Factors Affecting Income Inequality in Indonesia

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ABSTRACT

In comparison to other Southeast Asian countries, Indonesia's income is growing rapidly. The four richest Indonesians now surpasses that of 100 million of their poorest citizens. In terms of income inequality, Indonesia is now ranked sixth in the world. Therefore, the purposes of this study is to investigate factors affecting income inequality in Indonesia from 1994 to 2023 using time series regression analysis with OLS method. Foreign direct investment (FDI) inflows, population growth, and corruption are major factors leads income inequality while unemployment rate is not significant and school enrollment tertiary have multicollinearity problem. The findings show that foreign direct investment (FDI) inflows, population growth, and corruption have a positive and significant relationship between income inequality. In order to address income inequality, foreign direct investment (FDI) inflows, population growth, and corruption should be controlled.

Keywords: Income Inequality, Gini Coefficient (GINI), Foreign Direct Investment (FDI), Population growth rate, Corruption, Unemployment, School enrollment tertiary.

Research Background

According to Kopp (2024), the unequal distribution of income across a population is referred to as income inequality. As the distribution becomes less equitable, the income gap widens. Therefore, income inequality often coexists with income disparity. The Gini coefficient is used to measure income inequality. This is based on comparing the population's cumulative proportions to their cumulative income proportions. In a perfect equality scenario, every member of the population receives the same amount of money; in a perfect inequality scenario, however, all revenue goes to the highest-earning individual (OECD, 2025).
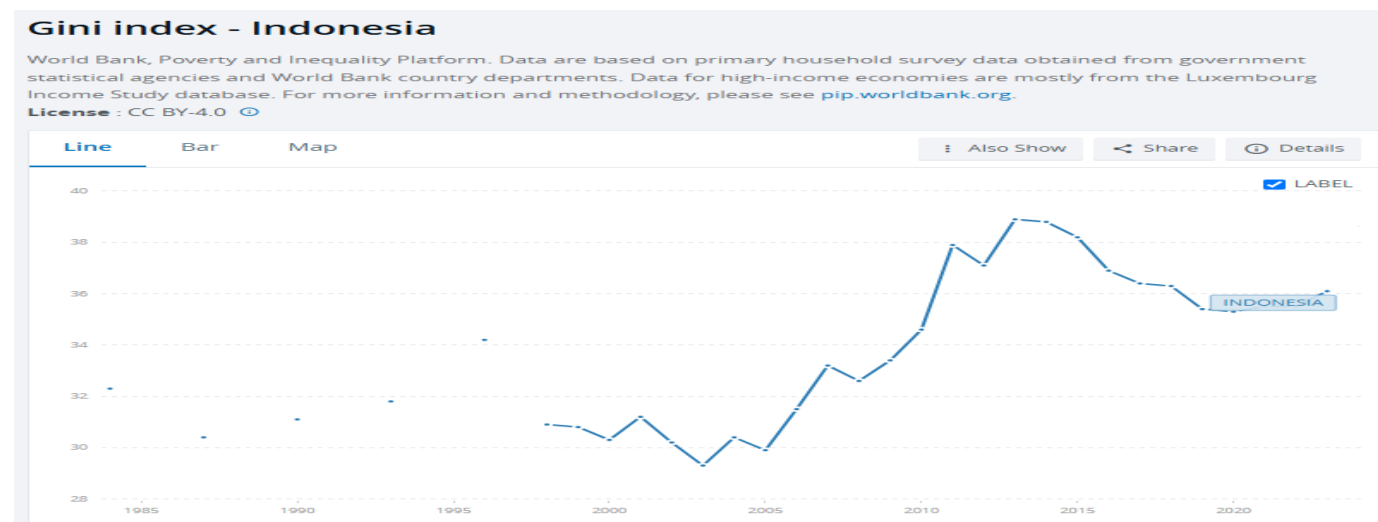
Source: World Bank Group. (2025). Gini index - Indonesia.

Over the past 20 years, the gap between the wealthiest and the rest of Indonesia has widened faster than in any other Southeast Asian country. It now ranks sixth globally in terms of income disparity. Today, the combined wealth of Indonesia's four richest people exceeds that of the country's 100 million poorest people (Oxfam, 2022). As income inequality grows, it hinders the drive to reduce inequality, as people gradually lose confidence in the state, jeopardizing social cohesion, which also hinders economic development. The poorest people, especially women, are paid little and facing job instability. In terms of infrastructure, such as good roads and electricity, rural areas are not as well developed as urban areas. Large corporations and rich people occupy most of the land and enjoy all the advantages. Similarly, many Indonesian workers are unable to access higher-skilled, higher-paying jobs due to an underfunded education system and barriers to equitable access.

According to data from the Indonesia Deposit Insurance Corporation in 2023, there are 554 million bank accounts in Indonesia with total assets of Rp 8.24 trillion which around USD 527.36 billion. However, 98.8% of the accounts have deposits of less than Rp 100 million each, accounting for only 12.3% of all deposits in the banking industry. Meanwhile, 135,000 accounts have deposits of more than Rp 5 billion, with total assets of Rp 4.6 trillion, accounting for 53% of all bank deposits (The Jakarta Post, 2024).

One of the reasons for this phenomenon is the uneven distribution of foreign direct investment (FDI), which is mainly concentrated in capital-intensive industries and metropolitan areas. Regions outside of Java drew 235.9 trillion rupiah (US$14.3 billion) of the 465.2 trillion rupiah (US$28.2 billion) in overall investment which is both domestic and foreign (Medina, 2025). This change is a result of increased investor interest in areas with abundant nickel and other industrial mineral deposits, such as North Maluku and Central Sulawesi. However, this will lead to economic stagnation in the rest of Indonesia. Similarly, population growth will increase pressure on limited resources, leading to slower economic development and higher poverty rates.

According to Transparency International (2023), Indonesia ranks 115th out of 180 countries in 2023. The Corruption Perceptions Index (CPI) rates 180 countries and territories worldwide on a scale from 0 marks which means that extremely corrupt to 100 marks means that very clean based on public perceptions of corruption in the public sector. Across the globe, weakened justice systems are fueling corruption and reducing the accountability of public officials. Leaders in both democracies and authoritarian states are undermining justice. By removing penalties for offenders, this is promoting corruption and creating impunity for them. Vulnerable individuals have limited access to justice in areas where corruption is rampant, while the wealthy and powerful control whole legal systems at the expense of the general welfare.

Score changes 2012 - 2024
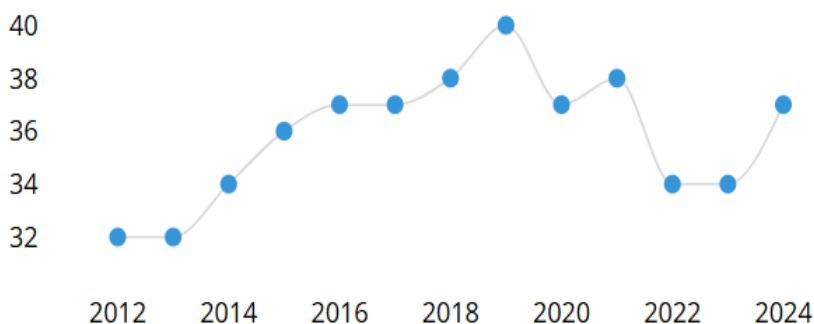
Source: Transparency International. (2024). Corruption Perceptions Index - Indonesia.

Lastly, there have many factors affecting income inequality in Indonesia such as foreign direct investment, population growth, corruption, unemployment rate and school enrollment tertiary. Therefore, the government can take targeted policy interventions based on these factors to address income inequality and promote economic growth.

Research objectives

To investigate the factors affecting income inequality in Indonesia.

Research Specific Objectives

1. To investigate the impact of foreign direct investment affecting income inequality in Indonesia.
2. To investigate the impact of population growth rate affecting income inequality in Indonesia.
3. To investigate the impact of corruption affecting income inequality in Indonesia.
4. To investigate the impact of unemployment rate affecting income inequality in Indonesia.
5. To investigate the impact of school enrollment tertiary affecting income inequality in Indonesia.

Research significance

The significance of exploring this study is that it may shed light on problems of income inequality in Indonesia. This study explores the interactions and relationship among variables that affect income inequality, such as foreign direct investment, population growth rate, corruption, unemployment rate, and school enrollment tertiary in order to adopt policy interventions and social solutions to solve it.

First, by identifying and understanding the main causes of income inequality, this study can provide useful information for policymakers. Based on these information and knowledge, practical policies can be formulated in order to help stabilize income inequality and promote social equity.

Additionally, the study's contribution to academic literature is essential for furthering our understanding of the complex interactions among factor such as foreign direct investment, population growth, corruption, unemployment rate and school enrollment tertiary affecting income inequality in Indonesia. Empirical data, and theoretical ideas that are examined will push researchers towards creating both frameworks and tools that can help study the mechanisms of income distribution more smoothly.

From perspective of investor, the study is important because it can offer insightful information on the economic conditions of Indonesia, especially with regard to the causes and dynamics of income disparity. International and domestic businesses owners and traders will always think about the profits and risks of their investments, as well as the differences of various markets and economy sectors. Therefore, when people can clearly understand Indonesia's income distribution, they may formulate more rational investment strategies and be able to fully assess the risks of their decisions.

Finally, this study is expected to significantly contribute to academic research, informed decision-making by investors, and effective policy making. This study aims to reveal the drivers of income inequality in Indonesia, thereby promoting social development towards a more equitable and prosperous country.

LITERATURE REVIEW

Foreign Direct Investment Inflows

Several studies have investigate foreign direct investment (FDI) on income inequality.

For example, Khan et al. (2020) investigate whether inbound foreign direct investment (FDI) may have an impact on income distribution between 1990 and 2016 using an unbalanced panel of five South Asian nations. The model's research examine non-linear impact of foreign direct investment on income distribution. To solve the problems of non-linearity and potential endogeneity, the dynamic panel system-generalized method of moments (SYS-GMM) estimator has been used. The findings show that FDI have significant effects and positive relationship on income inequality.

The study is to examine how foreign direct investment affects income inequality in Vietnam (Le et al., 2021). This research include provincial-level panel data which is Vietnam's 63 provinces from 2012 to 2018. Genernalized Method of Moment (GMM) model used to perform the estimate in order to solve the possible

endogeneity issue. The study makes use of a two-step GMM model with robust standard errors. The empirical findings show that the presence of a non-linearity connection between FDI and income inequality and demonstrate that FDI tends to exacerbate income inequality in Vietnam.

According to Huynh (2021), the study examine FDI inflows affect income inequality in 36 Asian nations between 2000 and 2018. Using two-step System Generalized Method of Moments (SGMM) and Feasible Generalized Least Squares (FGLS) estimation methods, the results show that FDI has a positive and significant relationship between income inequality. Heteroscedasticity and autocorrelation between panels are fixed using feasible generalized least squares (FGLS). It is a strategy for estimating the solution to endogeneity issues for the two-step System Generalized Method of Moments (SGMM).

In contrast, Xu et al. (2021) provide a different regional perspective by investigating 2000 to 2015 panel data from Sub-Saharan Africa. Applying the GMM method, their results show a significant negative relationship between FDI, GDP per capita, and income inequality. This suggests that in the African context, FDI might contribute to reducing income disparities, potentially due to labor-intensive investments or broader participation in FDI related industries.

Population Growth rate

Using panel data from 21 OECD nations, this study investigates how government social expenditure affects income inequality (Ulu, 2018). The long-term link between dependent and independent variables will be tested using econometric techniques such as F, Pesaran CD LM, panel unit root, cointegration, and causality tests. Based on the findings, population growth rate has a positive and significant relationship between income inequality which is measure by Gini coefficient. Therefore, when population growth rate increase, the Gini coefficient rises as well.

The study examine how social characteristics and income inequality are related, as well as to provide more empirical data to the pertinent structural models (Taresh et al., 2021). The study used long-run structural vector autoregression (SVAR) and cointegration analysis on panel data from 33 Indonesian provinces between 2005 and 2018. The findings conclude that population growth has positive and significant relationship between income inequality. Not only that, increase in population growth will also lead to income inequality.

According to Butler et al. (2020), this study show that how county-level income inequality in rural areas of United States changed from 1980 to 2016 as a result of population expansion and decline. Given that most rural counties in the United States are experiencing population decrease, it is especially crucial to look at how these types of population change affect income disparity. The study evaluate the impacts of population growth and decrease on income inequality in rural counties using fixed-effects regression models using county-level data from American Community Survey and U.S. Decennial Census. Compared to steady growth, both types of population fluctuation have a major impact on income inequality. Increases in income inequality are linked to population decline, but declines in inequality are only weakly correlated with population growth.

As a result, the study investigates how government social expenditure affects income inequality using panel data from 21 OECD nations (Ulu, 2018) and the study examine how social characteristics and income inequality are related (Taresh et al., 2021) used long-run structural vector autoregression (SVAR) and cointegration analysis on panel data from 33 Indonesian provinces between 2005 and 2018 has the similar population growth widening income inequality result and the difference is using different method. However, study from Butler et al. (2020) state that population decline is associated with increases in income inequality, while population growth is marginally associated with decreases in inequality.

Corruption

According to Keneck-Massil et al. (2021), this study determines how corruption, income inequality, and distribution of political power relate to different social classes in 172 industrialized and developing countries between 1975 and 2017. The authors address endogeneity concerns, weak time-variance, nonlinearities, and a novel sequential panel data estimator with the panel threshold effect model. The analysis shows that low

levels of corruption are associated with a reduction in income inequality worldwide, regardless of the kind of corruption.

Due to Asian countries frequently have high rates of corruption and poor management, this study examine the connection between corruption and income inequality in these regions (Dwiputri et al., 2018). 56 samples of the research's sample data satisfied the criteria to be examined. Research has consistently shown that corruption may worsen income inequality and potentially hinder economic growth. The significance of the connection between income inequality and corruption in Asia is further supported by the study that uses OLS, Tobit, and 2SLS regression approaches.

Sulemana and Kpienbaareh (2018) contributed empirical evidence to the current study by using an unbalanced panel data set that included 48 countries in Sub-Saharan Africa between 1996 and 2016. The results show that lower levels of corruption are associated with larger levels of income inequality, which is different from previous findings from developed countries. This suggests that the connection between income inequality and corruption may be shifting among nations on various development trajectories. Additionally, corruption is a Granger-cause of wealth disparity and that there is a reverse causal relationship between the two. In conclusion, for low-income and lower-middle-income African nations, the findings of OLS, random effects, and fixed effects models show a U-shaped association between corruption and income inequality, with turning point income inequality levels ranging from 22 to 52.

In recent decades, there has been concern about whether corruption leads to income disparity. However, none have looked at the potential for economic disparity to encourage corruption, as far as we are aware. In this research note, we contend that perceived unjust economic disparity may be the cause of corruption (Policardo et al., 2019). Tests conducted on 34 OECD nations between 1995 and 2011 indicate that the relationship between corruption and income disparity varies by nation. Furthermore, corruption exacerbates income inequality, which in turn has a beneficial impact on corruption.

In short, while global and Asian evidence largely supports a corruption driven increase in inequality, findings from Africa and the OECD reveal more complexity, including nonlinear patterns and reverse causality.

Unemployment rate

This study investigates the macroeconomic factors that contribute to income inequality using dynamic panel data analysis (Deyshappriya, 2017). In particular, this study analyzes data from 33 Asian nations between 1990 and 2013 using dynamic panel data analysis based on the generalized method of moments (GMM). From the study, rising unemployment rates exacerbate inequality in Asian nations.

According to Shabnum and Malik (2023), this study estimates the extent of income inequality in Pakistan. It uses a logit model using data from 1980 to 2020 to determine how macroeconomic factors, such as unemployment, affect the level of income inequality. Gini Index reveals that income inequality is larger for urban regions as compared to rural parts of Pakistan. Whereas among the provinces, Punjab is suffering the most from unfair distribution of income. The relevance of each chosen variable with regard to income inequality in Pakistan is demonstrated by the regression findings. It demonstrates that unemployment has a negative relationship on the Gini index.

This study uses linear regression analysis to test the connection between the unemployment rate and income inequality in America and Germany from year 1991 to 2018 (Gu, 2023). According to the study's findings using regression analysis, the unemployment rate in Germany significantly reduces income inequality as indicated by the Gini index. However, unemployment rate in America has no impact on income disparity.

Both Deyshappriya (2017) and Shabnum and Malik (2023) show that unemployment rate has a signifcant relationship on income inequality in Asia and Pakistan but Gu (2023) states unemployment rate in America has no impact on income disparity.

School enrollment tertiary

From years 1960 to 2015, the study establishes a quadratic link between income disparity and education in Asian developing nations (Arshed et al., 2019). Long-run coefficients are estimated using panel cointegration and completely modified OLS. According to the findings, tertiary enrollment increases inequality.

According to Shahabadi et al. (2018), the study looks on how income inequality affected a few Islamic nations between 1990 and 2013. The Hausman test is used to compare the fixed effects against the random ones in the panel data method. The results show that the university enrollment rate significantly reduces income disparity. Due to greater financial resources and the knowledge they have gained, university education can thereby exacerbate income inequality. Similarly, the coefficient of income is positive and statistically significant, while its squared value is negative and significant, supporting the Kuznets inverted-U hypothesis.

Using yearly time series data from 1973 to 2012, this study examines how Pakistan's income inequality is affected by advancements in the higher education sector (Qazi et al., 2016). Higher education and income inequality have a long-term link, which is confirmed by the autoregressive distributed lag bound testing co-integration technique. The findings show that while there is a short-term negative but negligible impact, higher education has a long-term negative and substantial link with income inequality. The results of the cumulative sum (CUSUM) and CUSUM of squares tests indicate that the residuals of the income inequality equation do not exhibit structural instability. The findings of causality studies support the unidirectional causal link that exists between Pakistan's income inequality and the advancement of higher education, with the former leading to the latter. According to the study's results, improving the higher education sector would be an important policy option to decrease income inequality and should be taken into consideration as a way to improve Pakistan's income distribution.

Based on above study, tertiary enrollment will increases income inequality in Asian developing nations (Arshed et al., 2019). However, Shahabadi et al. (2018) and Qazi et al. (2016) state that university enrollment rate significantly reduces income disparity a few Islamic nations and Pakistan between 1990 and 2013 and 1973 to 2012.

Review of Relevant Theoretical Models

Human Capital Theory

According to Kenton (2025), human capital refers to employee's training, expertise, experience, and abilities. Not only that, education, intellect, skills, health, loyalty and other attributes that employers appreciate, all of these contribute to improve of human capital. Human capital is also an intangible asset that is not shown on a company's financial sheet but is thought to increase profitability and productivity. According to the human capital theory, more education and skill development may help people become more productive.

Higher education is becoming a tool to increase human or intellectual capital by generating critical thinkers, researchers, academics, innovators, and responsible citizens in the modern day, when intellectual capital is becoming a symbol of any economy's quick progress. Maintaining social mobility and excellent living standards is another benefit of higher education. Therefore, if less developed or developing countries like Pakistan are to have quick and sustained economic growth in the future, higher education is more crucial than ever (Qazi et al., 2016).

Dependency theory

According to Munro and André (2025), dependency theory show a relationship where the growth and development of one nation's economy has a detrimental effect on the development of other nations, frequently resulting in the underdevelopment of other nations. According to this argument, developed nations profit from taking advantage of less developed nations for labor and resources, which prevents the periphery from developing on its own.

According to the dependency theory, FDI has the potential to strengthen reliance on foreign organizations and sustain economic exploitation (Nguyen et al., 2024). It implies that multinational firms (MNCs) frequently take earnings out of their host nations without sufficiently reinvesting in the local economy. As a result, they only concentrate on the development of jobs and reliance on foreign technology and finance. Furthermore, according to the dependence theory, FDI may exacerbate economic disparities in the host nation. MNCs may maintain high-skilled, well-paying positions in their home nations while providing low-skilled, low-wage employment options. Income disparities are made worse by this tendency, which polarizes the labor market and concentrates wealth and power in foreign companies.

Research gap

This study aims to fill this gap in the literature and offers an analysis which critically examines the relationship between FDI inflows, population growth, corruption, unemployment rate and school enrollment tertiary for a time series set of 30 years in Indonesia using the yearly data from 1994 to 2023.

This study used the up-to-date data collected from official sources. The timeliness of data is crucial to the reliability and quality of research results in the field of economics. As new data are released, people will be able to understand the impact of existing foreign direct investment, population growth, corruption, unemployment rate and school enrollment tertiary on income inequality in Indonesia. Additionally, any modifications, patterns, or conclusions that can be drawn from the existing data can be used to update strategies for addressing income inequality.

METHODOLOGY

In this research, the time series data consists of 30 years secondary data that is obtained from World Development Indicators and Transparency International from 1994 to 2023 for Indonesia. Besides, the research instrument is Eviews 12.

Model Estimation

The data analysis tool in this research paper is Eviews12. A variety of panel data analysis techniques are used, such as Ordinary Least Squares (OLS), VIF, Breusch-Pagan-Godfrey and Breush-Godfrey Serial Correlation LM test. These techniques are used to analyze relationships across time series datasets, evaluate model specifications, and identify possible problems like multicollinearity, heteroscedasticity and autocorrelation.

Model Specification

$$GINI_t = \beta_0 + \beta_1 \text{FDI}_t + \beta_2 \text{PP}_t + \beta_3 CR_t + \beta_4 UN_t + \beta_5 SE_t + \mu_t$$

Where:
$GINI = Gini\ coefficient\ (index\ point)$
$FDI = Foreign\ Direct\ Investment\ (million\ US\$)$
$PP = Population\ Growth\ rate\ (Gross\ \%)$
$CR = Corruption\ Perception\ Index\ (\%)$ $\qquad UN =$
$Unemployment\ rate(\%total labor force)$
$SE = School\ enrollment, tertiary\ (Gross\ \%)$
$T = time\ trend\ 1994\ to\ 2023\ yearly\ data$
$\mu = error\ term$
$t = time\ series\ data$

Definition of variables

Income Inequality (GINI)

The Gini coefficient measures the extent to which the distribution of income among individuals or households in an economy deviates from overall equality in a given situation, depending on consumption expenditure. The Lorenz curve shows the cumulative percentage of total income versus the cumulative number of people who benefit, starting with the lowest individual or household. The Gini coefficient determines the percentage of the

area between the Lorenz curve and an imaginary line of absolute equality as a percentage of the maximum area below that line. A Gini coefficient of 100 indicates perfect inequality, while 0 indicates perfect equality.

Foreign Direct Investment Inflow (FDI)

Foreign direct investment is the term used to describe direct investment equity flows in the reporting economy. It is the sum of equity capital, profits reinvestment, and other capital. Direct investment is a form of cross-border investment that happens when a national of one nation has significant authority over the management of a company based in another. 10% or more of the common shares of voting stock must be owned in order to determine if a direct investment relationship exists.

Population Growth rate (PP)

Population growth rate refers to the average annual rate of change in population size over a certain period of time, usually expressed as a percentage.

Corruption Perception Index (CR)

The most popular corruption ranking in the world is the Corruption Perception Index (CPI). It measures the judgment of experts and entrepreneurs on the level of corruption in the public sector of various countries. The CPI ranks 180 countries and territories based on the public's perception of the level of corruption in their public sectors. The ranking results are displayed on a scale of 0 mark which means extremely corrupt to 100 mark means very clean.

Unemployment rate (UN)

Unemployment known as the percentage of the labor force that is unemployed but still looking for work.

School enrollment, tertiary (% gross) (SE)

The gross enrollment ratio is the ratio of total enrollment, independent of age, to the population of the age group that technically corresponds to the stated level of education. Regardless of whether it results in an advanced research certification, completing secondary school satisfactorily is usually a requirement for entry to university study.

RESULTS AND DISCUSSION

Data Analysis

Regression analysis

Table 1

Variable	Coefficient	T-statistic	P-value	VIF	1/VIF
FDI Inflow (USD million)	0.000159	3.5996	0.0017	3.6265	0.2757
Population Growth	13.3742	3.8498	0.0009	12.7675	0.07832
Corruption Perception Index	0.02513	0.6411	0.5284	8.0926	0.1236
Unemployment rate	0.1369	0.3699	0.7152	5.2966	0.1888
School Enrollment Tertiary	0.3472	2.6637	0.0145	34.7930	0.02874
Constant	6.0139	0.7222	0.4781		
Number of Observation	27				
R-squared	0.8737				

Source: Own Data Collection via Eviews

Note: $p<0.01$, $p<0.05$, $p<0.1$

This study uses ordinary least squares (OLS) to investigate and explain the impact of independent factors on dependent variables like the Gini coefficient-measured income inequality in Indonesia. Table 1 shows the regression results of the relationship between factor affecting income inequality in Indonesia from 1994 to 2023. R-square value of 0.8737 indicates that 87.37% of the systematic variation is explained by the dependent variable, with a higher value suggesting a more accurate model. Since, there has 5 independent variables but corruption and unemployment rate are not significant.

The ordinary least squares (OLS) results of the estimated model show that income inequality in Indonesia is increased by foreign direct investment inflow. 1 USD million increase in foreign direct investment inflow, on average, has a positive relationship impact on increasing income inequality by 0.0159% with significance at the level of 0.01, holding the other variables constant.

Besides, estimated model show that income inequality in Indonesia is increased by population growth. 1 % increase in population growth, on average, has a positive relationship impact on increasing income inequality by 13.3742% with statistically significance at the level of 0.01, holding the other variables constant.

Not only that, estimated model show that income inequality in Indonesia is increased by school enrollment tertiary. 1 % increase in school enrollment tertiary, on average, has a positive relationship impact on increasing income inequality by 0.3472% with statistically significance at the level of 0.01, holding the other variables constant. This is because income disparity is further exacerbated by the fact that those with greater levels of postsecondary education would expect more salaries than those with only a primary or secondary education (Arshed et al., 2019).

Through the findings, FDI inflows, population growth, and school enrollment tertiary are significant as their p-value are less than 0.01, 0.05 and 0.1. Therefore, they are sensitive to income inequality in Indonesia. However, corruption and unemployment rate are not significant to income inequality but corruption is not significant due to the result have multicollinearity problem.

Multicollinearity

Table 2

Variable	VIF	1/VIF
FDI Inflow (USD million)	3.6265	0.2757
Population Growth	12.7675	0.07832
Corruption Perception Index	8.0926	0.1236
Unemployment rate	5.2966	0.1888
School Enrollment Tertiary	34.7930	0.02874
Mean VIF	12.9152	

Source: Own Data Collection via Eviews

Variance Inflation Factor (VIF) greater than 10, which show high multicollinearity, are frequently seen as problematic. VIF values under 5 are generally considered acceptable, though this can change according to the particular situation and the area of study. However, VIF of population growth and school enrollment tertiary is greater than 10 which is 12.7675 and 34.7930. Therefore, school enrollment tertiary should be removed from these variables because it has the largest VIF and has multicollinearity issues. Autocorrelation also cannot be established due to the high variance factor of school enrollment tertiary..

Table 3 (After drop variable school enrollment tertiary)

Variable	VIF	1/VIF
FDI Inflow (USD million)	2.9065	0.3441
Population Growth	3.0586	0.3269
Corruption Perception Index	6.5541	0.1526
Unemployment rate	3.8438	0.2602
Mean VIF	4.0908	

Source: Own Data Collection via Eviews

After remove variable school enrollment tertiary, multicollinearity had been solved. Overall, the model's mean VIF of 4.0908 provides more evidence that multicollinearity is not a problem. This is positive for the reliability of regression results since it indicates that the independent variables in the regression model do not have a strong correlation with one another.

Regression analysis after corrected

Table 4

Variable	Coefficient	T-statistic	P-value	VIF	1/VIF
FDI Inflow (USD million)	0.00021	4.7313	0.0001	2.9065	0.3441
Population Growth	5.3047	2.7607	0.0114	3.0586	0.3269
Corruption Perception Index	0.0707	1.7724	0.0902	6.5541	0.1526
Unemployment rate	-0.3794	-1.0649	0.2985	3.8438	0.2602
Constant	26.1025	6.5437	0.0000		
Number of Observation	27				
R-squared	0.8311				

Source: Own Data Collection via Eviews

Note: p<0.01, p<0.05, p<0.1

After remove variable school enrollment tertiary, table 4 shows the regression results of factor affecting income inequality in Indonesia from 1994 to 2023. R-square value of 0.8311 indicates that 83.11% of the systematic variation is explained by the dependent variable, with a higher value suggesting a more accurate model. To solve multicollinearity problem, variable school enrollment tertiary should be dropped. Therefore, 4 variables left and only unemployment rate is not significance.

The ordinary least squares (OLS) results of the estimated model show that income inequality in Indonesia is increased by foreign direct investment inflow. 1 USD million increase in foreign direct investment inflow, on average, has a positive relationship impact on increasing income inequality by 0.021% with significance at the level of 0.01, holding the other variables constant. This conclusion is in line with the body of research, which suggests that foreign direct investment inflow will also exacerbate income disparities in the host nation according to the dependence theory. Multinational Corporations may maintain high-skilled, well-paying positions in their home nations while providing low-skilled, low-wage employment options (Nguyen et al., 2024). Income disparities are made worse by this tendency, which polarizes the labor market and concentrates wealth and power in foreign companies.

Besides, estimated model show that income inequality in Indonesia is increased by population growth. 1 % increase in population growth, on average, has a positive relationship impact on increasing income inequality

by 5.3047% with statistically significance at the level of 0.01, holding the other variables constant. Fertility, death, and migration may all contribute to population increase, which in turn influences and is influenced by income inequality. Additionally, the labor supply is directly impacted by population increase. Due to majority of the workforce often works for low salaries, particularly in traditional industries of developing nations like Indonesia, high rates of population growth might thus result in greater income disparity (Taresh et al., 2021).

Not only that, estimated model show that income inequality in Indonesia is increased by corruption. 1 % increase in corruption perception index, on average, has a positive relationship impact on increasing income inequality by 0.0707% with statistically significance at the level of 0.1, holding the other variables constant. According to Policardo et al. (2019), corruption exacerbates income inequality due to slower economic development, skewed tax structures that benefit the rich and well-connected, ineffective social investment, and unequal access to public services and education.

Other than that, unemployment show not significant relationship between income inequality. According to Gu (2023), the research also has found that unemployment rate did not affect income inequality significantly in America.

Lastly, regression coefficients may have incorrect signs due to multicollinearity. Severe multicollinearity essentially causes the regression coefficients' variances to grow, which raises the likelihood that one or more of the regression coefficients will have the incorrect sign (Khuri, 2013). Therefore, redundant variables should be removed. Not only that, the idea of educational synergy is translated into the importance of lifelong learning in lowering income inequality. This suggests that while information obtained alone in secondary or tertiary education may not have a substantial impact on income inequality, knowledge gathered across the three educational levels is more pertinent in reducing income disparity (Tchamyou, 2018).

Heteroscedasticity test: Breusch-Pagan-Godfrey

Hypothesis: $H_0 = Residuals\ are\ homoscedasticity$

$H_1 = Residuals\ are\ heteroscedasticity$

Diagnostic Test	Result	Decision
Heteroscedasticity test: F-statistic, Probability (P-value): $> \alpha=5\%$	F-statistic = 0.1578 P-value = 0.9574	P- value > 5%, therefore, do not reject H_0

Source: Own Data Collection via Eviews

If the p-value is more than α (5%), the null hypothesis cannot be rejected. The p-value from heteroscedasticity test is 0.9574, which are higher than significant level at 5%. Thus do not reject H_0 and residuals for the model are homoscedasticity.

Breush-Godfrey Serial Correlation LM test

Hypothesis: $H_0 = Residuals\ are\ no\ serial\ correlation$

$H_1 = Residuals\ are\ serial\ correlation$

Diagnostic Test	Result	Decision
Serial Correlation Analysis: F-statistics, Probability (P-value): $> \alpha=5\%$	F- statistics= 1.1649 P-value = 0.3323	P- value > 5%, therefore, do not reject H_0

Source: Own Data Collection via Eviews

If the p-value is more than α (5%), the null hypothesis cannot be rejected. From the result, the p-value obtain from the test is 0.3323, which is higer than significant level at 5%. Thus, do not reject H_0, and residuals are no serial correlation.

CONCLUSIONS

In conclusion, foreign direct investment inflow (FDI), population growth, and corruption perception index has statistically significant and positive relationship to income inequality. In order to decrease income inequality in Indonesia, foreign direct investment inflow (FDI), population growth, and corruption perception index are important variable to solve it.

Although FDI may leads to economic growth but it can also increase income inequality if the benefits are concentrated in high-skill sectors. Therefore, only high skilled workers enjoy the benefits but low skill workers do not have. Similarly, when the population grows rapidly, this may puts pressure on the labor market because it increases the labor supply, forcing more workers to work in low-paying jobs or even require lower wages to get a job, thereby exacerbating income inequality. Moreover, regardless of the level of corruption, it can damage public resources, thereby losing public trust in the government, affecting economic development, exacerbating income inequality, and threatening national security. In other words, foreign investors will also lose confidence in the country and move their funds to safer countries.

Overall, addressing income inequality in Indonesia requires exploring different perspectives and taking actions that combine economic, demographic, and institutional reforms to create a more inclusive and balanced income distribution.

Policy Implication

The findings show that foreign direct investment, population growth, corruption has a positive and significant relationship with income inequality. To reduce income inequality, foreign direct investment, population growth and corruption should be controlled. In order to promote equally distribution of income, governments should formulate regulatory measures to restrict foreign direct investment in specific industries. Governments can implement laws to protect Indonesia industries from control by foreign companies and countries, allowing local businesses to grow and contribute to national prosperity, thereby reducing income inequality.

Tax laws can also be used as a tool that would bring favor to domestic companies by implementing tax cuts while discouraging large foreign investment by taxing foreign-owned corporations more heavily. The end goal of this approach is to hinder the inflow of FDI to boost local economic development combined with possibly more equitable income distribution among the population that would curb secure income inequality creating a more friendly environment for domestic companies.

The government should provide more knowledge about sex education to teenagers and adults. For example, the government can hold sex education lectures, so as to improve people's knowledge of contraception, health and fertility and make fertility more rational. Moreover, in rural areas, the high fertility rate is often due to the dependence on the elderly and labor. If the government improves public services such as rural medical care and elderly care, the demand for families to have more children to cope with the future will be reduced.

Lastly, government of Indonesia can strengthen policies to prevent corruption and hold those responsible accountable. Despite the efforts of countries to implement and maintain legislative structures, government of Indonesia needs to put more efforts than other countries to reduce corruption. However, if the government lacks the ability to initiate or implement legal reforms, such as the ability to effectively investigate, prosecute, and adjudicate crimes, the effectiveness of anti-corruption mechanisms will be insufficient, which will lead to a loss of public confidence and allow corruption to continue, thereby affecting the country's economy. As corruption becomes increasingly transnational and international, in order to facilitate international cooperation and partnerships, national officials on both sides must collaborate to detect and combat corruption in order to reduce income inequality.

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APPENDIX

Appendix 1 Ordinary Least Square (OLS)

Dependent Variable: GINI_INDEX
Method: Least Squares
Date: 05/24/25   Time: 18:25
Sample (adjusted): 1996 2023
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.013894	8.326825	0.722231	0.4781
FDI__USD_MILLION_	0.000159	4.41E-05	3.599622	0.0017
POPULATION_____	13.37420	3.473991	3.849809	0.0009
CPI	0.025134	0.039207	0.641068	0.5284
UN	0.136860	0.370037	0.369854	0.7152
SE__TERTIARY_	0.347215	0.130351	2.663689	0.0145

R-squared	0.873718	Mean dependent var	34.10370
Adjusted R-squared	0.843651	S.D. dependent var	3.028897
S.E. of regression	1.197655	Akaike info criterion	3.391738
Sum squared resid	30.12191	Schwarz criterion	3.679701
Log likelihood	-39.78846	Hannan-Quinn criter.	3.477364
F-statistic	29.05899	Durbin-Watson stat	1.859009
Prob(F-statistic)	0.000000		

Appendix 2 Variance Inflation Factor (VIF)

Variance Inflation Factors
Date: 05/24/25   Time: 18:25
Sample: 1994 2023
Included observations: 27

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	69.33601	1305.147	NA
FDI__USD_MILLION_	1.94E-09	8.542032	3.626508
POPULATION_____	12.06861	341.9407	12.76749
CPI	0.001537	16.59566	8.092640
UN	0.136928	79.95926	5.296638
SE__TERTIARY_	0.016991	248.9112	34.79303

Appendix 3 Ordinary Least Square (OLS) after remove school enrollment tertiary

Dependent Variable: GINI_INDEX
Method: Least Squares
Date: 05/24/25   Time: 18:27
Sample (adjusted): 1996 2023
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	26.10248	3.988943	6.543709	0.0000
FDI__USD_MILLION_	0.000211	4.46E-05	4.731279	0.0001
POPULATION_____	5.304727	1.921493	2.760731	0.0114
CPI	0.070671	0.039873	1.772409	0.0902
UN	-0.379360	0.356231	-1.064928	0.2985

R-squared	0.831052	Mean dependent var	34.10370
Adjusted R-squared	0.800334	S.D. dependent var	3.028897
S.E. of regression	1.353433	Akaike info criterion	3.608741
Sum squared resid	40.29916	Schwarz criterion	3.848711
Log likelihood	-43.71801	Hannan-Quinn criter.	3.680097
F-statistic	27.05435	Durbin-Watson stat	1.728176
Prob(F-statistic)	0.000000		

Appendix 4 Variance Inflation Factor (VIF) after remove school enrollment tertiary

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Variance Inflation Factors
Date: 05/24/25   Time: 18:27
Sample: 1994 2023
Included observations: 27
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Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	15.91166	234.5341	NA
FDI__USD_MILLION_	1.99E-09	6.846002	2.906460
POPULATION_____	3.692137	81.91457	3.058552
CPI	0.001590	13.44046	6.554053
UN	0.126901	58.02716	3.843818

Appendix 5 Homoskedasticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	0.157781	Prob. F(4,22)	0.9574
Obs*R-squared	0.752961	Prob. Chi-Square(4)	0.9446
Scaled explained SS	0.611829	Prob. Chi-Square(4)	0.9617

Appendix 6 Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	1.164853	Prob. F(2,20)	0.3323
Obs*R-squared	2.816968	Prob. Chi-Square(2)	0.2445