

# Impact of Economic Growth Per Capita and Foreign Direct Investment on Income Inequality in Indonesia

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**Abstract.** Income inequality is an important issue in Indonesia. Currently the income inequality in Indonesia is worse than in Thailand, Vietnam, Cambodia and Laos, although it is better than the Philippines and China. This study aimed to analyze the influence of economic growth per capita and foreign direct investment on income inequality in Indonesia. The study period was from 2007 to 2016. This study used a multiple linear regression. The results showed that economic growth per capita and foreign direct investment had positive influence on income inequality. Therefore, the role of economic growth per capita and foreign direct investment will remain high in the future.

**Keywords:** Income Inequality; Foreign Direct Investment; Economic Growth Per Capita; Multiple Regression

## 1 Introduction

Indonesia's economic growth from 2000 to 2016 shows a significant development. Indonesia's economic growth of 4.92% in 2000[1] and by 5.02% in 2016[2]. The increasing trend of economic growth shows that the Indonesian economy is experiencing an increase in the components that exist in the Gross Domestic Product, both in terms of production and expenditure. Increased economic growth per capita is also experienced by Indonesia. Gross domestic product per capita growth of 3.38% in 2000[1] and 3.70% 2016[2], respectively this increase shows an increase in Indonesia's standard of living for the period and increased productivity of the Indonesian workforce.

Despite an increase in economic growth and per capita economic growth, Indonesian income inequality has also increased. The magnitude of the gini index was 0.33 in 2002<sup>3</sup> and increased to 0.394 in September 2016<sup>2</sup>. The increase of the gini index indicates the increasing inequality of Indonesian revenues. Behind the relatively high economic growth of Indonesia from 2000 to 2016 there has been an increase in the control of money assets and national property by a small group of the richest households in Indonesia.

## 2 Methodology

Motahhari examines the effects of foreign investment, economic openness, and profit-sharing funds on the disparities among provinces of Indonesia[4]. The study was conducted with panel data from 33 provinces in Indonesia within the period of 2007-2012. The result of this research is PMA and economic openness have negative impact in reducing inequality. Wade, Robert Hunter studied about the relationship between globalization, poverty and inequality[5]. The study questioned the empirical basis of the neoliberal argument that world poverty and income inequality fell apart over the past two decades. The result showed that globalization in the world economic regime brought more mutual benefits than conflicting interests.

Choi, Changkyu investigated whether foreign direct investment affected domestic income inequality[6]. Using pooled Gini coefficient 1993 to 2002 data for 112 countries, the study found that income inequality, defined as Gini Coefficient, increases as FDI stocks as a percentage of GDP increase. Increase in real per capita GDP and real per capita GDP growth rate reduce income inequality in a country, whereas an increase in GDP deteriorates income distribution. In addition, Latin American and Caribbean countries proved to have a less equal income distribution.

Khan, Rana Ejaz Ali and Muhammad Zahir Faridi researched the effect of globalization (trade

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openness, foreign direct investment, and foreign remittance) and economic growth (real GDP growth) on income inequality (Gini-coefficient) in Pakistan[7]. Using time series econometric technique on the data (annual time series 1970-2005) from State Bank of Pakistan and International Financial Statistics, it is concluded that globalization has significant positive effect on income inequality. The economic growth rate is also positively influencing the income inequality. In the policy perspective trade openness, foreign direct investment, and foreign remittance may contribute in reducing inequality. This results implied that further initiatives pertaining to economic initiatives should be taken to attract the foreign investment and further measures taken to alleviate the income inequality.

Majumdar, Shibalee and Mark Partridge studied if per capita income (representing economic growth) has an impact on the gini coefficient (representing income inequality) and if this impact varies between rural and urban areas[8]. The study used the country-level panel data (per capita income, educational attainment, population density and international migration) from the US Census Bureau from 1990 to 2000. The study is expected to show that economic growth may show a negative impact on income inequality since economic growth is often positively associated with higher investment, higher employment-generating process and higher employment, hence giving greater access to job and income to a large number of people. The degree of the impact may vary between rural and urban areas. The result indicated that higher investment will have to be made in educational and vocational training in order to generate a stream of skilled laborers, which in turn will lead to economic growth and thus will lead to lower income inequality and better social cohesion.

Herzer, Dierk and Peter Nunnenkamp analyzed the relationship between foreign direct investment and income inequality for a sample of ten European countries from 1980 to 2000[9]. Using panel co-integration and causality techniques, the study found that (a) FDI has a positive short effect on income inequality in Europe; (b) the long-term effect of FDI on income inequality, however, is negative on average; (c) long-run causality runs in both directions, suggesting that an increase in FDI reduces income inequality and, in turn, higher inequality leads to lower FDI inflows; and (d) there are large differences in the long-run effect of FDI on income inequality, with two countries (Ireland and Spain) exhibiting a positive relationship between FDI and income inequality.

Ding, Xun, focussed their research on the relationship between economic growth and income inequality in China[10]. This study was based on the hypothesis that economic growth leads to an decrease in income inequality in China. After analysing the data set of GDP per capita and Gini Coefficient from 1997 to 2010 from the World Bank, it is found that a positive relationship exists between economic growth and income inequality. Moreover, the effect of monopoly power and the disposable income of urban/rural households also strengthens the hypothesis.

Im, Hyejoon and John McLaren investigated whether foreign direct investment raises income inequality in developing countries using the Povcal panel data of 127 developing countries from 1977 to 2012[12]. In this research, Im and McLaren tries to solve the problem of endogenous FDI through new instruments, which are time-varying, based on shocks to the attractiveness of investment in neighboring countries as well as giant oil discoveries in the host country. Without instruments, FDI appears to have no effect on income inequality and a small positive effect on poverty, but with the instruments, FDI helps decrease both inequality and the poverty rate. Looking closely at the change in income distribution in response to FDI inflows, it shows that the lower second and the third population quintiles enjoy the largest gain in their income shares, while the highest quintile suffers a reduction in its share. Additionally, the negative relationship between FDI and inequality and poverty is found only among lower-income developing countries.

The growing importance of FDI as an engine for economic growth has caused considerable debate concerning the effects of FDI on the environment [12]. The relative importance of these sectors is often underestimated because in aggregate they seem to be a declining proportion of FDI flows, In addition, most FDI in these sectors involves new “greenfield” investments that currently account for less than one-fifth of total FDI flows, the remainder being cross-border mergers and acquisitions [12]. Even though, this research did not focus in this particular issue.

### 3 Discussion

This research uses data of income inequality, per capita economic growth, and foreign direct investment in Indonesia. The research period is 2007 until 2016. The research variables used are income inequality variable as dependent variable and per capita economic growth and foreign direct investment as independent variables. Income Inequality is measured by the percentage of income from the lowest 40% of the total population. Inequality of income is measured by the coefficient of gini. The gini coefficient is based on the lorenz curve, which is a cumulative expenditure curve that compares the distribution of a particular variable income, with a uniform distribution that represents the cumulative percentage of the population.

Gross Domestic Product per capita is the value of GDP divided by the number of population in an area per certain period. Economic growth per capita is demonstrate the growth of production of goods and services in an economic area within a certain timeframe for every Indonesian population

Direct investment in Indonesia is a non-resident investment in a company in Indonesia, which is characterized by a minimum share ownership of 10%. In this category includes privatization and banking

restructuring transactions that meet the criteria of non-residents ownership of at least 10%.

The data used in this study is secondary, derived from the Indonesian Central Bureau of Statistics and World Development Indicator published by the World Bank. To examine the effect of economic growth per capita and foreign direct investment on income inequality in Indonesia is used testing through multiple regression. The research model is as follows:

$$Y_t = \alpha_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \mu_t$$

where Y is income inequality,  $X_1$  is economic growth per capita,  $X_2$  is foreign direct investment,  $\mu$  is error,  $\alpha_0$  is constant,  $\beta_0$ ,  $\beta_1$ ,  $\beta_2$  are coefficient regressions, and t is period of time of 2007 until 2016.

After multiple regression equations are generated, the first stage of testing, which includes ANOVA testing, t test, and coefficient of determination; and second stage testing is a classical assumption test, which includes testing of normality, multicollinearity, heteroscedasticity, and autocorrelation. ANOVA testing is often called F testing. The purpose of this test is to test whether overall independent variables enough evidence affect the dependent variable. T test aims to test whether each variable is sufficient evidence affect the dependent variable. The coefficient of determination explains how much variation of the independent variables can explain the variation of the dependent variable.

Normality test aims to test whether residuals meet the normal distribution or not. A good regression model is the residual normality that meets the normal distribution. To determine whether or not the normality is done by the Jarque-Berra test. Multicollinearity test aims to test whether the regression model found a correlation between dependent variables. A good regression model should not be correlated among the independent variables. To detect the presence or absence of multicollinearity in this regression model is with the Variance Inflation Factor. The heteroscedasticity test aims to test whether in the regression model there is a variance inequality of the residual one observation to another observation. If the variance from one observation to another observes remains then it is called homoscedasticity or does not occur heteroscedasticity. A good regression model is homoscedasticity or does not occur heteroscedasticity. To determine whether or not heteroscedasticity is used Glejser test. Autocorrelation test aims to determine whether in a linear regression model there is a correlation between the intruder in period t with error in period t-1. To determine whether or not autocorrelation is used Durbin-Watson test. The results of the research there are two, namely the results of descriptive statistics and multiple regression results. Descriptive statistical results present the average value and standard deviation. The results of multiple regression present test of anova, partial regression, coefficient of determination, and test of classical assumptions. The latter tests include tests on normality, multicollinearity, heteroscedasticity, and autocorrelation.

Table I presents descriptive statistical results. The value of the average Gini Index is 0.3920 and the

standard deviation is 0.0179. The value of the average Gross Domestic Product per capita is 7.55E+15 and the standard deviation is 1.23E+15. The value of the average Foreign Direct Investment is 1.50E+10 and the standard deviation is 8.09E+09. The higher the value of the standard deviation, the higher the data variation, and vice versa.

**Table 1.** The Results of Descriptive Statics

	Gini Index	Gross Domestic Product Per Capita	Foreign Direct Investment
Mean	0.391950	7.55E+15	1.50E+10
Std. Dev.	0.017931	1.23E+15	8.09E+09

Table II presents the results of multiple regression. The result of F statistic test is 21.06666 and significant at  $\alpha$  of 5%. This means that simultaneously variable economic growth per capita and foreign direct investment is sufficient evidence of influence on gini index (LGI). The value of t statistics for economic growth variables per capita is 4.469791 and significant at  $\alpha$  of 5% with a positive direction. If per capita economic growth increases by 1%, then gini index rose by 4.469791. The value of t statistics for foreign direct investment variable is 3.310735 and significant at  $\alpha$  of 5% with positive direction. If foreign direct investment rose by 1%, then gini index rose by 3.310735. R square value of 0.857530 means variation of economic growth variable per capita and foreign direct investment can explain variation of index gini variable equal to 85.75%, and the rest of 14.25% can not be explained in regression model.

**Table 2.** The Results Of Multiple Regressions

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGDP/PCP	0.185992	0.041611	4.469791	0.0029
LFDI	0.032307	0.009758	3.310735	0.0129
C	-8.486223	1.475225	-5.752492	0.0007
R-squared	0.857530	F-statistic	21.06666	
Adjusted R-squared	0.816825	Prob(F-statistic)	0.001092	

Dependent Variable: LGI.

Table III presents the results of the test of classical assumptions. The Jarque-Berra statistical value is 0.461754 and is not significant at  $\alpha$  of 5%. This means the assumption of normality is met in the regression model of this study. The Variance Inflation Factor (VIF) values for economic growth variables per capita (LGDP/PCP) and foreign direct investment are 1.080207 and 1.0802 respectively. Those values are below 10, so it can be concluded that there is no strong correlation between per capita and foreign direct investment economic growth variables. The value of Obs \* R-squared from the heteroscedasticity test result is 2.879046 and not significant at  $\alpha$  of 5%. This means that regression models are free from heteroscedasticity problems. The value of Obs \* R-squared from the autocorrelation test result is 0.005343 and not

significant at  $\alpha$  of 5%. This means that regression models are free of autocorrelation problems.

The results above explain that an increase in economic growth per capita will actually increase income inequality. Indonesia has experienced strong economic growth since 2000. This achievement has reduced poverty and increased the number of middle class. However, the benefits of this growth are more enjoyed by the 20% richest people. About 80 percent of vulnerable residents feel left behind. The richest group in Indonesia increases their consumption more than the poorest, their consumption rate grows less than 2% per year. This resulted in the Gini coefficient rising rapidly since 2000. The level of inequality in Indonesia is relatively high and rose more rapidly than many other East Asian countries.

From the research results also mentioned that the increase of foreign direct investment will also increase uncome inequality. This can happen because the location of foreign direct investment in strategic places in major cities in Indonesia. In addition to increasing income inequality in areas where multinational companies are located, it also increases inequality among regions in Indonesia.

#### 4 Conclusion

The conclusion of the research is first, economic growth per capita enough evidence positive effect to income inequality; second, foreign direct investment is sufficient evidence to positively affect income inequality.

To reduce income inequality amidst the growing per capita economic and domestic direct investment growth in the Indonesian economy, the government continues to improve infrastructure at the provincial level so that children across the province have equal opportunities in receiving health and education services. As the children begin to work, Indonesia can provide skills training for informal workers, so that they are not trapped in low-wage jobs without mobility opportunities. Many of the fiscal policy options that governments can do are by increasing the revenues that can be spent on programs that will directly impact the poor, such as social protection programs such as conditional cash transfers, educational scholarships, and informal job skills training.

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