

Interest rate and income disparity: Evidence from Indonesia

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Abstract

We highlight the most adverse impact of capitalism on inequality through the channel of the interest rate. The interest rate has been an instrument of capitalism which aggravates the accumulation of wealth in the hands of very few people and thereby worsens inequality. To this end, this article scrutinises the dynamic impact of financial development on income inequality in the context of Indonesia, applying DOLS and FMOLS approach by analysing time series data over the years of 1984 to 2018. Rising income inequalities has been a common perpetuating trend of East Asian countries among which we find the case of Indonesia worth interesting to study while filling up the gap in the existing literature. We provide evidence that interest rate exacerbates income inequality in the long-run economy of Indonesia. Financial development in the early phases of development favours economic activity in the urban sector based on capital intensive technology which does not help absorb excess rural labour. The empirical finding of this study profoundly demonstrates one of the substantial drawbacks of capitalism in terms of income disparity.

KEYWORDS

income inequality, indonesia, interest rate

JEL CLASSIFICATION

D31; E4; E44

1 | INTRODUCTION

Income inequality poses a great concern to countries and governments especially developing countries, where it has been considered as a sign of injustice, inequality in social opportunities, and instability which can be a great obstacle to economic growth and development and society welfare if it goes along with underdeveloped markets and insufficient government policies.

Non-accessibility to financial resources is one of the main factors for the perpetuation of poverty, given that access to financial resources improves living standard which translates to economic opportunities, social and political situations of the citizenry (Levine, 2005). Therefore, the need for an effective financial system arises to bridge the following, which are unable to start the economic activity, who are incapable of paying education costs, who are incompetent in accomplishing his economic ideas, and who are ineffectual. Therefore, the financial supplement can make a distinction between poor and rich and a grade of the gap among

generations (Demirgüç-Kunt & Levine, 2009). Hence, we investigate the relationship between financial development and inequality.

The multifaceted relationship between the development of financial markets and income inequalities is very sophisticated where financial development ushers' financial resources conversion from saving to investment into viable economic and reproductive sectors (Jalilian & Kirkpatrick, 2002). However, economic theories inhibit precise predictions about the relationship between financial development and inequality (Claessens & Perotti, 2007). Financial market development plays a pertinent role in providing more opportunities by providing more extensive and easier access to finance for low-income families and eradicating problems in the capital market (Demirgüç-Kunt & Levine, 2009). Financial development reduces income inequality by providing better and more accessibility to financial services and credits for poor people (Banerjee & Newman, 1993). However, financial development has been highlighted as the reason for increasing income inequality for lack of providing necessary assurance (Rajan &

Zingales, 2003). Besides, infrastructural factors determine the beneficial impact of financial development (Acemoglu, Johnson, & Robinson, 2005). For instance, countries with better political responsiveness have better access to financial resources. Economic inequality naturally leads to political penetration in countries with weak political institutions. Powerful groups influence on regulations and control mostly attributed financial resources. They control financial resources attribution directly by owning banks and indirectly by their political relationships. Political penetration leads people to limit financial resources to protect their benefit and oppose competitiveness (Claessens & Perotti, 2007). In this regard, countries with stronger infrastructural factors have better connection and possibility of income distribution.

Although there has been no consensus in the literature regarding the impact of financial development effect on economic growth, financial development has been shown to have both direct and indirect effect on income inequality (Jalilian & Kirkpatrick, 2005). To investigate the indirect effect of financial development on income inequities, the relationship between financial development and economic growth should be considered. What can be inferred from various studies is the positive relationship between financial development and economic growth (Beck, Levine, & Loayza, 1999; Jalilian & Kirkpatrick, 2005; McKinnon, 1973; Rousseau & Wachtel, 2000). For example, financial intermediaries have an impact on economic growth by three different channels. First, it improves capital productivity, secondly increases investment portion compared to total saving and finally increases saving rate (Pagano, 1993).

Consequently, increasing each factor expedites economic growth and reduces income inequality, where the impact of financial mediums on income inequality are linear and inverted. An increment in the productivity of all factors is stated as the reason for this positive relationship (Aghion, Bloom, Blundell, Griffith, & Howitt, 2005; Beck et al., 1999). However, this positive relationship jeopardizes information symmetry between savers and loan applicants through selected mediating role by financial institutes. As a result, the performances of saving motivations, capital attribution, supervision on savings, and risk management are influenced accordingly which has a cascading impact on the growth processes as well as on inequality (Levine et al., 2000). Thence, economic conditions and features of an economy have been shown to play a decisive role in determining the impact of financial development on inequality (Levine, 2005).

The direct effect of financial markets development on income inequality was investigated to be linear by (Banerjee & Newman, 1993; Galor & Zeira, 1993) and nonlinear by (Greenwood & Jovanovic, 1990). Hence, Banerjee and Newman (1993), Galor and Zeira (1993) stated that wealth distribution would influence income inequality among future generations in the long-term. In addition, as financial markets provide resources for investment, can also affect income inequality. They refer that financial markets reduce the income gap among poor and rich people in long-term by providing

easier and more extensive financial resources. Better opportunities for their investment projects with higher return can substantiate this objective as well as can reduce linear inequality. Development in financial markets and intermediaries erase capital market imperfections and promote more opportunities leading to evenly distribution of income. Hence, inequality curbing the impact of financial development has been advocated by a group of literature (Hoi & Hoi, 2013; Inoue & Hamori, 2012).

Another group of literature denotes an inverted U-shape relationship that income inequality reduces with markets and financial mediums development (Beck et al., 1999; Enowbi Batuo & Mlambo, 2012; Jalilian & Kirkpatrick, 2002). A theoretical model of Greenwood and Jovanovic (1990) provides a nonlinear, U-shaped relationship between the financial supplement and inequality. They state at the initial development phase the economy grows slowly with financial mediums remain as less developed. In the middle phase, income inequality increases with rapid economic growth and deeper financial development. In the final phase, when financial structure gets fully developed and more factors to get access to the financial medium, degree of income inequality will reduce and finally will be stable and constant. It means financial development spurs greater income inequality initially and starts declining when income increases to a medium level which implies families' greater access to financial markets. Besides, as financial development takes place after a threshold level of income, it is the effect on income inequality depends on the stage of the countries development. Accordingly, an inverted U-shape relationship between financial development and income inequality has been found for eastern Asian countries (Mansour & Wendel, 2015). They state this result is due to financial sector features of these countries particularly beneficial for the rich people.

Previous empirical literature testing the Kuznets hypothesis on cross-country context has been criticized from both theoretical and data compatibility perspectives. Therefore, inter-temporal national studies have been proposed to test this hypothesis (Adelman & Robinson, 1989; Anand & Kanbur, 1993; Saith, 1983). The perpetuating problem of exacerbating inequality needs an additional check as the theoretical arguments of the distribution of income reveals that economic growth is accompanied by financial development. The differences in the data sample country and year is another cause for differences in the findings (Kavya & Shijin, 2020).

Indonesia though inherited the Dutch financial system as a Dutch colony has a financial system that still remains at a rudimentary level compared with those of Taiwan, Singapore, Hong Kong, and South Korea. An important feature of Indonesian financial system is informal banking system made up of money changers dealing with cash loans and postdated cheques and inadequacy of financial instruments for investment purposes (Dickie & Layman, 1988).

We justify our choice of selection of a country for this research not only from the dichotomic characteristics of the Indonesian economy but also from the methodological compatibility of testing the

hypothesis. The contribution of the present article is to re-examine inequality widening or inequality curbing hypothesis under the light of the Kuznets curve hypothesis in the Indonesian context.

2 | REVIEW OF LITERATURE

Empirical literature addressing the FD-inequality nexus is ambiguous. Kuznets (1955) arguments about possible urban migration and subsequently have a diminishing impact on inequality underpinned the inverted U hypothesis. It was assumed that urban development validates the poor rural migrants to migrate, followed by increasing their average income, and choose their education and businesses in the later stage of growth irrespective of their inherited possession. The theoretical foundation was further augmented to the extent that well-developed financial markets have an inequality reducing effect or can follow an inverted U hypothesis (Banerjee & Newman, 1993; Galor & Zeira, 1993; Greenwood & Jovanovic, 1990). However, the country-specific studies document different conclusions. For instance, it has been asserted that FD has a diminishing inequality effect for the bottom income holders for the United States (Beck et al., 1999) whereas lesser enlargement in the financial sector would lower inequality in Thailand (Gine & Townsend, 2004).

Empirical literature also evidences that international level of financial globalization can effectively maximize capital and can even lower the cost of productive investments by allowing foreign capital to have access to domestic financial markets and increase the amount of available capital (Ang, 2008; Beck et al., 1999; Carkovic & Levine, 2005; Demircuc-Kunt & Levine, 1996; Federici & Carioli, 2009; Hermes & Lensink, 2003; King & Levine, 1993; Kose, Prasad, Rogoff, & Wei, ; Levine, 1998, 2005). It has been argued that in the presence of institutional quality, financial development can be effective in allocating proper allocation of resources, thereby reducing inequality. The free movement of capital leads to the efficient allocation of resources globally, given that no asymmetric information in the financial markets and no underdeveloped institutions are observed (Arestis, Nissanke, & Stein, 2005; Stiglitz, 2000). Therefore, a congenial legal environment, better awareness of property rights, political pluralism can act as a catalytic factor further augmenting the benefit of FD. The strongest possible influence of FD can be experienced in the presence of the rule of law and quality financial regulation (Arestis & Demetriades, 1997; Demetriades & Andrianova, 2004). However, low quality of governance manifested in the form of corruption or political intervention in the banking sector might deflect credit to unproductive sectors, thereby aggravating inequality (Kutan, Samargandi, & Sohag, 2017).

Moreover, Fisman and Gatti (2002) substantiate that the fiscal decentralization of government expenditures is strongly linked with the low levels of corruption. Therefore, the increased centralization of economic management is a signal of a high level of corruption, and the resulting low quality of governance impedes economic equality. For instance, Hall and Jones (1999) present robust findings on the positive effects of good governance on growth, which significantly supplements the effect of physical capital accumulation. The authors argue that the extent to which a country was exposed to western influence plays a

crucial role in the country's ability to design formal institutions for good governance consequently reduce income inequality.

Trade openness, rapid liberalization has been argued to have inequality increasing impact in the literature. For instance, trade openness is related to increase in within-country wage inequality for developing countries (Goldberg & Pavcnik, 2007). Rapid liberalization also authorizes influential people to manipulate bank transactions (Stiglitz, 2002a) and follows uneven access to the financial markets. Accordingly, Berggren (1999) finds trade liberalization and financial mobility to augment inequality after disaggregating economic freedom measure. Likewise, Shaw and Carter (2007) detects a negative relationship between economic freedom and income equality by reducing income redistribution towards the poor. Similarly, Bergh and Nilsson (2010) argue that trade liberalization has a positive significant robust effect on income inequality for 80 countries during 1970–2005. They depict the negative impact of deregulation and social globalization on income inequality.

Stiglitz (2002b) asserts that uncontrolled globalization cannot bring welfare for the states because their impact is conditional on proper timing, sequencing, ideologically conflicting values, adequate institutional setups, and proper international judicial frameworks of those countries. For instance, Wood and Riddo-Cano (1999) contend that several Latin American countries had experienced substantial increments in inequality during trade liberalization in the 1980s and 1990s, which is similar to India, Indonesia, and Hong Kong. Similarly, Wei and Wu (2002) shared China's negative experience of increasing income inequality along with the exposure to globalization during the 1980s and 1990s. Moreover, the cascading effects of global financial crises can have severe consequences on real sectors of several economies. In a cross-country framework, Tumwebaze and Ijjo (2015) investigate the contributions of COMESA¹ integration of the free trade area of Eastern and Southern Africa to economic growth using a GMM regression and find no evidence of the positive influence of this integration on economic growth. Read (2004) further emphasizes two critical points at the core of the proper functioning of globalization. First, the pro-market growth strategies imposed by Western ideology is virtually incongruent with the realistic axioms of market imperfections that prevail in many developing countries. Second, the existing international judicial structure must be composed of a multilateral regulation that facilitates numerous opportunities across different countries. Eventually, developing countries would encounter adverse effects of globalization if these countries fail to fulfill the points mentioned above.

3 | METHODOLOGY, VARIABLE AND MEASURES

3.1 | Variable and measures

In order to assess the impact of real interest rate on income inequality, we have taken several variables. Table 1 explains the variable, definition, and sources.

TABLE 1 Variable, definition and source

Variable	Definition	Source
GINI	Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus, a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.	World development indicator
LGDP	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2010 U.S. dollars. We take natural log	World development indicator
RIR	Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. The terms and conditions attached to lending rates differ by country, however, limiting their comparability. We also take quadratic term.	World development indicator
POPU	Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship. The values shown are midyear estimates.	World development indicator

3.2 | FM-OLS framework

This study applies the fully modified ordinary least squared (FM-OLS) regression approach to measure the dynamic impact of capital and compensation on LP along with respective control variables.

$$\ln LP_t = \beta_0 + \beta_1 X_t + \varepsilon_t \tag{1}$$

where ε_t is the error terms while $\ln LP_t$ is the dependent variable (LP), β_0 is the intercept, β_1 is the vector slope coefficients and X_t is the vector of independent variable (including compensation, size of labor, and capital).

The FM-OLS approach was developed by Phillips and Hansen (1990) to retrieve the unbiased estimators of co-integrating regressions under single equation-based modeling. This method modifies ordinary least squares (OLS) to eliminate the potential endogeneity bias problem and addresses potential serial correlation problem. The FM-OLS estimator is asymptotically unbiased and fully efficient in the presence of mixture normal asymptotic. The unit-root approach has mixed order of integration, which endorses the validity of FM-OLS to analyze the series under consideration. Therefore, the co-integration estimation of FMOLS is carried out by the standard Wald tests using asymptotic Chi-square statistical inference. Assuming the following linear regression model:

$$Y_t = \beta_0 + \beta_1 X_t + u_t, t = 1, 2, \dots, n \tag{2}$$

where the vector of regressors are characterized as $I(1)$ and are not co-integrated individually, X_t has, therefore, a first-differences stationary process given by

$$\Delta X_t = \vartheta + \nu_t \text{ where } t = 2, 3, \dots, n \tag{3}$$

whereas ΔX is transformed to be stationary by segregating the vector of drift parameters (ϑ) and ν_t a vector of $I(0)$, or stationary variable.

This approach assumes $\xi_t = (u_t, \nu_t)'$ following a strictly stationary process, with zero mean and a finite positive-definite covariance matrix Σ . The estimation of FM-OLS approach mainly retrieves the parameter β in a two-fold process. Firstly, Y_t is modified for the long-run T interdependence of u_t and ν_t . Besides, $\hat{\mu}_t$ presents identically and independently distributed, like the residual of OLS estimator.

$$\xi_t = \begin{pmatrix} \hat{u}_t \\ \hat{\nu}_t \end{pmatrix}, t = 2, 3, \dots, n \tag{4}$$

Whereas $\hat{\nu}_t = \Delta X_t - \hat{\mu}$ for $t = 2, 3, \dots, n$ and $\hat{\mu}_t = (n-1)^{-1} \sum_{t=2}^n \Delta X_t$. A consistent estimator of the long-run variance of ξ_t is given by

$$\hat{\Omega} = \hat{\Sigma} + \hat{\Lambda} + \Lambda' = \begin{bmatrix} \hat{\Omega}_{11} & x_1' \hat{\Omega}_{11} & \hat{\Omega}_{21} & x_1' \hat{\Omega}_{21} \\ 1 & 1 & & \\ \hat{\Omega}_{21} & x_1' \hat{\Omega}_{21} & \hat{\Omega}_{22} & x_1' \hat{\Omega}_{22} \\ k & & 1 & \end{bmatrix} \tag{5}$$

Where $\hat{\Sigma} = \frac{1}{n-1} \sum_{t=2}^n \hat{\xi}_t \hat{\xi}_t'$, $\hat{\Lambda} = \sum_{s=1}^m w(s, m) \hat{\Gamma}_s$, $\hat{\Gamma}_s = n^{-1} \sum_{t=1}^{n-s} \hat{\xi}_t \hat{\xi}_{t+s}'$ and $w(s, m)$ is the lag window with horizon m . Now let

$$\hat{\Delta} = \hat{\Sigma} = \hat{\Lambda} = \begin{bmatrix} \hat{\Lambda}_{11} & \hat{\Lambda}_{12} \\ \hat{\Lambda}_{21} & \hat{\Lambda}_{22} \end{bmatrix} \tag{6}$$

$$\hat{Z} = \hat{\Delta}_{21} - \hat{\Delta}_{22} \hat{\Omega}_{22}^{-1} \hat{\Omega}_{21} \tag{7}$$

$$\hat{Z} = \hat{\Delta}_{21} - \hat{\Delta}_{22} \hat{\Omega}_{22}^{-1} \hat{\Omega}_{21} \tag{8}$$

$$\hat{Y}_t^* = Y_t - \hat{\Omega}_{12} \hat{\Omega}_t^{-1} \hat{v}_t \tag{9}$$

$$(k+1) \times k = \begin{bmatrix} 0 & & & & \\ & xk^0 & & & \\ & 1 & & & \\ & & lk & & \\ & & & xk^k & \\ & & & & k \end{bmatrix} \tag{10}$$

In the second stage the FM-OLS estimator of β is given by:

$$\hat{\beta}^* = (W'W)^{-1} (W'\hat{Y}^* - nD\hat{Z}) \tag{11}$$

Where $\hat{Y}^* = (\hat{Y}_1^*, \hat{Y}_2^*, \dots, \hat{Y}_n^*)'$, $W = (\tau_n, X)$, and $\tau_n = (1, 1, 1, \dots, 1)'$.

3.3 | Dynamic OLS

Another alternative single equation estimator procedure is Dynamic OLS (DOLS). The principle benefit of the DOLS approach is that it considers the presence of a mixed order of integration of the respective variables in the co-integrated framework. The estimation of DOLS involves regressing one of the I(1) variable against other I (1) and I(0) variables by taking leads (p) and lags (-p) in the framework (Ang, 2008). In consequence, this estimator solves possible endogenous bias small sample bias problems. Moreover, the obtained co-integrating vectors from DOLS estimators are asymptotically efficient.

4 | RESULTS AND DISCUSSION

Table 2 reports descriptive Statistics. The mean value of GINI is 0.4698, indicating a moderate level of income inequality where the maximum value is 0.54, which quite high. Real interest rate (RIR) 18.07, which is also high.

Before estimating our main model, we present the order of the integration test to confirm the suitability of FM-OLS and DOLS tests in our empirical settings. Table 2 reports that ADF and DF-GLS tests accept the null hypothesis of a unit root against the alternative hypothesis of stationary for each variable in our study. Both ADF and DF-GLS test confirms that all variables in our study are characterized by the unit-root problem at level except population (POPU), while the first differenced values of all variables are stationary (Table 3).

Table 4 reports that coefficient of LGDP shares a significant negative relation with Gini index, which is the measure of the distribution of income across income percentiles in a population under both Dynamic OLS (DOLS) and Fully modified OLS (FMOLS). It implies that Indonesia follows a downward trend in inequality with the rising income. However, the urban population has a significant positive impact on inequality under both FMOLS and DOLS method, which may be due to the increment in unemployment in the urban informal

TABLE 2 Descriptive statistics

Variable	Obs	Mean	SD	Min	Max
GINI	35	0.4698	0.0534	0.3768	0.5432
LGDP	35	7.7752	0.329	7.231	8.3627
RIR	35	18.0785	5.4134	10.536	32.154
POPU	35	19.174	0.1488	18.900	19.405

TABLE 3 Order of integration under DF-GLS

Variable	Dickey-fuller test		DF-GLS	
	Level	First difference	Level	First difference
GINI	-3.083	-3.938 ^b	-2.418	-4.528 ^a
LGDP	-2.214	-3.635 ^b	-2.175	-3.597 ^b
POPU	-7.070 ^a	-3.741 ^b	-1.159	-1.417
RIR	-1.864	-6.250 ^a	-2.233	-5.584 ^a

Note: a, b, and c indicate 1, 5, and 10% significance level, respectively.

TABLE 4 Income inequality and interest rate

Variables	GINI	GINI
LGDP	-0.284 ^a (0.0288)	-0.299 ^a (0.0695)
POPU	0.994 ^a (0.110)	0.670 ^a (0.152)
RIR	-0.0133 ^c (0.00720)	-0.0334 ^a (0.00975)
RIR ²	0.00058 ^a (0.00016)	0.00066 ^a (0.00021)
Constant	-16.61 ^a (2.092)	-9.675 ^a (2.506)
Observations	32	34
R-squared	0.964	0.836

Note: a, b, and c indicate 1, 5, and 10% significance level, respectively.

sector. People migrate from rural area to urban area might not get absorbed either in the urban formal or informal sector as Indonesian financial sector is primarily characterized by the informal banking system and inadequacy of financial instruments for investment purposes (Dickie & Layman, 1988). Insufficient investments may not help reduce the problem of unemployment and inequality. Moreover, capital-intensive technology fails to absorb excess rural labor. Interestingly, real interest rate shares a positive relationship with GINI index initially and turns negative after the interest rate reaches a certain threshold level across both FMOLS and DOLS which implies a U-shaped nonlinear relationship between financial markets incentive and inequality.

Our result can be explained by the fact that financial development expands access to finance for a few groups of people due to some legal barrier, including collateral requirement. Therefore, the benefit

of FD follows a skewed distribution aggravates inequality initially. With the increased incentives for investment, many underprivileged people get access to the loan, credit disbursements which might help them to circumvent the vicious cycle of poverty.

5 | ROBUSTNESS CHECK

Lind and Mehlum (2010) argue that the standard econometric framework is inappropriate for testing the composite null hypothesis that the left side of the interval is decreasing, whereas the right side of the interval is increasing, or vice versa. The incorporation of the quadratic term as an independent variable in the standard regression satisfies only the necessary but not the sufficient condition (Lind & Mehlum, 2010). As previously mentioned, the estimation of the Panel-ARDL framework that takes the quadratic form of globalization fulfills the necessary condition for the existence of a U-shaped or an inverted U-shaped relationship. Therefore, to fulfill the sufficient condition, we apply the U-test approach suggested by Lind & Mehlum, 2010.

To accomplish this task, we estimate the following model:

$$GINI_{it} = \alpha RIR_{it} + \beta RIR_{it}^2 + \gamma LC_{it} + \varepsilon_{it}, \dots, t = 1, \dots, T \text{ and } i = 1, \dots, n, \dots \quad (12)$$

where IQ_{it} is the explained or dependent variable (institutional quality), GI is the main explanatory variable (globalization), C_{it} is a vector of control variables with the respective parameters γ , and ε_{it} is the error term. Equation (3) assumes only one extreme point as the requirement for the U shape to be negatively sloped at the beginning and positively sloped at the end of a reasonably chosen interval of GI (GI_{min} , GI_{max}).

A U-shaped curve could be estimated by conducting a joint hypothesis test as follows:

$$\text{Null hypothesis is } H_0 : (\alpha + \beta RIR_{min} \leq 0) \cup (\alpha + \beta RIR_{max} > 0.)$$

and the alternative hypothesis for an inverted U-shape is

$$H_1 : (\alpha + \beta RIR_{min} > 0) \cap (\alpha + \beta RIR_{max} < 0)$$

where RIR_{min} and RIR_{max} represent the minimum and maximum values of globalization. If the null hypothesis is not rejected, this confirms the existence of the linear relation. Otherwise, the alternative hypothesis of an inverted U-shape holds.

Table 5 provides information regarding the robustness check of the nonlinear U-shaped relation. The lower bound of the estimated U shaped curve is estimated to be 10.53, and the upper bound is 32.15. The downward slope of the U curve is -0.0194 , and the upward slope is 0.00917 respectively. Both the slopes of the downward and upward sloping U shaped curve have been statistically significant. Therefore, it confirms the overall presence of a nonlinear U-shaped curve. The lowest or minimum point of the U-shaped curve from which the curve turns to increase its slope has been estimated to be 25.22. Figure 1 confirms the U-shaped relation between income inequality and real interest rate.

TABLE 5 Nonlinearity test

Slope	Income inequality and interest rate	
	Lower bound	Upper bound
Interval	10.536	32.1541
Slope	-0.0194	0.00917
T-value	-3.6105	2.19391
p-value	0.00048	0.01758
Overall presence of a U shape		
T-values	2.19^b	
Turning point	25.222	

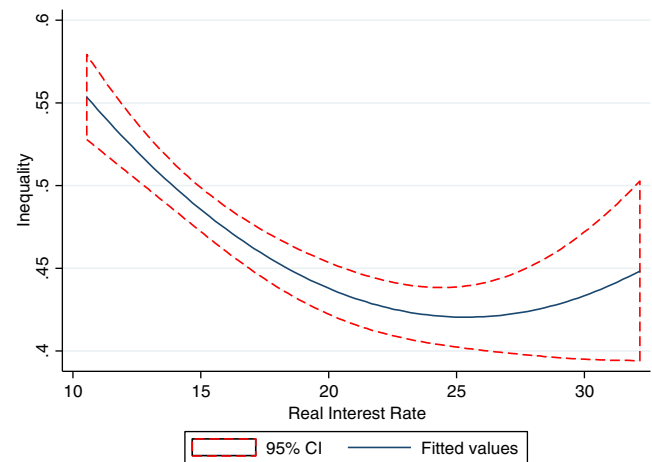


FIGURE 1 Income inequality and real interest rate [Color figure can be viewed at wileyonlinelibrary.com]

6 | CONCLUSION

Indonesia has been enjoying a substantial economic growth through transforming the economy from socialistic paradigm to free-market economic growth paradigm. Although the egalitarian socialism emphasized on an even distribution of income or resources by restricting private ownership of lands. However, our concern is about the inclusiveness of such economic growth under the new growth paradigm of Indonesia

We mainly investigate the role of real interest rate (RIR) on income inequality (GINI) by incorporating the role of GDP per capita and population. Further, we consider the real interest rate and its square form to assess inequality Kuznets Curve. In doing so, we employed FM-OLS and DOLS approach to analyze the time-series data from 1984 to 2018. We provide evidence that interest rate exacerbates income inequality in the long-run economy of Indonesia. Our investigation finds the presence of a U-shaped relation between income quality and interest rate. Specifically, we find that when interest rate cross 25.22% foster inequality rapidly. Economic growth significantly reduces inequality. We claim all our inferences to be robust after conducting robustness checks.

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ENDNOTE

¹ Common market for Eastern and Southern Africa

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