

## Conference Paper

# Analysis of Indonesia Inequality Income Distribution

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## Abstract

The relationship between income distribution inequality and inflation is widely discussed in economics. The different concepts of macroeconomic management in various countries have different implications for each country. This paper aims to examine the relationship between inequality in income distribution and inflation. Panel ARDL with semi-annual data from 33 provinces in Indonesia for the period of 2012-2018 is used in this model. The results show that changes in poverty and economic growth are not statistically significant in affecting the changes of income disparity in short run. Inflation is too low, thus it is less effective at encouraging income inequality in Indonesia. In addition, in the long run, inflation does not affect the inequality of income distribution, it is assumed that the benefits of inflation are concentrated in groups of people with high income levels. Moreover, economic growth has negative impact on income inequality and poverty that eventually will aggravate the imbalance in income distribution. Therefore, its is recommended for Indonesia's economy to be directed at increasing inflation to reach the ideal level in order to be able to reduce the imbalance in income distribution.

**Keywords:** Inequality, inflation, poverty, growth, Panel ARDL

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## 1. Introduction

Income distribution has short and long run implications policy makers have to consider in assessing the implications of government policies. Policy makers need to assess the implications of any policies toward the change in income distribution. (F. A. Al-marhubi, 2000) has established the inequality-inflation link to understand the importance of stabilization policy. Unstable macroeconomic environment during spiking inflation rate resulted higher unemployment thus severely affecting some proportion of lower income people, and further affecting the average level of income. This mechanism provides the linkage between inflation and income distribution (Levernier, Rickman, & Partridge, 1995).

Some important empirical findings have established the inequality-inflation link (F. Al-marhubi, 1997; F. A. Al-marhubi, 2000) investigates the inflation-inequality link by

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using positive political-economy approach and finds that countries which have a greater inequality have a higher average rate of inflation. (Albanesi, 2001) investigates cross-country correlation between average inflation and measures of income inequality. Using 51 industrialized and developing countries, averaged over the time period from 1966 to 1990 the research concluded that inflation is positive in equilibrium while larger inequality corresponds to higher equilibrium inflation.

(Azzoni, 2001) has analyzed regional inequality in Brazil using data from the period 1939-1995. (Barro, 2000) has used a panel data approach to investigate 100 countries for the period 1960-1990. (Bandeij and Mahutga, 2010) have presented one of the cross-national analyses of the Central and Eastern European States after the fall of the communistic regimes.

Indonesia has experienced rapid economic growth and a substantial plunge in poverty since the past decades. Several factors account for Indonesia's impressive economic performance, including economic liberalization, export-oriented industrialization, financial market development, in addition to the expansions of production and employment in agricultural sectors and pro-poor public spending and transfers. Notwithstanding its economic success, it has also been evident that the economic gains are unevenly distributed as economic development brings about rising income inequality.

The distributional consequences pose serious challenges to sustainable and inclusive economic development in Indonesia in many ways. The inequitable distribution of economic benefits tends to usher in redistributive policies and various interventions such as tax measures and social subsidies, which are fundamentally distortive and lead to inefficiencies and resource misallocation (Alesina and Rodrick, 1994). Likewise, inequality spawns socio-economic instability and violence and ultimately become critical threats to smooth development and social cohesion in many parts of developing Asia (Keefer & Knack, 2002). Moreover, excessive concentration of a nation's wealth and economic resources in a few small economic groups entails inadequate market size and aggregate demands which in turn exacerbate competitiveness of an economy (Murphy, et al., 1989). Lastly, rising inequality necessitates substantial investment in social capital such as human capital and infrastructure and hence forces an economy to forego more competent investment alternatives, ultimately hampering economic growth (Benabou, 1996)

This paper further investigates the inequality-inflation link in Indonesia using cross provincial data with some macroeconomics variables as control parameters. This paper

contributes some notable important novelties. First, this paper investigates the sources of cross provincial income inequality in Indonesia. Using economic growth, poverty and inflation, to authors' best knowledge this paper will serve as the first paper to find the source of income inequality in Indonesia. Second, the paper uses the latest available data, so accordingly, it can be regarded as an update or an extension of income inequality analyses in Indonesia.

## 2. Literature Review

The relationship between inflation and income inequality has been studied by many researchers over the years. (Thalassinos, Uğurlu, & Muratoğlu, 2012) conducted the research in 13 European countries for the period 2000 to 2009 using panel data. The results showed that inflation has a positive significant effect on income inequality. Meanwhile, (Monnin, 2014) also estimated research in 10 OECD countries over the period 1971 to 2010. This study explains about the link between income inequality and inflation. Using a balanced panel method, it showed that low inflation rates are related to inequality.

Moreover, (Crowe, 2004) (Lahiri & Ratnasiri, 2010) reviews of theories about inflation and income inequality and offers a political economy explanation for the relationship. It was found that the relationship between inflation and inequality relied on different institutional and preference. (Cysne & Maldonado, 2005) studies heterogeneous agent shopping-time economy to investigate inflation and income inequality link. Based on the model it is theoretically proved that the formal link between inflation and the Gini coefficient of income distribution. One another research (Beckfield, Mcmanus, Robinson, Clemens, & Klugman, 2005) shows that regional integration explains nearly half of the increase in income equality in Western Europe.

## 3. Methods

This paper uses panel ARDL using dynamic semi annual data from 33 provinces in Indonesia for the period of 2012-2018. The data is from BPS Indonesia. The variables are Gini Index for income inequality, changes of GRDP for growth, consumer price index for inflation and percentage of people under poverty for poverty.

## 4. Results and Discussions

### 4.1. Descriptive statistics for all variables and stationery testing

The highest coefficient of Gini Index is 0.459 occurs in the Papua in the period 2014s2 by the standard deviation 0.0385. The highest economic growth rate of 30.71% once experienced by Papua in the period 2016s2, with estimated standard dev of 4.414. South Kalimantan experienced the highest inflation of 4.13 occurring in 2013s1. The highest percentage of poor people experienced by the province Papua at 2013s2 as much as 31.53%.

It showed that at sub national level, Indonesia experienced disparities in development outcomes. Papua remained under developed, constituted by the facts that it has the highest income disparity and plagued with poverty. Papua once experienced extremely high change of GRDP, recording a remarkable economic growth of about 31 percent.

Using the tests as proposed by (Levin, Lin, & Chu, 2002), (So, Pesaran, & Shin, 2003), as well as the standard Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) showed that inflation and growth variables are stasioner at I(0). Meanwhile Gini index and poverty stasioner at I(1). The fact that no variables stationer at I(2) confirmed that the panel ARDL is suitable for estimation and inference.

### 4.2. Model Estimation

Panel ARDL reports that in short run, changes in poverty and economic growth are not statistically significant in affecting the changes of income disparity in short run. But inflation has negative but significant effect toward the change of income disparity in short run. An increase in inflation decreases the income disparity. The magnitude is estimated -0.002069 and it means that a unit increase in inflation will reduce income disparity as much as 0.002069 and statistically significant at one percent.

As a profit signal, increasing price in short run serves as a boost for production, allowing producers to hire more labor, and this process increases average income and lower income disparity. It provides an indication that the inflation level in Indonesia is actually too low, discouraging producers to produce more goods and services, limiting utilization of new labors. In short run, inflation is actually beneficial to reduce the disparity.

Long run estimation shows different stories. Inflation does not affect income inequality significantly. It does have negative effect, but statistically the effect is negligible. It

implies that in long run, the short run significant effect runs out. This observation provides an insight that persistent inflation in the long run will pull the benefit away from the poor, and the distribution of income has now in favor to the proportion of population with high income, owing to the fact that those people have more capacity to capitalize the benefits.

In the long run, economic growth has negative impact on income inequality. It means that higher economic growth will adverse the income inequality, even though the effect is negligible. Poverty will continue to worsen the income inequality and in long run a slight increase in poverty will worsen the income inequality by 0.007369 (0.0025 in short run) and this magnitude is statistically significant at one percent.

## 5. Conclusion

This paper aims to analyze the sources of income inequality in Indonesia. Based on the analysis, the authors concluded that inflation, economic growth and poverty are among the key sources of income disparity in Indonesia at sub national level. Short and long run effects from these variables are implying that inflation is key factor affecting income disparity in the short run, but in long run, poverty affects income inequality more significantly. Short run and long run effects shift from more meaningful effect in short run into more negligible effect in long run, such as the inflation. On the other hand, the negligible effect in short run might shift into more statistically meaningful effect in the long run, such as the poverty.

This paper shows that Al-Mahrubi's inequality-inflation link does not hold in the long run but rather in the short run. It contradicts to the link as the result of remarkably low inflation level in Indonesia in the period of observation. Most of the sub national inflation levels recorded negative inflation. As the consequence, the link did not establish in Indonesia.

Policy to recalculate the optimal rate of price in Indonesia must be reviewed to allow price motivates production, and production further motivates job creation and better income distribution in the short run. This paper concludes that stabilization policy must be redirected to provide economic vibrancy from a more reasonable inflation level, aiming to better income distribution in the short run, and aiming to decrease the poverty level in long run. In short, policy makers must consider new set of policy to loosen the price and redirect the benefit from increasing GDP and GRDP to establish better policy to address poverty.

For further research, considering limited years of observation and data availability, the authors suggest to re-establish the inequality-inflation link using longer sets of data. Authors also encourage future researches to establish the linkages between inflation, poverty and income inequality to help policy makers in Indonesia to understand the main source of income inequality.

## Lampiran 1

Dependent Variable: D(GI)  
 Method: ARDL  
 Date: 07/06/19 Time: 23:26  
 Sample: 2012S2 2018S2  
 Included observations: 429  
 Maximum dependent lags: 1 (Automatic selection)  
 Model selection method: Akaike info criterion (AIC)  
 Dynamic regressors (1 lag, automatic): POV INF GROWTH  
 Fixed regressors: C  
 Number of models evaluated: 1  
 Selected Model: ARDL(1, 1, 1, 1)

Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long Run Equation				
POV	0.007369	0.001217	6.052571	0.0000
INF	-3.03E-05	0.001027	-0.029535	0.9765
GROWTH	-0.000136	0.000710	-0.192100	0.8478
Short Run Equation				
COINTEQ01	-0.466776	0.051029	-9.147173	0.0000
D(POV)	0.002538	0.002793	0.908586	0.3643
D(INF)	-0.002069	0.000572	-3.617221	0.0004
D(GROWTH)	-4.31E-05	0.000241	-0.179148	0.8579
C	0.128287	0.013824	9.280003	0.0000
Mean dependent var	-0.001746	S.D. dependent var		0.017396
S.E. of regression	0.012641	Akaike info criterion		-5.292819
Sum squared resid	0.046982	Schwarz criterion		-3.788978
Log likelihood	1390.641	Hannan-Quinn criter.		-4.700745

\*Note: p-values and any subsequent tests do not account for model selection.

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