statistics Indonesia
Unemployment (UE)	The unemployment rate in a particular population or region.	Percentage	Statistics Indonesia
Control Variable			
Political Democracy Index (PD)	The Political Democracy Index measures a country's level of democracy based on parameters such as political freedom.	Index value	Statistics Indonesia
GDP per capita (GDPC)	GDP per capita is calculated by dividing a country's total economic output by its population.	Thousand rupiah	Statistics Indonesia
Women as Professionals (WP)	The percentage of women working as professionals in a given population or region.	Percentage	Statistics Indonesia
Years of schooling (YS)	The value of the average years of formal schooling attended by individuals in a given population or region.	Years	Statistics Indonesia
Internet Access (INT)	Percentage of the population accessing the internet in the last 3 months.	Percentage	Statistics Indonesia

3.2 Methods

The study derives its dependent variable from the Gini Index, which the BPS (Statistics Indonesia) publishes annually in March. Employing a suitable approach to government expenditure as a gauge of decentralization in Indonesia can provide a thorough evaluation of the extent of autonomy bestowed upon local governments. While local governments decide spending priorities, the central government exercises primary authority over taxation (King, 2022; Neuhuber and Schneider, 2024). Hussain *et al.* (2021) incorporated the fiscal decentralization variable from the expenditure side.

Financial income and spending indicators have recently become widely utilized (Hao *et al.*, 2021). Bolarinwa *et al.* (2021), Adom *et al.* (2021), Roikonen (2022), and Onatunji (2025) consider economic growth to be a significant variable in their studies. Meanwhile, research done

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by Asogwa *et al.* (2021), Muryani *et al.* (2021), Ahmed and Shadmani (2024), Choga *et al.* (2024), and Petrakos *et al.* (2023) utilizes the unemployment rate as a measure of unemployment. Economic growth measures the increase in output of products and services produced in a specific economic region during a given year, compared to the output in the previous year. The study measures the ratio of GRDP to GDP at constant prices and reports the results in percentages. The unemployment variable encompasses individuals aged 15 years and older who are actively seeking employment, engaged in entrepreneurial endeavors, or have secured a job but have not yet commenced work. The research measures the open unemployment rate in percentage units.

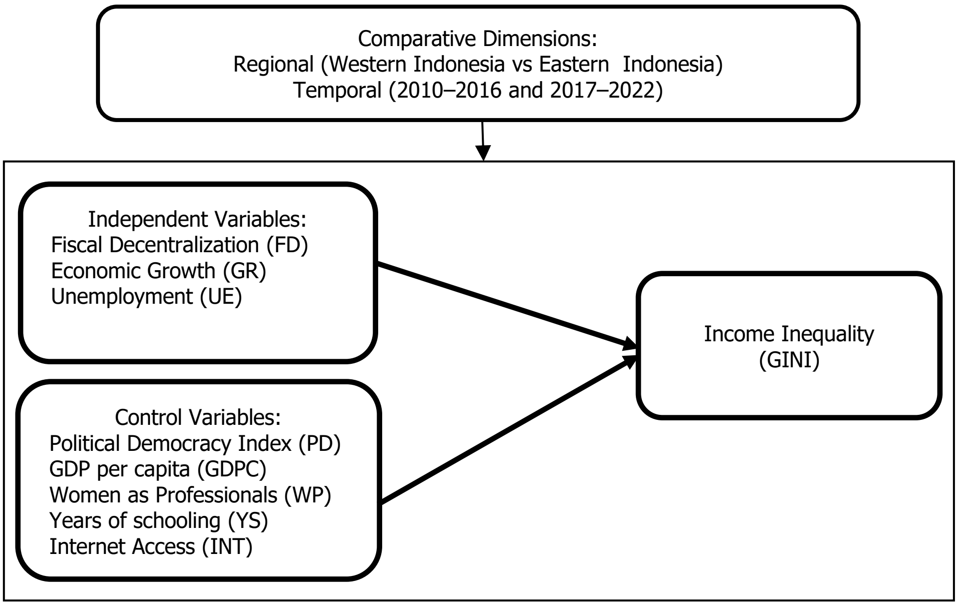

Figure 1: Research Framework

Establishing this baseline helps clarify the general relationships among variables before the analysis is separated by region and time period. It also serves as a reference for interpreting regional and temporal differences, reflecting Indonesia's diverse geographic, fiscal, and developmental contexts. The panel data are then estimated using a fixed effects model to capture provincial variation and province specific characteristics, with the research model specified as follows:

$$GINI_{it} = \beta_0 + \beta_1 FD_{it} + \beta_2 GR_{it} + \beta_3 UE_{it} + \beta_4 PD_{it} + \beta_5 GDPC_{it} + \beta_6 WP_{it} + \beta_7 YS_{it} + \beta_8 INT_{it} + \varepsilon_{it} \quad (1)$$

The dependent variable in that equation, the Gini index ($GINI$), measured annually in March, refers to the degree of income inequality. The key independent variables of interest are fiscal decentralization (FD), economic growth (GR), and the unemployment rate (UE). Additionally, the study incorporates several control variables to account for broader socioeconomic and institutional influences. These controls consist of the political democracy index (PD) reflecting the level of democratic governance, constant prices gross domestic product per capita ($GDPC$) representing the level of personal income, the proportion of women working as professionals (WP), the average years of schooling (YS) as a proxy for educational attainment, and internet access (INT) that indicating digital inclusion. The model includes PD, GDPC, WP, YS, and INT as control variables to prevent omitted variable bias and to isolate the net effects of fiscal decentralization, economic growth, and unemployment on income inequality. In the model, i denotes the provincial units in Indonesia categorized into EI and WI, while t represents the annual observation period from 2010 to 2022. All coefficients β_0 through β_8 Refer to the estimated parameters, and ε denotes a stochastic error term capturing unobserved factors.

4. Results

Indonesia is a large country with diverse regional characteristics. Table 2 summarizes the descriptive statistics for Eastern Indonesia (EI) and Western Indonesia (WI), providing an initial comparison of their socioeconomic conditions as a basis for analyzing income inequality. The GINI coefficients of both regions are similar, averaging 0.365 in EI and 0.367 in WI, although EI shows less variation. Fiscal decentralization tends to be lower in EI (–6,245) than in WI (–5,501). WI records a higher average unemployment rate (5,967) compared to EI (5,095), while EI shows slightly higher average economic growth (3,159) than WI (2,895).

Table 2. Descriptive Statistic

	Regions	
	EI	WI
Mean		
Income Inequality (March)	0.365139	0.366955
Fiscal Decentralization	0.002391	0.006383
Unemployment	5.094537	5.966561
Economic Growth	3.159263	2.895249
Political Democracy Index	70.97593	72.379
GDP per capita	35931.87	41657.92
Women as Professionals	47.06234	48.71683
Years of schooling	7.884633	8.469186
Internet Access	46.09968	54.34946
Maximum value		
Income Inequality (March)	0.464	0.459
Fiscal Decentralization	0.009873	0.036633
Unemployment	11.43	13.74
Economic Growth	21.06	6.03
Political Democracy Index	83.94	89.21
GDP per capita	134410.5	182908.7
Women as Professionals	59.55	60.1
Years of schooling	10.19	11.31
Internet Access	94.27	95.44
Minimum value		
Income Inequality (March)	0.272	0.227
Fiscal Decentralization	0.000575	0.000802
Unemployment	2.08	1.4
Economic Growth	-20.13	-8.26
Political Democracy Index	52.61	54.02
GDP per capita	9316.79	16463.68
Women as Professionals	31.56	37.27
Years of schooling	5.59	6.71
Internet Access	7.18	14.6

Subsequently, we will conduct additional research by dividing the data into two time frames: 2010–2016 and 2017–2022. This division facilitates a deeper understanding of the association's trajectory. The following section presents the estimation results, which readers can verify for further information. Based on the regression results in Table 3, fiscal decentralization reduced inequality in the EI region during the 2010-2016 period and in the WI region during the 2017-2022 period. Economic growth significantly increased inequality in the WI regions during the periods of 2010-2016. Unemployment significantly reduced inequality in the WI regions during the 2010-2016 period.

Other control variables also have different effects on inequality. GDP per capita

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significantly reduces inequality in EI for the period 2017-2022. Women as professionals significantly reduced inequality in WI for the period 2017-2022. Years of schooling significantly increase inequality only in the 2017-2022 EI period. Internet access significantly reduces inequality in the EI and WI regions during the 2017-2022.

Table 3. Independent Variables' Influence on Income Inequality based on WI and EI Regions in the 2010-2016 and 2017-2022 Periods

	(1)		(2)		(3)		(4)	
	GINI	Support for Hypotheses	GINI	Support for Hypotheses	GINI	Support for Hypotheses	GINI	Support for Hypotheses
Fiscal Decentralization, log	-.012 (.047)	No	.05 (.04)	No	.004 (.017)	No	-.01 (.032)	No
Unemployment	-.002 (.004)	No	.001 (.003)	No	-.005** (.002)	Yes	.002 (.001)	No
Economic Growth	.001 (.001)	No	0 (0)	No	.005*** (.002)	Yes	0 (.001)	No
Political Democracy Index	0 (.001)		-.001 (.001)		0 (.001)		0 (0)	
GDP per capita, log	.048 (.076)		-.166*** (.055)		-.043 (.066)		.009 (.058)	
Women as Professionals	-.001 (.001)		.001 (.002)		-.002** (.001)		.001 (.001)	
Years of schooling	-.024 (.042)		.102*** (.034)		.004 (.017)		.032 (.018)	
Internet Access	-.001 (.001)		-.002*** (.001)		0 (0)		-.002*** (0)	
_cons	.12 (.954)		1.729** (.676)		.938 (.565)		.001 (.619)	
Observations	109		85		119		85	
R-squared	.114		.574		.241		.634	
Provinces	EI		EI		WI		WI	
Year	2010-2016		2017-2022		2010-2016		2017-2022	

*Notes: In this study, a fixed-effect model was applied. The robust standard errors are presented in parentheses. The significance levels are indicated by asterisks (*), with *** representing p<.01, ** representing p<.05, and * representing p<.1.*

5. Discussion

5.1 Fiscal Decentralization and Inequality

The regression results indicate that fiscal decentralization does not have a statistically significant impact on income inequality in either Western Indonesia (WI) or Eastern Indonesia (EI) across both periods. Even so, the direction of the coefficients offers valuable insight into how decentralization operates within Indonesia's evolving fiscal and institutional environment. In the 2010 to 2016 period, the coefficients are negative in both regions, suggesting a tendency, although not significant, for decentralization to reduce inequality. This pattern fits the early phase of Indonesia's post-reform decentralization era, when provincial governments in both EI and WI still relied heavily on central transfers and much of their fiscal decision making was connected to redistributive spending through basic infrastructure, health programs, and poverty reduction initiatives. These tendencies align with prior studies showing that decentralization can promote equity when paired with welfare-oriented spending and limited local fiscal autonomy (Siburian, 2020; Hussain *et al.*, 2021; Katuka, Mudzingiri and Ozili, 2024; Syahrini, Yulianita and Hidayat, 2025).

A shift occurs in the 2017 to 2022 period, when the coefficients become positive for both WI and EI. Although they remain statistically insignificant, this reversal is important because it suggests that expanding local fiscal authority has not yet translated into more equal income distribution. Several contextual factors help explain this shift. After 2017, many provinces, particularly in WI, began increasing their own-source revenues and moving toward more autonomous fiscal management. As provinces gained greater discretion over spending priorities and revenue strategies, differences in administrative capacity, governance quality, and institutional discipline became more influential. Regions with stronger institutions may have been better able to use fiscal autonomy to support inclusive development, while regions with weaker governance may have struggled to direct fiscal authority toward reducing inequality. This pattern is consistent with evidence from Canare, Francisco and Caliso (2020), who show that decentralization can increase inequality when governance effectiveness is limited. It also contrasts with Switzerland, where decentralization did not contribute to narrowing disparities (Feld *et al.*, 2021), reinforcing that decentralization alone is not enough to ensure fairness.

In EI during the early period, the negative coefficient reflects a context in which fiscal transfers from the central government played a major role in equalizing outcomes across provinces. With EI's high dependence on central transfers, decentralization, although still limited in scope, helped strengthen redistributive capacity by supporting essential services and programs targeted at low-income households. These benefits then weakened or reversed in the later period, suggesting that EI's institutional readiness may not have been strong enough to sustain equity-oriented outcomes once local discretion increased. In contrast, WI did not experience a strong equalizing impact in the early phase, and the later positive coefficients may indicate that fiscal autonomy increasingly benefited economically or politically advantaged groups in these more developed provinces.

The contrast between the two periods suggests that fiscal decentralization in Indonesia follows a developmental trajectory. Its distributional effects depend on interactions among fiscal authority, administrative capability, governance quality, and the maturity of local institutions. In the early stage, decentralization functioned almost as an extension of central redistribution, which was more beneficial for fiscally dependent regions such as EI. As the system gradually shifted from dependency toward greater autonomy, regional differences in governing capacity became increasingly important. This reinforces the notion that decentralization is not a fixed institutional design, but a dynamic process shaped by evolving governance norms, accountability mechanisms, and administrative reforms.

The period after 2017 is also characterized by the expanding use of digital budgeting and monitoring platforms designed to enhance transparency and improve fiscal efficiency. Although these tools lay the groundwork for better fiscal practices, their effectiveness varied depending on each region's technological readiness and bureaucratic capacity. Provinces with more advanced institutional systems may have adapted more quickly, while others lagged. This created uneven progress and contributed to differences in distributional outcomes. This variation highlights once again that the success of decentralization depends not only on fiscal power but also on governance quality.

Overall, the change in the direction of fiscal decentralization coefficients across the two periods shows that its impact on inequality is shaped not only by how much fiscal authority is decentralized but also by how effectively local governments manage that authority. In the first period, decentralization appeared to support redistributive priorities, especially in EI. However, as fiscal autonomy expanded, many provinces may not have had the institutional capacity or robust governance systems needed to convert decentralization into inclusive development. These findings underscore that decentralization can contribute to reducing inequality only when supported by strong institutions, transparent governance, and strategic allocation focused on broad-based development.

By showing how the effects of fiscal decentralization differ across regions and evolve over

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time, this study adds depth to the broader discussion on decentralization in developing economies. It demonstrates that decentralization's equity outcomes are conditional, multidimensional, and highly sensitive to governance maturity. These insights offer lessons not only for Indonesia but also for other developing countries seeking to design decentralization frameworks that promote equitable growth.

5.2 Economic Growth and Inequality

The regression results indicate that economic growth continues to shape income inequality differently across Indonesian regions and time periods. During 2010 to 2016, growth significantly increased inequality in Western Indonesia, suggesting that rapid expansion in the region benefited higher income groups disproportionately. In Eastern Indonesia, the coefficient during the same period is positive but not statistically significant, indicating that growth there lacked sufficient scale or structural depth to affect inequality meaningfully. A similar pattern reappears in 2017 to 2022, when economic growth again shows a positive, though insignificant, association with inequality in both regions. Despite the lack of significance, the consistently positive coefficients across all specifications signal that growth in Indonesia has not yet taken on an inclusive character.

These findings reinforce the core proposition of the Kuznets Hypothesis, which argues that inequality tends to rise in the early and middle stages of development before declining as structural reforms mature. Indonesia's persistent inequality across regions suggests that the country has not yet reached a developmental stage where the benefits of economic expansion naturally become more evenly distributed. This also clarifies why the results diverge from Hypothesis 2, which initially expected economic growth to widen inequality primarily in the more advanced Western region while producing a weaker impact in Eastern Indonesia. Empirical evidence instead shows an upward pressure on inequality across both regions, although derived from different structural conditions.

Several economic characteristics help explain this pattern. Indonesia's growth continues to rely heavily on capital intensive and resource based industries, sectors that generate high value but produce limited employment. As a result, income gains flow predominantly to skilled workers and urban households, leaving lower skilled and rural populations behind. Structural disparities in access to productive assets, education, digital infrastructure, and financial services also limit the capacity of vulnerable groups to benefit from growth. The redistributive impact of fiscal policy remains relatively modest because local revenue sources and intergovernmental transfers lack the progressivity needed to counteract market driven inequality. Taken together, these factors weaken the ability of growth to function as an equalizing mechanism.

In Eastern Indonesia, faster headline growth does not translate into lower inequality because the region still struggles with limited industrial diversification, uneven infrastructure development, and high dependence on primary sectors. These structural limitations restrict the extent to which growth can support broad based welfare improvements. In Western Indonesia, economic expansion is concentrated in modern service sectors and metropolitan centers, benefiting high skilled workers more than those in peripheral areas. While the mechanisms differ, both regions experience inequality rising alongside growth, demonstrating that regional disparities in Indonesia are influenced by institutional quality, sectoral structure, and the responsiveness of local fiscal systems.

The results also show that incorporating control variables such as political democracy, women's participation in professional work, and internet access can weaken but not eliminate the link between growth and inequality. These findings echo the arguments of Hung and Thanh (2022) and Kassouri *et al.* (2025), who demonstrate that growth in developing economies can exacerbate inequality when institutional and governance structures are underdeveloped. The situation in Eastern Indonesia aligns with the observations of Dai and Gani (2022), who emphasize that growth in peripheral regions rarely yields broad income improvements without simultaneous reforms in infrastructure, human capital, and market access. At the same time, the discrepancy with Panggabean (2025), who finds that growth reduces inequality at the national level, indicates that regional disaggregation is essential because aggregated national estimates may conceal substantial spatial variation.

The Western Indonesia case illustrates how growth can contribute to widening inequality when its distribution is shaped by urban bias and limited labor absorption. Meanwhile, the absence of a significant relationship in Eastern Indonesia reflects structural constraints that prevent growth from influencing inequality in either direction. This dynamic reinforces the argument advanced by Nguyen (2021) and Agussalim *et al.* (2024), who contend that growth in developing countries rarely reduces inequality unless it is accompanied by strong institutional reforms, targeted redistributive mechanisms, and inclusive policy frameworks.

Overall, the findings confirm that economic growth in Indonesia has not yet evolved into an inclusive process. Persistent inequality across regions and time periods suggests that growth driven development alone will not narrow income disparities without broader institutional improvements in governance, fiscal policy, social protection, and human capital formation. The Indonesian experience provides empirical support for an updated interpretation of the Kuznets framework, showing that structural transformation and institutional strengthening must evolve alongside economic expansion to achieve equitable outcomes. These insights contribute to the wider global discussion on inequality in middle income countries and offer evidence that inclusive growth requires coherent policy alignment between economic, social, and institutional reforms.

5.3 Unemployment and Inequality

The regression results show that unemployment has a complex and regionally varied relationship with income inequality in Indonesia, with its influence shifting across periods and geographic contexts. In Western Indonesia (WI) during 2010–2016, unemployment significantly reduces income inequality, indicated by a negative and statistically significant coefficient. This finding suggests that higher unemployment in WI during this period coincided with conditions that narrowed the income gap, challenging conventional assumptions about the link between labor market performance and inequality. One possible explanation is that during this phase, unemployment was concentrated among lower- and middle-income groups whose income levels were already similar, so additional job losses did not substantially widen disparities. In addition, strong social assistance expansion between 2010 and 2014 may have softened the income gap among the unemployed, enabling unemployment to play a more equalizing rather than polarizing role.

This pattern contrasts with the situation in Eastern Indonesia (EI) during the same period. Although unemployment also shows a negative coefficient in EI, indicating a potential inequality-reducing tendency, the effect is not statistically significant. This nonsignificance may reflect EI's structural constraints, including limited formal employment opportunities, high informality, and weaker social protection systems. In such contexts, rising unemployment does not meaningfully alter the distribution of income because most workers are already employed in low-productivity, low-wage sectors. Thus, changes in unemployment levels do little to shift relative income positions. These findings differ from traditional labor market theories that link unemployment directly to higher inequality (Černiauskas and Čiginas, 2020; Zungu, Greyling and Kaseeram, 2022), suggesting that Indonesia's labor market dynamics during this period require a more context-sensitive interpretation.

In the 2017–2022 period, the direction of the unemployment coefficients shifts, becoming positive for both EI and WI, although the effects remain statistically insignificant. This positive direction implies that higher unemployment is increasingly associated with rising inequality, consistent with broader patterns observed in developing and middle-income countries. The

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post-2017 period is marked by structural labor market changes, including digitalization, automation, and a widening skills gap, which may have disproportionately affected workers with lower education and limited access to technology. As a result, unemployment becomes more concentrated among vulnerable groups whose income losses widen the gap between higher- and lower-income populations. This perspective aligns with Basumatary *et al.* (2024) and Abdi *et al.* (2025), who found that in several middle-income countries, unemployment contributes to inequality when institutional responses and labor market protections are weak. The shift in coefficient direction therefore signals a transition in how unemployment affects Indonesian households as the economy modernizes.

In WI, the positive unemployment coefficient during 2017–2022 suggests that job losses disproportionately affected workers in service and manufacturing sectors undergoing modernization, thereby widening the distribution gap as high-skilled workers continued to benefit from technological advances. In EI, the positive but insignificant coefficient may reflect structural stagnation rather than labor market transformation. Because EI remains heavily dependent on agriculture and extractive industries, unemployment changes do little to reshape income structures, and inequality rises primarily due to limited access to productive assets, digital services, and mobility opportunities.

Across both regions and time periods, the evolution of unemployment's influence underscores the importance of institutional capacity in shaping distributional outcomes. During 2010–2016, social assistance reforms and broader redistributive measures appear to have moderated the inequality effects of unemployment, particularly in WI. However, by 2017–2022, shifting labor market conditions and insufficiently adaptive social protections may have weakened this cushion, allowing unemployment to contribute more directly to inequality.

Overall, the results demonstrate that unemployment's effect on inequality in Indonesia is not uniform, but contingent on regional structure, institutional readiness, and the broader economic cycle. While the earlier period reflects a temporary equalizing effect—especially in WI—the later period indicates growing vulnerability among unemployed populations. These findings highlight the need for stronger labor market institutions, adaptive social protection, and skill-oriented employment policies to prevent unemployment from becoming a more persistent driver of inequality as Indonesia transitions toward a digital and service-based economy.

6. Conclusion

This study shows that the drivers of income inequality in Indonesia work differently across regions and periods. Fiscal decentralization tends to ease inequality in certain contexts, particularly in Eastern Indonesia during the early years, although its effect weakens as provinces gain more autonomy and face uneven governance capacity. Economic growth, meanwhile, often increases inequality, especially in Western Indonesia, where expansion in higher value sectors benefits skilled and urban groups more than others. Unemployment also demonstrates a shifting influence, reducing inequality in some periods but losing its equalizing role as labor markets become more polarized. Overall, the findings underline that addressing inequality requires policies tailored to regional conditions, stronger institutions, and development strategies that ensure growth and fiscal autonomy translate into broader welfare gains.

7. Implication of Research

The findings of this study underline the need for policies that are sensitive to regional conditions, given the differing effects of fiscal decentralization, economic growth, and unemployment across Indonesia. Fiscal decentralization shows stronger potential to reduce inequality in Eastern Indonesia, while inequality in Western Indonesia calls for more inclusive growth strategies supported by better institutional capacity. These variations highlight the importance of aligning fiscal and development policies with each region's governance quality and economic structure. The study also contributes to the global community by demonstrating how decentralization and growth can produce different distributional outcomes across diverse regions, offering valuable guidance for other developing countries in addressing regional inequality.

8. Limitations of the Study and Future Research

This study has several limitations, particularly the sensitivity of the results to the inclusion of control variables and the division of the analysis into different time periods. These variations suggest that the findings should be interpreted with caution and that the model may benefit from further refinement. Future research could explore alternative estimation approaches or incorporate additional dimensions such as public service quality, infrastructure development, institutional strength, and labor market informality to provide a more comprehensive understanding of regional income disparities.

Authors' contributions and responsibilities

The first author contributed to the conceptualization of the idea and oversaw the entire research process. The second author collaborated in designing the methodology and provided a critical evaluation. The third author was responsible for processing the data, conducting statistical analysis, and compiling preliminary findings. The fourth and fifth author finalized the content of the manuscript, refined the literature citations, and assisted in preparing the article.

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Competing interests

All authors claim a lack of conflict of interest.

Data availability statement

All relevant data are available upon reasonable request.

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