



# Credit, Fiscal Policy, and Income Inequality: Empirical Study from Indonesia

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## Abstract

This paper investigates the relationship between credit, fiscal policy and income inequality in Indonesia. Annual data collected from Central Statistic Bureau is used from 2010 to 2020. The analytical method of this research is Generalized Least Square (GLS) to examine the relationship between variables. The results show that credit positively and significantly affects income inequality. Local government spending which is a proxy for fiscal policy has a significant and positive effect on income inequality. The inflation variable has a significant positive effect on income inequality. However, the Gross Regional Domestic Product (GDRP) per capita has a significant negative effect on income inequality. Based on these findings, it is recommended that the government be able to maintain the momentum of the increasing trend of economic growth by providing the right stimulus, among others by providing access to credit that is easier to reach for the low-income class. In addition, local government expenditure allocations should be better allocated to provide benefits for increasing community income, such as social assistance in the form of direct assistance or free job training by utilizing job training centers tailored to each region's potential.

*Keywords:* Income Inequality, Fiscal Policy, Credit, GLS

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## 1. Introduction

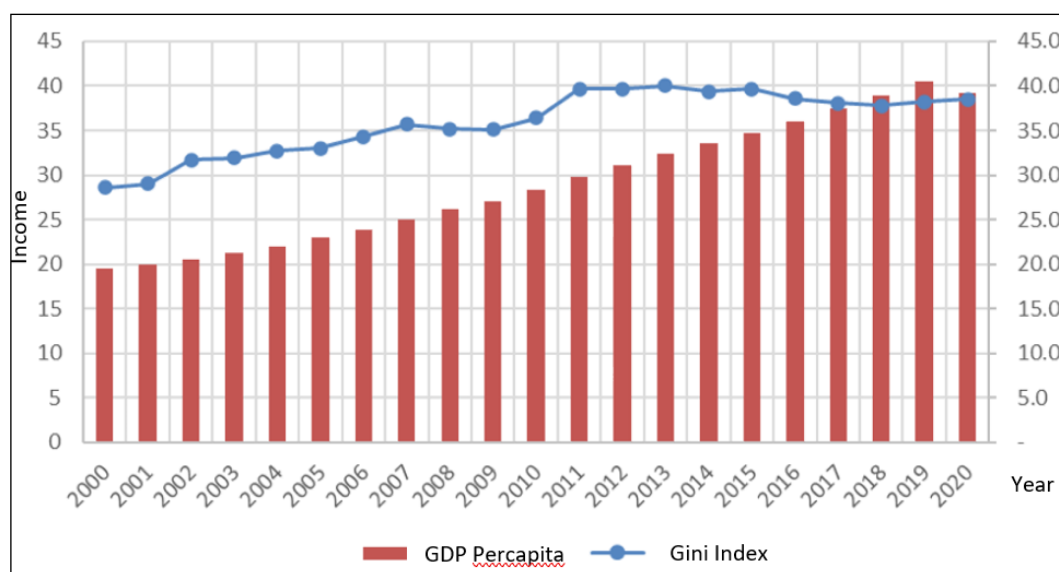
Given abundant reserves of natural resources and a large workforce, Indonesia has managed to achieve a relatively high and stable economic growth in the last two decades (Akita, 2022). In addition, good economic conditions have enabled Indonesia to reduce the high poverty rate that is typical of developing countries (Fadliansah et al., 2021). However, the problem that always arises with the economic growth of a country is that inequality has increased sharply in the last two decades, especially in the decade after the reform (Wicaksono and Amir, 2017).

When encountering the Asian financial crisis in 1998, Indonesia recovered its economy quickly. It can be seen from the higher GDP per capita growth after 2000. The poverty rate, which had soared drastically, was slowly being reduced from time to time (Nugraha and Lewis, 2013). However, promoting higher economic growth has negative consequences on income distribution. It can be seen from the Gini index, which rose sharply at the beginning of the reform era. The income gap between the lower and upper decile groups is getting wider (Kataoka, 2018). The Gini Index, which is used to measure the income distribution gap of society, showed 28.6 in 2000 and increased to 39.7 in 2011 (See Figure 1). It means that growth and development in the 10 years after the high-income group enjoyed the Asian financial crisis, than those with low incomes.

The financial sector is one sector that can affect income redistribution (Nazli et al., 2021). Business loans disbursed in the financial system are expected to provide opportunities for all levels of society in improving their welfare. One of the institutions that play a role in lending to the lower middle class is a cooperative firm. The Ministry of Cooperatives and Small & Medium-Sized Enterprises (SMEs) stated that the development of national cooperatives in the last five years showed a very positive performance. The contribution made by cooperatives to Gross Domestic Product (GDP) increased from 3.99% in 2016 and increased to 5.1% in 2018. The business volume of cooperatives had increased by 103%, namely in 2016 of 67.5 trillion, increasing to 137.26 trillion in 2017.

In addition, fiscal policy also has a significant role in the economy. Government spending results in an output exchange between the government and providers of goods and services (Sambas et al., 2021). (Lee and Lee, 2018). The income obtained can increase business capital so that business development occurs and creates new jobs. This condition provides opportunities for job seekers to find work and income, which will increase their purchasing power

to create conditions for a more even distribution of income. The Ministry of Finance noted that government spending growth experienced an average increase of 8.3% in the last five years.



**Figure 1.** Gini Index and GDP per capita, 2000-2020, Indonesia

In addition, inflation also has a significant role in influencing income inequality. An increase in the price of goods causes a decrease in people's purchasing power (Siami-Namini and Hudson, 2019). This situation is more felt by the lower middle class because they do not have wealth reserves that can be used as an alternative due to the decline in the value of the currency. Most lower-middle-class people save wealth in the form of money or savings. So when there is high inflation, they will find it challenging to get the goods they need. This condition will exacerbate the gap between the lower middle class and the upper-middle group.

Research that examines the relationship of GDP per capita to income inequality in a country gets various conclusions. Coady and Dizioli (2018) found that GDP per capita has a positive and statistically significant effect on income inequality in 6 groups of countries on a panel basis. Topuz and Dağdemir (2020) obtained evidence that GDP per capita has a negative and statistically significant effect on income inequality in the long term in Turkey. Lee and Vu (2020) found that GDP per capita has a negative and statistically significant effect on income inequality in 96 countries. Siami-Namini and Hudson (2019) found evidence that GDP per capita has a negative and statistically significant effect on income inequality in 24 developed countries. Omar and Inaba (2020) concluded that GDP per capita has a negative but not statistically significant impact on income inequality in 116 countries on a panel basis. Policardo and Carrera (2018) found that GDP per capita has a negative but not statistically significant effect on income inequality in 50 developed and developing countries spread across Europe, Latin America, Asia and the Pacific, Middle East and North Africa, and Sub-Saharan Africa. Meanwhile, Chambers et al. (2019) found that GDP per capita has a positive and statistically significant effect on income inequality in 115 countries on a panel basis.

Furthermore, some studies find that credit affects income inequality, but the findings are various. Park and Mercado (2018) found that credit has a negative and statistically significant effect on income inequality in a panel of 176 countries. Chambers et al. (2019) found that credit has a positive but not statistically significant effect on income inequality in a panel of 115 countries. Coady and Dizioli (2018) concluded that credit has a positive and statistically significant effect on income inequality in a panel of 6 countries. Omar and Inaba (2020) concluded that credit has a negative but not statistically significant effect on income inequality in a panel of 116 countries. Gharleghi and Jahanshahi (2020) found that credit has a negative and statistically significant effect on income inequality in poor and developing countries.

Furthermore, research examining the effect of inflation on income inequality in a country also finds various evidence. Cheng and Wu (2017) found that inflation has a positive and statistically significant effect on income inequality in China. Lee and Lee (2018) also found that inflation has a positive and statistically significant effect on income inequality in 95 countries. Coady and Dizioli (2018) concluded that inflation has a positive and statistically significant effect on income inequality in six groups of countries. Policardo and Carrera (2018) concluded that inflation had a positive and statistically significant effect on income inequality in 50 countries. However, Giri et al. (2021) and Siami-Namini and Hudson (2019) find that inflation has a positive but not statistically significant effect on income inequality in India and 24 developed countries. Meanwhile, Park and Mercado (2018) concluded that inflation has a negative and statistically significant effect on income inequality in developing countries in Asia.

## 2. Materials and Methods

### 2.1. Materials

This study aims to analyze the impact of GDP per capita, inflation, credit, and government spending statically income inequality. The data used is the panel from 33 provinces in Indonesia and annual data from 2010-2020 with 363 observations. Data were obtained from the Central Statistic Bureau (BPS) and the Ministry of Finance. The Gini ratio is measured by the estimated inequality figures from the Central Statistic Bureau (BPS) with 0-100. GDP per capita is the rate of economic growth based on constant prices in the year 2010 as measured by percent. Inflation is the rate of change of the consumer price index annually. Credit is cooperative business volume.

### 2.2. Methods

The Generalized Least Squares (GLS) analysis model was used in this study. The general functions of this study as follows (Bai et al., 2021):

$$GINI = f(INFL, CR, GOV, GRDP) \quad (1)$$

$$GINI = \alpha + \beta_1 INFL_t + \beta_2 CR_t + \beta_3 GOV_t + \beta_4 GRDP_t + \varepsilon_t \quad (2)$$

GINI is the gini index, CRE is the credit, GOV is local government spending both province and regency, GRDP is gross regional domestic product per capita.

The GLS procedure is assumed to restrain time-series autocorrelation and cross-section correlation among observations. The GLS method constructs an estimator to satisfy the best linear unbiased estimation (BLUE), a treatment to solve homoscedasticity and autocorrelation assumption. (Gujarati, 2009). Equation (2) is the general form of GLS estimation.

## 3. Results and Discussion

Results of econometric estimation using Generalized Least Square (GLS) approach based on time-series data from 2010-2020 is showed that all selected independent variables which are inflation, credit, government spending, and gross regional domestic product have a significant effect toward dependent variable income inequality. The simultaneous effect of independent variables based on the results show in Table 1, the probability value of the F-statistics obtained is 0.000 (<0.05), indicating that the selected independent variables together have a significant effect on income inequality. Furthermore, the value obtained of R-Squared is 0.834362 which indicates that the variation of the income inequality explained by the independent variables is 83.43%.

Based on each independent variable's t-statistical probability value, the estimation results presented in Table 1 can be explained as follows. INFL's probability is 0.0000 <0.05, with a coefficient value of 0.001247, which means that inflations have a positive and significant effect on income inequality in Indonesia. The estimated coefficient suggests that an increase in inflation by 1%, it will increase income inequality by 0.0012%. On the other hand, when a decrease in inflation by 1%, it will decrease income inequality by 0.0012%. This finding prove that the increase in inflation impacts high inequality in Indonesia. This is because inflation diminishes the real wage and redistributes income from wage earners to profit takers, deteriorating income distribution. Fischer and Easterly (2000) find that high inflation declines the share of the bottom quintile and the real minimum wage, increasing income inequality. As inflation is a tax on cash balances, it can disproportionately hurt poor households, whose wealth is mainly preserved in liquid assets such as cash and currency, increasing inequality (Albanesi, 2007). The results of this study are in line with previous studies, namely (Lee and Lee, 2018), (Cheng and Wu, 2017), (Coady and Dizioli, 2018), (Giri et al., 2021) also found that an increase in inflation may lead to increase income inequality because inflation causes an increase in the prices of goods and services while wages rate remains constant.

Furthermore, the probability of CR is 0.0008, with a coefficient value of 0.002574, so there is a positive and significance effect between credit and income inequality in Indonesia. The estimated coefficient suggests that an increase in credit by 1%, it will increase income inequality by 0.0025%. On the other hand, when a decrease in credit by 1%, it will decrease income inequality by 0.0025%. It indicates that credit channeled through savings and loan cooperatives has not been able to provide benefits for borrowers from the lower middle class. The value of credit disbursed by savings and loan cooperatives is minimal compared to credit extended by banks. Credit disbursed by cooperatives is specified to members only so that the public cannot directly reach credits. The community is given conditions that must be met to become a member, including mandatory savings and member savings. In addition, prospective borrowers usually must wait a few months after becoming a member to reach a loan. Moreover, members who get credit in savings and loan cooperatives tend to be slight and cannot be used as business capital. Most of the credits obtained can only be utilized for basic needs. Meanwhile, the upper-middle-class can get immense credit with collateral from the bank. These conditions lead to increase income inequality. The result of this study are in line with

(Chambers et al., 2019) (Coady and Dizioli, 2018) and (Topuz and Dağdemir, 2020) who found that unequal opportunities to access credit widen the gap between the lower-middle class and upper-middle class

**Table 1.** GLS estimation results

Variable	Coefficient	Prob.
INFL	0.001247	0.0000
CR	0.002574	0.0008
GOV	0.014847	0.0000
GRDP	-0.059057	0.0000
C	0.674330	
R-Squared	0.834362	
F-statistic	45.61517	
Prob(F-Statistic)	0.000000	

The probability of GOV is 0.0000, with coefficient value of 0.014847 means that the government spending has a positive and significant impact on income inequality in Indonesia. The estimated coefficient suggest that an increase on government spending by 1% will increase income inequality by 0.0148%. On the other hand, when a decrease in government spending by 1%, it will decrease income inequality by 0.0148%. The results of this study are different from most another previous studies. This study finds empirical evidence that government spending can increase income inequality in Indonesia. This study used local government spending in both provinces and regencies as a proxy. As we know that local government budget, specifically regency governments, is relatively small, and more direct expenditures are allocated, such as employee salaries and office operations. Meanwhile, expenditures allocated for massive and long-term development are taken out by ministries and institutions. In particular, social assistance spending and subsidies allocated by the relevant technical ministries. So that local government spending has not contributed to reducing income inequality. This study is in line with (Lee and Lee, 2018) which stated that government spending positively impacts the Gini coefficient.

The probability of GRDP is 0.0000, with coefficient value of -0.059057 means that the government spending has a negative and significant impact on income inequality. The estimated coefficient suggest that an increase on GRDP by 1% will decrease income inequality by 0.0148%. On the other hand, when a decrease GRDP by 1%, it will increase income inequality by 0.0148%. This study's results strengthen previous research that provides evidence that per capita GDP can reduce income inequality. It is also in accordance with the Kuznets hypothesis, which states that in the early development period, an increase in GDP per capita will have an impact on increasing income inequality. Then at a certain point, development begins to be felt more evenly distributed so that an increase in GDP per capita can reduce income inequality. It proves that Indonesia is experiencing a period where the decreasing income inequality curve in line with the increasing in GDP per capita. This study's results align with (Topuz and Dağdemir, 2020) (Lee & Vu, 2020), (Siami-Namini and Hudson, 2019) (Omar and Inaba, 2020) which proves that increasing in GDP per capita can reduce income inequality.

#### 4. Conclusion

This study focuses on the relationship between credit, fiscal policy, and income inequality. It does by estimating panel GLS regression. Credit and fiscal policy have a positive influence on income inequality. Fiscal policies in the form of local government expenditures, both provincial and district, have not reduced income inequality but can exacerbate inequality. Local government spending is allocated more for routine government administration activities that are not directly related to increasing people's income. Social assistance, which should increase the income of the lower class, is allocated in a small amount. Most of the direct social assistance to the community is allocated by relevant ministries such as the ministry of social affairs, the ministry of villages, and the disaster management agency. The local government has not been able to create a system for distributing aid and has not been able to provide accurate data on who is entitled to receive direct social assistance.

Credit disbursed by cooperatives has also not contributed to reducing income inequality. The amount of credit disbursed by cooperatives is much smaller than the amount of credit extended by banks. Credit provided by cooperatives also has a small limit, making it difficult for the lower class to increase their business from loans from cooperatives.

Rising inflation can increase income inequality. It is because inflation causes prices of necessities to rise while wages remain constant. It causes a decrease in people's purchasing power, making it difficult for people to improve their welfare.

In this research model, only GRDP per capita contributes to reducing income inequality. The GRDP per capita that continued to increase during the study period and the declining Gini index indicated that the whole community increasingly felt economic development.

Based on the results of this study, it is recommended that the government be able to maintain the momentum of the increasing trend of economic growth by providing the right stimulus, among others by providing access to credit that is easier to reach for the low-income class. In addition, local government expenditure allocations should be better allocated to provide benefits for increasing community income, such as social assistance in the form of direct assistance or free job training by utilizing job training centers tailored to each region's potential.

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