

Determinants of inclusive economic growth in Indonesia moderated by the open unemployment rate

Wira Yudha Alam^{1✉}, Hari Fitrianto²

¹Universitas PGRI Adi Buana, Surabaya, Indonesia

²Universita Airlangga, Surabaya, Indonesia

✉ wirayudhaalam@unipasby.ac.id

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Abstract

Purpose – This study intends to find empirical evidence regarding the influence of the democracy index, government expenditure on education, and income inequality on inclusive economic growth moderated by the open unemployment rate. **Method** – This research employs a quantitative methodology with panel data regression. Utilizing secondary data from Indonesia's report on inclusive economic growth. The data was generated in numerical form from 33 provinces in Indonesia from 2019 to 2023. In this study, the number of observation data or samples used is 165. The data analysis used is the panel data regressions and moderated regression analysis (MRA) method with EViews 12. The selected model is the fixed effect model because of the Chow and Hausman tests. **Findings** – The research findings indicate that the democracy index and open unemployment rate negatively affect inclusive economic growth. Meanwhile, government expenditure on education positively affects inclusive economic growth. In contrast, income inequality does not affect inclusive economic growth. The open unemployment rate can strengthen the effect of government expenditure on education on inclusive economic growth. However, the open unemployment rate does not moderate the relationship between the democracy index and income inequality on inclusive economic growth. **Implications** – The study findings contribute to the scientific understanding of inclusive economic growth determinants in Indonesia, a moderate and low-income nation. This research can be a reference for the government in making policies and increasing justice in various fields, such as politics, social issues, and education.

Keywords: inclusive economic growth, democracy index, government expenditure on education, income inequality, open unemployment rate.

Introduction

As a growing nation, Indonesia works to improve the well-being of its citizens by fostering economic expansion. Economic growth is considered one of the metrics used to assess how well a nation is developing (Wasudewa et al. 2024). The prospective sustainability of economic growth and welfare improvement requires sustainable economic growth. The issue is that rapid economic expansion is insufficient to guarantee the advancement of people's well-being. Conversely, several concerns need to focus on reducing poverty, unemployment, and income inequality (Farida 2021). Inequality in the allocation of income continues to cause disparities in regional development, which can lead to circumstances that worsen poverty. Considering these circumstances, the degree of economic growth with inclusive development is the main objective of one economic development strategy Bado et al.



(2023) assert that inclusive growth creates equitable opportunity for economic participants as the economy grows. Inclusive growth can create a more secure and peaceful environment by guaranteeing economic growth benefits all communities.

Indonesian economic growth (y-o-y) tends to be influenced by government policies and external effects, both direct and indirect. Before the covid-19 pandemic, Indonesia's economy grew by around five percent (y-o-y). The Covid-19 pandemic, which Indonesia began to experience in early 2020, triggered a contraction in Indonesia's economic growth. In 2020, the Indonesian economy contracted 5.32 percent (y-o-y). The Indonesian economy began to grow positively (y-o-y) in 2021 and will continue to grow consistently above five percent until the end of 2022 (BPS 2024). As a result of increased efforts to achieve inclusive growth, Indonesia's poverty rate and Gini coefficient have improved. The nation's poverty rate increased to double digits during the pandemic, going from 9.41% in 2019 to 10.14% in 2021 before dropping back to 9.54% in 2022 (Trisi 2024). Similarly, unemployment has declined significantly before the pandemic, from 6.14% in 2012 to 5.18% in 2019. However, because of a labor market shock in 2020, it increased to 7.07%. In 2022, however, the rate dropped back to 5.86% due to several activity restrictions and sluggish economic demand (Verico and Qibthiyyah 2023).

Economic growth is inclusive and can reduce poverty and unemployment rates, create equity, and encourage accelerated economic growth. Due to the nation's unequal economic history and numerous social and economic disparities, inclusive economic growth is an important concern in Indonesia. Additionally, inclusive economic growth indicates economic progress to increase income, improve income distribution, and enhance job opportunities (Fitriady, Silvia, and Suriani 2022). There is a need for quality improvement that can result in beneficial changes for the country because the current state of the national economy is less cohesive and coordinated. This progress must accompany steady, inclusive economic growth to improve living standards and generate good jobs. To improve the welfare of the people, every country prioritizes inclusive economic development (Rini and Tambunan 2021). Inclusive economic growth focuses on benefiting all layers of society. Inclusive economic development has several important components to support this idea, such as robust democracy, a sustainable environment, adequate investment, and also the role of gender equality, which can enhance economic and social stability (Blotevogel et al. 2022).

The democracy index is the primary determinant of inclusive economic growth in Indonesia. Since the reform era, Indonesia has emerged as the world's third-largest democracy. Fadilla and Kusumastuti (2024) highlighted how Indonesia underwent a significant democratic shift, moving from centralized authority during the new order era to decentralization during the Reform era. In recently democratized emerging nations, demand typically rises, resulting in high levels of government spending (Fadilla and Kusumastuti 2024). As a result, the private sector is discouraged from accumulating capital, resulting in a poor economic growth rate for the nation (Jamil, Ananda, and Prasetyia 2022). Rich nations are primarily distinguished by well-established levels of democracy, as seen by advancements in political rights, civil liberties, and democratic institutions. On the other hand, developing nations tend to inherit low levels of democracy. Citizens can labor in a more democratic nation and invest in profitable private sector ventures and the market by allocating resources efficiently. Research by Acemoglu et al. (2019); Rezki (2022), found that democracy contributes significantly to local and national economies. On the other hand, in a study by Khodaverdian (2022); Sijabat (2024), democracy did not significantly affect economic growth.

In addition, education expenditure also has an impact on inclusive economic growth. Government spending on education is characterized by urgent challenges and crucial possibilities that have substantial implications for economic development (Gheraia et al. 2021). As countries confront the challenges posed by a swiftly changing global economy, the

distribution and efficacy of funds designated for education emerge as crucial factors influencing future success. High-quality education promotes human capital development, increases productivity, and stimulates creativity, which is crucial for long-term economic progress (Villela and Paredes 2022). The growth of human capital through education and training will aid in the economic development of a country. Increased labor productivity is another goal of government spending on education and training. Not least among these purposes is to support income redistribution and social welfare. Providing a budget for education will certainly impact on inclusive economic growth, indirectly affecting the quality of the human workforce. Research by Coman, Lupu, and Nuță (2023); Othman et al. (2024) claimed that government education spending impacts inclusive economic growth. On the other hand, according to Suwandaru, Alghamdi, and Nurwanto (2021); Abaneme and Aworinde (2025) economic growth is unaffected by public spending on education.

Income inequality is also Among the variables affecting inclusive economic growth. This study measured income inequality using the Gini ratio. Economic growth should consider the distribution of income among a country's citizens, per capita income, and growth rate (Amponsah, Agbola, and Mahmood 2023). High levels of income disparity among society will impede nations' economic progress. Since income inequality is a chronic issue, comprehensive and long-term policy is required to improve income distribution (Sari and Falianty 2021). Income inequality in Indonesia is not only between individuals but also between regions. The difference in spending will impact uneven development between regions, which can trigger inequality between regions. This can worsen social conditions, such as increased poverty and limited economic opportunities in remote areas, hindering national development. In the past 10 years, Indonesia's income inequality index has fluctuated, indicating that the government's policy in addressing inequality in Indonesia is inappropriate (Badriah and Istiqomah 2022). Study by Nina and Rustariyuni (2018); Azizah (2022) shows that income inequality significantly affects economic growth. Research by Yulianita, Ramadhan, and Mukhlis (2023); Purwanti (2024) found no significant effect between income inequality and economic growth.

This study was carried out because there are research gaps. After all, the findings of earlier studies differ and are inconsistent. Despite economic growth, poverty, unemployment, and inequality remain major issues in Indonesia. By drawing attention to this, the study demonstrates that achieving inclusive and sustainable development targets requires more than economic growth based only on national data. Previous research on unemployment rates as a moderate variable was conducted by Shikiar and Freudenberg (1982), but they did not discuss the factors that influence economic growth. Therefore, adding the unemployment rate as a moderating variable to the analytical model and the distinction between the estimates between Indonesian provinces constitute a novel aspect of this study. This study examines and evaluates the factors contributing to inclusive economic growth in 34 Indonesian provinces between 2019 and 2023 based on the distance between villages and cities. The literature on the relationships between democracy index, education expenditure, and income inequality is enhanced by this study. This study guides national and local policymakers on distinguishing between initiatives emphasizing community empowerment, education, investments, and policies prioritizing environmentally responsible and sustainable economic development to attain inclusive economic growth.

Literature review

Distributive justice theory

The allocation of fundamental goods, such as money and riches, rights and liberties, and powers and opportunities, is what justice primarily involves (Opoku and Acheampong 2023). The precept of justice is regarded as the fundamental tenet of Islamic economics. It is a



thorough foundation for its normative objectives of achieving socioeconomic justice, general human well-being, and practical principles (Marzuki 2025). Important characteristics of distributive justice in economics are represented by key elements of these normative aims: poverty eradication, needs fulfilment, equal opportunity, equitable income distribution, a decrease in severe inequality, and sustainable economic development. Dzulkepli and Barom (2021) emphasize that distributive justice entails ensuring that everyone has access to the necessities of life, distributing income fairly according to each person's involvement in the economy, and eradicating severe wealth and income disparity. Distributive justice is a key idea in justice theory that highlights the necessity of fairly distributing resources and advantages across people and groups in society (Jafino, Kwakkel, and Taebi 2021). Given the glaring economic, social, and political disparities in the modern world, distributive justice is becoming increasingly crucial. The concept of distributive justice states that all societal groups, irrespective of their social, economic, or ethnic backgrounds, should receive an equitable share of resources, advantages, and development outcomes (Maurya 2022).

Inclusive economic growth

Sustainable economic growth considers not just income growth but also the reduction of poverty and inequality in society, which is known as inclusive economic growth (Kamran et al. 2023). In line with Oktavia (2024), inclusive growth is accelerating economic growth by establishing equal investment conditions and increasing job possibilities. Economic growth is considered inclusive if it benefits the lower class by reducing unemployment, income inequality, and poverty (Fujimoto and Uddin 2022). Inclusive economic growth aims to reduce social inequality by increasing equal access and opportunities for everyone, reducing gaps between groups and regions, and improving welfare (Hidayat, Mulatsih, and Rindayati 2020). There are various ways to achieve inclusive growth, such as accelerating growth while ensuring equity, increasing the number of productive workers, enhancing product capacity, eliminating disparities, and ensuring equality. Inclusive economic growth plays a role in creating economic opportunities that are accessible to everyone (Pradhan et al. 2021). This approach takes a long-term perspective, ensuring sustainability and eliminating the gap between the rich and the poor. This approach hopes that everyone can contribute and benefit from economic growth. Economic development can be carried out sustainably and inclusively; economic development and growth must significantly contribute to poverty alleviation and equitable development efforts (Zahra and Ajija 2023).

Democracy index

Democracy is a form of government where essential decisions are directly or indirectly based on the agreement of most of the community following the terms and conditions set out in regulations. Democracy provides an institutional framework that facilitates the supremacy of law, free and competitive elections involving multiple political parties, accountability, civil and political rights, and the right to survive and prosper (Okolie et al. 2021). Democracy reflects economic freedom, including personal choice, voluntary exchange, competition, and protection (Malanski and Póvoa 2021). From another perspective, political democracy reflects economic democracy, wherein local socioeconomic institutions are influenced by the principles of democracy (Ahmed and Trabelsi 2022). Empirical studies have long shown a link between political conditions, economic development, and democratization, the stronger democracy in a nation, and the fewer political risks, the better economic growth. The principles of democracy are reflected, for example, in responsive and accountable leadership and strong and sustained growth. As such, democracy facilitates states' efforts to navigate external and internal challenges (Sijabat 2024).



Government expenditure on education

Education is considered the top priority in budget allocation, with the fulfilment of basic educational needs as the focus. One of the government's efforts to implement programs to improve education is through the budget. The budget can be defined as a plan for income and expenditure over one year (Dudzevičiūtė, Šimelytė, and Liučvaitienė 2018). Budget absorption has become an interesting subject of discussion. Since the funds allotted cannot be used, failure to meet budget absorption targets can result in a loss of spending benefits. To achieve optimal budget absorption, all factors influencing budget planning, regulations, and coordination must be considered (Kuntadi and Rosdiana 2022). Through the provision of cultural, athletic, and research services and educational services to students at all levels, including primary, secondary, postsecondary, and vocational training. Public spending on education aims to develop intellectual, physical, and moral skills (Kousar et al. 2023). Education has long been seen to impact on how an economic nation develops significantly. In this way, education can influence the economy directly or indirectly (Goczek, Witkowska, and Witkowski 2021). Education has been seen as a means of increasing human capital, its indirect economic benefits and the potential for qualified individuals to provide financial returns (Suwandaru, Alghamdi, and Nurwanto 2021).

Income inequality

The most commonly used equality parameter is the Gini ratio, which indicates the level of disparity in individual income distribution (Suratman, Mayudi, and Hayet 2022). The uneven allocation of income in a community is known as income inequality, which affects social welfare, economic development and sociopolitical stability. Inequality is exacerbated by globalization and technological automation, which favor highly skilled workers (Rahman et al. 2023). Inequality increases in the early stages of industrialization due to labor migration to urban sectors. However, it decreases in later stages due to income retribution, inclusive policies, and equitable access to education. To address inequality, retributive policies such as progressive taxation are needed to create a more inclusive system (Raji et al. 2024). How evenly or unevenly income is distributed is indicated by income distribution. People whose expenses were previously above the poverty line may now fall below them because of a rise in income inequality brought on by a decline in worker income levels (Sullivan and Hickel 2023). Income disparity between provinces influences the percentage of people living in poverty in each Indonesian region (Marquez, Gunawan, and Mendez 2022). Perfect inequality is represented by one value, whereas perfect equity is represented by zero; the Gini ratio value indicates the general degree of inequality (Weber 2024).

Open unemployment rate

Low aggregate demand causes unemployment and slows economic growth (Padang and Murtala 2020). The primary cause is a drop in consumption rather than a loss in production. In this situation, a rise in the labor force may result in lower wages, lowering people's ability to purchase things. Open unemployment is the high percentage of poverty in Indonesia, which is mainly caused by. In this context, unemployed individuals lose access to vital income sources to meet their daily needs (Prayitno and Kusumawardani 2022). Over the past ten years, it has been proven that the development undertaken by the current workforce in emerging nations has not been able to find employment possibilities. This is because the growth of the labor force in developing countries is faster than in job opportunities. People who are actively seeking employment, those who are getting ready to start a new business or job, those who are not seeking employment because they believe it is impossible to find one, and a group of those who are not actively seeking employment because they already have a profession but have not begun working make up the unemployment rate, as stated by the



Central Statistics Agency (2022). Open unemployment is when the number of available jobs is less than the growth of the workforce (Hall and Kudlyak 2022). A high unemployment rate can negatively impact the level of prosperity and well-being of society. Economic growth increases if the unemployment rate is low (Frisnoiry et al. 2024).

Hypothesis development

Democratic institutions serve as a measure of the success of economic growth because these institutions can channel the community's aspirations to local and central governments. The statistical condition of Indonesia's economic growth and democracy index. Democracy plays a significant role in shaping development and increasing per-capita income. When government leaders are reelected every four years, funds that should be used for the public good are allocated to cover the cost of elections. The quality of democracy will impact the economic growth of a country (Goczek, Witkowska, and Witkowski 2021). As a system of government, democracy has a great potential to promote inclusive economic growth because it encourages transparency and accountability in government actions (Kwilinski, Lyulyov, and Pimonenko 2023). According to distributive justice theory, democracy has great potential to promote inclusive economic growth because it encourages transparency and accountability in government actions. The government usually oversees public spending and economic policies in a democratic system. Democracy affects inclusive economic growth; policies that support democracy will impact the economy, indirectly affecting inclusive economic growth as well. Research by Acemoglu et al. (2019); Rezki (2022) found that democracy is important to economic growth. Based on the previous explanation, the following:

H₁: democracy index has a positive effect on inclusive economic growth.

The government's budget for education is essential for achieving inclusive economic growth. Economic growth is positively correlated with government spending in the field of education. According to distributive justice theory, investment in education spending is crucial for economic growth towards a more inclusive direction. In the long term, investment in education spending is crucial for economic growth towards a more inclusive direction. Since education is part of the state's public service to the community, the government is aware of the importance of education as a primary step towards advancing more inclusive economic growth. Education is critical in determining a country's ability to assimilate contemporary technologies and cultivate the ability to attain sustainable development and growth (Raihan et al. 2024). Knowledge advancements and the ongoing development of competencies and skills are more important for enhancing social welfare than capital and land and investing in education to raise worker skill levels will boost productivity and yield favorable returns. A study by Coman, Lupu, and Nuță (2023); Othman et al. (2024), found that government spending on education significantly boosts economic expansion. Based on the previous explanation, the following: Based on the previous explanation, the following:

H₂: government expenditure on education has a positive effect on inclusive economic growth.

In Indonesia, the disparity between developed and impoverished areas is another issue. The developed and underdeveloped provinces differ significantly in terms of household spending. Inequality can impede the advancement of marginalized groups and bolster the power of already affluent groups. This situation can worsen differences between groups of individuals and lead to social and economic inequities. The Gini ratio is one metric used to assess the general degree of income inequality in a specific region (Charles, Gherman, and Paliza 2022). If the Gini index increases, the difference between people with high and low incomes will also increase. People with high incomes feel more prosperous, and those with low incomes are marginalized. According to distributive justice theory, high inequality can lead to uneven resource allocation, restricted access to economic opportunities, and disparities in access to basic services. High inequality can lead to uneven resource allocation,



restricted access to economic opportunities, and disparities in access to basic services. Conversely, efforts to reduce inequality can encourage equitable economic growth by ensuring that the advantages of economic expansion are dispersed more fairly throughout the community. According to research by Nina and Rustariyuni (2018); Azizah (2022), income inequality significant effect on economic growth. Based on the previous explanation, the following:

H3: income inequality has a positive effect on inclusive economic growth.

Unemployment remains comparatively high, particularly for young people and in underdeveloped areas. Because high unemployment reduces people's spending power and affects the decline in demand for products and services, it could hinder inclusive economic progress. The high number of unemployed individuals is a labor issue in developing Indonesia. The number of job-lookers or the workforce that does not match the available job opportunities will lead to unemployment. If economic growth does not coincide with a rise in employment opportunities and equitable distribution of additional income, it will cause an imbalance, resulting in poverty rising alongside economic growth. In realizing inclusive development by reducing poverty levels, all parties must contribute, with one of the main strategies for inclusive development being the creation of profitable and productive jobs and an adequate social safety net to protect those who cannot work or receive significantly few benefits from development and obtaining adequate public policy support. According to distributive justice theory, in realizing inclusive development by reducing poverty levels, all parties must contribute, with one of the main strategies for inclusive development being the creation of profitable and productive jobs, providing a strong and effective social net to protect those who cannot work or receive significantly few benefits from development, and obtaining adequate public policy support. Research by Podi, Zulfanetti, and Nurhayani (2020); Amalia, Laut, and Ratnasari (2023) showed that the open unemployment rate affects economic growth. Based on the previous explanation, the following:

H4: open unemployment rate has a negative effect on inclusive economic growth.

The Indonesian democracy index is a tool used to measure the political system and democratic status of Indonesia. Improving democratic performance is expected to maintain Indonesia's political stability and promote more inclusive economic growth, positively influencing society's general well-being. The open unemployment rate in Indonesia has continued to decline over the past seven years, standing at 5%. However, this value is still considered greater compared to the decrease in the unemployment rate in contrast to the actual rise in the working-age population. This raises doubts that labor absorption in Indonesia is not yet optimal. Economic growth should maximize existing economic potential by ensuring equal participation of the workforce and the concept of inclusive economic growth, which requires equal opportunities among ethnicities, regions, and genders (Xu, Asiedu, and Effah 2023). According to distributive justice theory, economic growth should maximize existing economic potential by ensuring equal participation of the workforce and the concept of inclusive economic growth, which requires equal opportunities among ethnicities, regions, and genders. Based on the previous explanation, the following:

H5: open unemployment rate can moderate effect of democracy index on inclusive economic growth.

The quality of human capital is greatly influenced by the amount of money the government spends on education. Education is a crucial human capital that enhances individual quality, which can drive regional economic growth. Based on distributive justice theory, the budget allocated for education increasingly indicates the quality of education. The budget allocated for education increasingly indicates the quality of education. Education affects the quality or effectiveness of the workplace (Fadda et al. 2022). The limitations of the government expenditure budget determine the government's provision of everything related



to the field of education. This will also be influenced by the aggregate demand from the community for education; the higher someone's education, the higher their ability and opportunity to work (Shavkidinova, Suyunova, and Kholdarova 2023). Furthermore, education will impact graduates who are looking for jobs. If the education pursued is fulfilled, it will become easier to find employment, resulting in the open unemployment rate declining, thereby influencing inclusive economic growth. Based on the previous explanation, the following:

H₆: open unemployment rate can moderate the effect of government expenditure on education on inclusive economic growth.

Growth, inequality, and open unemployment rate are both positively correlated. In low-income countries, the best way to reduce poverty is by redistributing wealth to accelerate economic growth and reduce inequality. The Gini index measures aggregate inequality ranging from zero to one, indicating perfect inequality or what is commonly referred to as perfect disparity (Charles, Gherman, and Paliza 2022). One of the efforts to achieve the current government's success is inclusive national economic growth (Kwilinski, Lyulyov, and Pimonenko 2023). According to distributive justice theory, economic growth expands economic opportunities and guarantees that all societal levels may use them. Growth increases economic opportunities and ensures that all layers of society can utilize all these opportunities (Hariram et al. 2023). Creating equitable opportunities and good jobs is referred to as this growth so that all layers of society can share in the growth and jobs. Based on the previous explanation, the following:

H₇: open unemployment rate can moderate the effect of income inequality on inclusive economic growth.

Based on the development of the hypothesis, the research model can be described as shown in Figure 1.

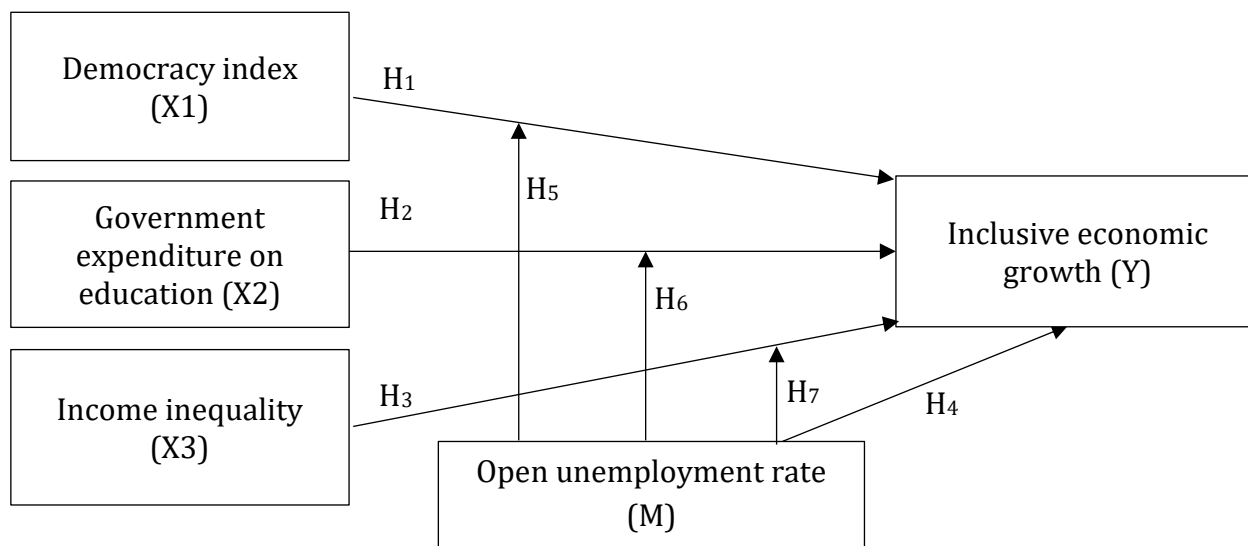


Figure 1 research model

Method

This research focuses on provinces in Indonesia between 2019 and 2023, evaluating the elements affecting inclusive economic growth. This study employs quantitative methods using panel data regression. Quantitative research tests theories by examining relationships between variables measured through research instruments and analyzed using numerical data (Creswell and Creswell 2018). Secondary data from 33 provinces in Indonesia serve as the primary data source of the study, and there are 165 observations from province-year combinations. The Statistics Indonesia website is the source of all data (www.bps.go.id). Each



variable has a uniform number of provinces and years, so the panel is balanced. Testing the panel data regression model choice is the initial stage in the data analysis process to decide whether to utilize the common effect, fixed effect, or random effect models (Afandi, Rantung, and Marshdeh 2017).

The most straightforward panel data model technique is the common effect model (CEM), which integrates cross-sectional and time series data. Because this approach neglects individual dimensions and time, Firm data is thought to behave consistently throughout time. Estimating the data model panel using either the least squares technique or the ordinary least squares (OLS) approach is possible. The common effect model combines cross-sectional and time series data to create pooled data. This combination produces more reliable results than multiple regression or simple regression testing. The common effect model is as follows:

$$Y_t = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \dots + \beta_n X_{nit} + \varepsilon_{it} \dots \dots \dots (1)$$

A fixed effect model (FEM) is one in which the slope of each problem remains constant throughout time, but each subject's intercept (cross-section) varies. This model assumes that each subject's pitch stays constant while their intercept varies. A dummy variable is employed to differentiate between subjects. This model is frequently called the least squares dummy variables model (LSDV). The fixed effect model also incorporates dummy variables into panel data estimation to account for interception differences. The regression slope coefficient is assumed to be constant in this model over time and across various units (Widarjono 2018). The following is a representation of the fixed effect model:

$$Y_t = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta D_{13i} + \beta_5 D_{23i} + \beta_6 D_{33i} + \beta_n D_{nmi} + \varepsilon_{it} \dots \dots \dots (2)$$

According to the residual form, the random effect model (REM) is triggered by changes in the value and path of the relationship between subjects presumed to be random. This model is used to estimate panel data when the residual variable is expected to have a relationship between both time and subjects. An issue with FEM is the usage of fake variables, which REM fixes. The mistakes that could arise from modifications throughout time and between individuals are considered by this method. The REM generates two residual components based on the assumption that each person's intercepts are unique (Gam, Oanh, and Dang 2023). The following is a representation of the random effect model:

$$Y_t = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \dots + \beta_n X_{nit} + \varepsilon_{it} \dots \dots \dots (3)$$

With,

- Y : Inclusive economic growth
- X1 : Democracy index
- X2 : Government expenditure on education
- X3 : Income inequality
- ε_{it} : error

The Hausman and Chow tests are used to choose between common, fixed, and random effect models. To ascertain which model is more appropriate to be utilized, the fixed effect model (FEM) or random effect model (REM), the Hausman test is employed. The FEM is recommended if the Hausman statistics are higher than the critical value. The REM is considered more appropriate if it is less than critical. On the other hand, the common effect (CE) and fixed effect models are compared using the Chow test. The CE model is believed to be less appropriate than the fixed effect model if the null hypothesis (H_0) is disproved.

Table 1 operational variables

Variables	Formulations	References	Scale
Democracy index	IDI = Civil liberties score + political rights score + democratic institutions score / 3	Sijabat (2024)	Ratio

Variables	Formulations	References	Scale
Government expenditure on education	$GEE = \frac{Total\ education\ exp}{Total\ govt\ exp} \times 100$	Suwandaru, Alghamdi, and Nurwanto (2021)	Ratio
Income inequality	$GINI = 1 - 2 \int_0^1 L(X)dX$	Amponsah, Agbola, and Mahmood (2023)	Ratio
Open unemployment rate	$OUT = \frac{Unemployed}{Labour\ force} \times 100$	Najiba (2023)	Ratio
Inclusive economic growth	$IEG = \frac{PDBt + PDBt-1}{PDBt-1}$	Verico and Qibthiyyah (2023)	Ratio

Results and discussion

Descriptive statistics analysis

Descriptive analysis is used to see an overall picture of the data. This study uses statistical analysis by looking at the values in Table 2.

Table 2 descriptive statistics results

	IEG	IDI	GEE	GINI	OUT
Mean	5.783091	0.352861	3.168767	0.353067	5.245818
Maximum	7.930000	0.440000	21.77883	0.550000	10.95000
Minimum	0.220000	0.247000	1.070530	0.236000	1.480000
Std. dev.	0.660026	0.037544	3.820868	0.037516	1.817847
Observations	165	165	165	165	165

Source: secondary data (processed, 2025)

The degree of development achievement in a region can be demonstrated by its inclusive economic growth. Table 2 presents descriptive data. DKI Jakarta province has the fastest inclusive economic growth in Indonesia from 2019 to 2023, with an average satisfaction rating of 5.783 percent. Jakarta maintains a favorable employment system that absorbs labor and lowers poverty levels. Papua province, on the other hand, has the slowest rate of inclusive economic growth. The current level of democracy in Indonesia is moderate, according to the democracy index. The degree of democracy was lowest in West Sumatra. The demanding situations in these two regions explain the differences in democratic levels of free speech; in contrast, DKI Jakarta had the highest level of democracy. During this period, programs were put in place by the Indonesian government to raise the standard of job training and education. However, the workers' capabilities and the labor market's demands are still not aligned. Even though economic growth has increased, it has not been maximized. This situation results from the improper growth of numerous economic sectors and the persistence of regional development disparities in Indonesia. The Gini coefficient is used to calculate the distribution of income inequality among Indonesian provinces. The Indonesian regions with the most significant income inequality are Java, Sulawesi, Papua, and Kalimantan. In contrast, the provinces such as Bali and West Nusa Tenggara have lower levels of income inequality. The highest rates of unemployment are found in the Sumatra and Java provinces. On the other hand, unemployment rates are typically lower in Sulawesi.

A panel data test called the Chow test is used to identify the optimal model. The optimal estimation is the fixed effect model if the prob value is less than 0.05 and the common effect model if the prob score is greater than 0.05. Table 3 indicates that the cross-section Chi-square probability value is 0.0000. Based on the testing criteria, it is better to use fixed effects because it has a prob value of 0.0000, less than 0.05. Next, it is followed by the Hausman test.



Table 3 the Chow-test results

Effects test	Statistic	d.f	Prob.
Cross-section F	26.289757	(32.128)	0.0000
Cross-section Chi-square	639.809055	32	0.0000

Source: secondary data (processed, 2025)

The Hausman test is a panel data test used to identify the best random effect or fixed effect model. The model is considered acceptable if the random probability cross-section value of fixed effect models is less than 5% (0.05). To accept the random effect model, the random probability cross-section value must be higher than 5% (0.05). Table 4 shows that $0.0069 < 0.05$ is a probability value less than 0.05, suggesting that the fixed effect model is applied.

Table 4 Hausman-test results

Test summary	Chi-sq. statistic	Chi-sq. d.f	Prob.
Cross-section random	14.114423	4	0.0069

Source: secondary data (processed, 2025)

The impact of the exogenous variable on the endogenous variable is significant when the probability value is $\text{sig} < 0.05$. Conversely, exogenous variables do not affect endogenous variables if the probability value is $\text{sig} > 0.05$.

Table 5 estimation of panel data regression results

Variables	Coefficient	Std. error	t-Statistic	Prob.
C	4.424052	1.588237	2.785511	0.0060
IDI	-1.702388	0.766461	-2.221093	0.0277
GEE	5.533008	1.610108	3.423630	0.0008
GINI	-0.491924	2.477443	-0.198561	0.8429
OUT	-0.811170	0.023189	-3.498150	0.0006

Source: secondary data (processed, 2025)

Based on Table 5, the constant (α) is a positive value (4.424052); if the democracy index, government expenditure on education, income inequality and open unemployment rate are 0 per cent or unchanged, then the inclusive economic growth is 4.424052. The probability value of the democracy index (IDI) is $0.0277 < 0.05$, and the coefficient is -1.702388, so H_1 is rejected, and it is stated that the democracy index has a negative and significant effect on Indonesia's inclusive economic development. Similarly, the government expenditure on education (GEE) obtained a probability value of $0.0008 < 0.05$, and the coefficient is 5.533008, so H_2 is accepted, and it is stated that government expenditure on education has a positive and significant effect on Indonesia's inclusive economic growth. In contrast, income inequality (GINI), with a probability of $0.8429 > 0.05$, means that H_3 is rejected, and it is stated that income inequality does not influence Indonesia's inclusive economic growth. However, the open unemployment rate (OUT) obtained a probability value of $0.0006 < 0.05$, and the coefficient is -0.811170, so H_4 is accepted, and it is stated that the open unemployment rate has a negative and significant effect on Indonesia's inclusive economic growth.

To determine whether open unemployment rate can moderate the independent variables, an MRA test must be conducted. The results of the MRA test are as follows Table 6. Considering the outcomes of the moderation test in Table 6, the open unemployment rate cannot moderate the relationship between the democracy index and inclusive economic growth with a probability value of $0.1287 > 0.05$, so H_5 is rejected. In contrast, an open unemployment rate can strengthen the effect of government expenditure on education on inclusive economic growth with a probability value of $0.0024 < 0.05$, so H_6 is accepted.



Meanwhile, open unemployment rates cannot moderate the relationship between income inequality and inclusive economic growth with a probability of $0.4904 > 0.05$, so H_7 is rejected.

Table 6 MRA test results

Variables	Coefficient	Std. error	t-statistic	Prob.
C	6.256852	0.157665	39.68446	0.0000
IDI*OUT	-0600478	0.393180	-1.527232	0.1287
GEE*OUT	6.780190	2.205409	3.085132	0.0024
GINI*OUT	0.271647	0.392962	0.691280	0.4904

Source: secondary data (processed, 2025)

The influence of democracy index on inclusive economic growth

Based on the data analysis results, the democracy index has a negative and significant effect on inclusive economic growth in Indonesia. It indicates that although economic growth in Indonesia increases, the quality of democracy will decrease because elections in Indonesia are frequently marked by money politics, which involves swaying voters through finances. Economic conditions and high poverty rates influence money politics. In addition, formal democracy does not produce inclusive policies. Freedom is not balanced with stability, causing uncertainty for the economy: high participation but uneven results because procedural democracy has not touched the essence of the people's economy (Ali and Hernández 2024). The existence of political conflict and tension after democratization hampers investment and growth.

The results are consistent with distributive justice theory; when government leaders are reelected every four years, funds that should be used for public goods are allocated to cover the cost of elections. Improving the quality of the democracy index will directly affect the improvement of Indonesia's economy. A well-functioning democracy must be supported by a high level of political stability so that economic growth in Indonesia continues to increase. Democracy promotes growth by lowering income inequality and boosting the accumulation of human capital, both impacting inclusive, sustainable economic growth (Kabir and Alam 2021). Therefore, improving the performance of democratic institutions is expected to maintain political stability in Indonesia. In turn, it promotes more inclusive economic growth for the general welfare of society.

The results of this research are consistent with the study by Acemoglu et al. (2019); Rezki (2022) ; democracy has a significant adverse effect on inclusive economic growth but a negative effect on poorer economies. These findings have profound implications for policy formulation, political stability, and the direction of national development. Procedural democracy enhancement (e.g. elections, press freedom) has not guaranteed a fair distribution of development outcomes. The government needs to change the approach to democracy from procedural to substantial by ensuring meaningful participation and policies that favor vulnerable groups. Democracy is only "skin" without "content" if it is not followed by economic equality. Democracy and an inclusive economy should not be separated as two separate agendas. Democracy must be a tool to fight for economic justice. Policy design is needed that integrates citizen participation and evaluation of the economic impact of each political policy.

The influence of government expenditure on education on inclusive economic growth

Based on the results of the analysis, it was found that government expenditure on education has a positive effect on Indonesia's inclusive economic growth. This result indicates that the wider community can better feel the benefits of government spending on education and economic functions, focused on infrastructure and education development, whose



usefulness can be enjoyed directly or in the long term by the wider community. Education is central to creating quality human resources and reducing socioeconomic disparities. Government spending on education is key to creating an economy that grows and grows for everyone; that is the essence of inclusive economic growth (Liu et al. 2023). The results are consistent with distributive justice theory; Indonesia spends a moderate amount on public education, influencing economic growth. Investments in education have increased dramatically during the last 10 years, especially in the fields of physical infrastructure and technology. These changes also impacted on the education sector, which has a significant socioeconomic impact. The more equally allocated funds for education, the more inclusive economic growth will continue to increase, and inequality will decrease.

When inclusive economic growth value grows positively and is not followed by growth from the realization of education spending, it will affect economic growth. Through government policies via compulsory education programs, society will meet the bare necessities for educational access. This study is consistent with the research carried out by Coman, Lupu, and Nuță (2023); Othman et al. (2024) claimed that inclusive economic growth was impacted by government spending on education. These findings suggest that government spending in the education sector is a good investment for the future and long term. Education spending is about building schools and the nation's future. The implications are economic growth, social justice, national stability, and global competitiveness. Education is the primary foundation for ensuring that economic growth is truly inclusive; everyone can enjoy it.

The influence of income inequality on inclusive economic growth

Based on the data analysis results, income inequality did not influence inclusive economic growth in Indonesia. This is because various government policies over the past few years, through social assistance programs targeting poor households, have successfully reduced inequality over the past few years, so the existing inequality does not significantly affect inclusive economic growth in Indonesia. Several elements, such as geographical accessibility, the degree of infrastructural development, and the unemployment rate, might contribute to this scenario. The outcomes align with distributive justice theory; economic inequality can limit individuals or groups' access to the resources and opportunities needed to increase productivity and prosperity. People from disadvantaged backgrounds usually lack access to resources, including money, education, and skills. Their capacity to increase productivity, develop new skills, and generate jobs that can boost the economy may be hampered by this circumstance (Hernita et al. 2021). People negatively impacted by economic inequality in an unfair society may grow dissatisfied and push for political or social changes that could destabilize the economy.

Inequality reduction initiatives can encourage inclusive economic growth by ensuring that economic expansion's advantages are dispersed more fairly throughout society. On the other hand, high levels of inequality result in unequal distribution of resources, restricted access to business possibilities, and differences in the availability of essential services. The results of this research are consistent with previous studies by Yulianita, Ramadhan, and Mukhlis (2023); Purwanti (2024) found no significant effect between income inequality and economic growth. Suppose income inequality does not affect inclusive economic growth. In that case, government policy should shift from the distribution of economic outcomes to increasing access to economic opportunities, from fairness of outcomes to fairness of processes. However, it is important to note that in the long run, extreme inequality still risks hampering sustainable development and creating social conflict, even if economic growth appears normal.



The influence of the open unemployment rate on inclusive economic growth

Based on the data analysis results, the open unemployment rate has a negative and significant effect on Indonesia's inclusive economic growth. This indicates that the higher the open unemployment rate, the more difficult it is to achieve equitable and just economic growth. High open unemployment rates undermine the foundation of inclusive economic growth because they reduce productive community participation, reduce welfare and equity, and increase inequality and social pressure. In other words, an economy cannot be inclusive if many unemployed people do not benefit directly from growth. The findings support the distributive justice theory, which holds that slower economic growth might be caused by lower overall productivity because of unemployment. The increase in open-minded unemployment, mainly because of the large number of jobless people, raises the poverty rate, which in turn causes a decline in per capita income. The rising rate of poverty hampers inclusive economic progress (Ferreira, Salvucci, and Tarp 2023). The government must promote fair economic growth to reduce poverty and unemployment and quicken economic development.

Unemployment may reduce people's purchasing power, slow economic growth and influence the demand for goods and services. Slower economic growth can result from unemployment since it lowers total productivity. The government and society bear a greater social burden when there is unemployment. Due to the difficulty in finding employment, people will feel under strain, and the government will have to spend more on social assistance and job training. Unemployed people are typically excluded and vulnerable; unemployment can worsen social and economic inequality. The results of this research are consistent with previous studies by Podi, Zulfanetti, and Nurhayani (2020); Amalia, Laut, and Ratnasari (2023) state that an open unemployment rate negatively affects economic growth. High open unemployment rates hamper inclusive economic growth, thus having strategic implications such as the need for the labor market and education reform, a focus on equitable regional development, the importance of quality employment as a foundation for inclusivity, and the need for a paradigm shift from merely pursuing growth to inclusive and equitable growth.

The influence of democracy index on inclusive economic growth moderated by open unemployment rate

Based on the data analysis results, the open unemployment rate cannot moderate the effect of the democracy index on inclusive economic growth. This indicates that the level of democracy still impacts inclusive economic growth, regardless of the high or low level of open-minded unemployment. This shows that the influence of democracy on inclusive growth is direct and independent of unemployment conditions. This occurs because democracy affects inclusiveness through public policy channels, not the direct labor market. The influence of democracy remains strong even though unemployment is high because it works through justice of access and distribution (Honneth 2023). The level of open unemployment and democracy work in different dimensions, so their interaction is not significant. From the perspective of distributive justice theory, the failure of open unemployment as a moderator in the relationship between democracy and inclusive economic growth shows that democracy in Indonesia has not thoroughly carried out its justice function in the distribution of economic opportunities and outcomes. The unemployed group has not become the center of attention in inclusive policymaking. A shift from procedural democracy to substantive and distributive democracy is needed to create inclusive and fair economic growth (Trantidis 2024). These findings have implications that criticism and expansion of democratic theory are needed to include aspects of the distribution of economic justice. Then democracy alone is not enough; an active policy is needed to reduce unemployment and encourage economic inclusion. Inclusive economic planning must involve job creation as the leading indicator of success.



The influence of government expenditure on education on inclusive economic growth moderated by open unemployment rate

Based on the data analysis results, the open unemployment rate strengthens the effect of the government expenditure on education on inclusive economic growth. This indicates that the higher the unemployment rate, the greater the role of education spending in driving inclusive economic growth. This is because the open-employment rate creates a real need for training and re-education of the workforce. Education becomes the main channel for improving access to the labor market. Education spending has a greater impact when the beneficiary group is large and vulnerable (Salti et al. 2022). The government tends to be more aggressive in spending education funds when unemployment is high. Theoretically, this interaction aligns with the principles of equal opportunity and human-based development. Distributive justice theory sees unemployment as a sign that the system has failed to distribute opportunities fairly. Education is the primary mechanism for equalizing opportunities between individuals. When the state increases education spending when unemployment is high, it aligns with the principle of distributive justice: directing resources to the most disadvantaged groups (Nae, Florescu, and Bălăsoiu 2024). The goal of distributive justice is growth that involves all levels of society. This finding shows that education is an increasingly effective policy instrument when directed at groups of people affected by unemployment. This emphasizes the importance of allocating education budgets responsive to employment conditions and the need for an integrative policy approach between the education sector and the labor market. The social implications are that inclusive education policies can strengthen democratic legitimacy and reduce inequality in the long term.

The influence of income inequality on inclusive economic growth moderated by open unemployment rate

Based on the data analysis results, the open unemployment rate cannot moderate the effect of income inequality on inclusive economic growth. This indicates that income inequality directly affects inclusive economic growth without being affected by the open unemployment rate. Unemployment and inequality run on relatively separate paths and do not reinforce each other. The labor market has not functioned effectively as a mechanism for income redistribution. Inequality factors are more influenced by aspects outside of unemployment, such as asset ownership and economic structure. Current redistributive policies have not effectively linked to the issues of unemployment and inequality (Rosset, Poltier, and Pontusson 2025). Distributive justice theory views income inequality as a fundamental problem that requires direct intervention and cannot be resolved simply by improving the unemployment rate. Policies to reduce inequality must go beyond focusing on unemployment and adopt a broader redistributive approach. This finding implies that the government needs to develop redistributive policies that explicitly reduce income inequality, for example, through progressive taxation, social assistance, and economic empowerment programs, regardless of unemployment conditions. Policies that combine unemployment alleviation with efforts to redistribute wealth and access to economic resources are needed (Güven 2024). The state must strengthen the mechanism for distributing wealth and opportunities so that the most disadvantaged groups can genuinely enjoy economic development results. The problems of inequality and unemployment must be addressed separately but simultaneously with an integrated strategy, covering education, health, access to capital, and social protection so that inclusive economic growth can be achieved comprehensively.



Conclusions

The conclusion of the investigation, assisted by data analysis and discussion, states that the democracy index and the open unemployment rate have a negative effect on inclusive economic growth. However, the government expenditure on education has a positive effect on inclusive economic growth. In contrast, income inequality does not affect inclusive economic growth. An open unemployment rate can strengthen the relationship between government expenditure on education and inclusive economic growth. The open unemployment rate cannot moderate the relationship between the democracy index and income inequality and inclusive economic growth in Indonesia from 2019 to 2023.

This study can complement existing theories and be a reference for further study. This research has the potential to help the relevant government enhance justice in various areas, including education, politics, and social issues. Practically, this research can use the elements driving inclusive economic growth to maximize it. This study adds to the practical focus on the significance of inclusive economic growth. To enhance inclusive economic growth, these findings indicate that governments should encourage inclusive growth that helps lower-income groups. Education spending should keep increasing, and social safety nets should be better targeted to ensure the most vulnerable have access to these resources.

The research limitations include the limited number of variables and the sample from 2019 to 2023. It suggests that future studies incorporate more years into the analysis and pertinent extra variables so that the research results can more accurately and better reflect the conditions and benefit the relevant institutions. Future research should explore these variations at the regency/city level. This will provide insights into the local context that affects the relationship between variables being studied, such as comparing provinces with low investment levels to those with high investment levels to observe the extent of regional inequality. In addition, moderating variables that can be used besides the unemployment rate, which can have an impact, such as gender equality, inflation, and access to technology, can provide a different perspective on other factors contributing to economic growth in Indonesia.

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