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DETERMINANT OF INCOME INEQUALITY IN INDONESIA: STUDY CASE 33 PROVINCES IN 2011-2016

Abstract:

This study intends to determine whether factors of income inequality in Indonesia based on regional data. Economic growth, unemployment, and inflation represent macroeconomic factors, whereas regional expenditure is deemed as a factor of the fiscal side. In the term of the financial, the study used the share of tradable sector credit to the total credit of commercial bank. By applying, the fixed effect panel framework, the study concluded that the factors of the macroeconomic and credit impact on income inequality, while the regional expenditure is not significant. However, the study also found that the impact of economic growth on inequality is positive which is different from previous studies. This suggests that the impact of economic growth tend to serve more middle and upper-income groups than lower income. Furthermore, the regional expenditure is mainly dominated by the personnel expenditure that has limited impact on income inequality. In addition, the disbursement of capital budgets is relatively low for roads, irrigation, and networking.

Keywords:

income inequality, macroeconomic, fiscal, financial

JEL Classification: H00, H70, H72

I. INTRODUCTION

The indicators used to measure economic development is the economic growth resulting from such development. Inequality was the main issue in the development of an economy because it has a detrimental impact on suspense economic and social tensions[1]. In economic terms, it is believed that in the long-term economic performance will be affected by a persistent gap in income distribution (Stiglitz, 2016).

Inequality also depicts unequal access to productive opportunities among income groups[2]. Therefore, to reduce the gap in income distribution is necessary to meet economic growth faster (Wicaksono et al, 2017). Economic growth indicates the extent to which economic activity will generate additional public revenue in a given period. According to the socio-political instability perspective, there is a relationship between greater inequality in wealth and income with highly destructive (such as crime, rioting, and revolution) that lead to instability and hinder long-term economic growth (Son, 2016).

The problem of income inequality is actually not only to emerge in emerging economies, but also in developed countries. However, there are concerns about escalating of income inequality in the emerging economies, since their contribution to the global economy has increased in the 2008 global financial crisis[3]. As a part of the emerging economy, Indonesia has successfully achieved decent economic growth that contributes to curtail the poverty rate as well unemployment rate. Nevertheless, income inequality remains high and is quite far from the target set in Indonesia's development plan (RPJMN) 2015-2019. Since it reached the highest level in 2014, the coefficient declined slightly, by 0.017 along the years 2014 to 2018. For the provincial level, there are eight of the 34 have a coefficient above than the national level by 0.389.

The findings of the study revealed that Indonesia is the fastest growing of the gap between the rich and the rest compared with South-East Asia countries[4]. The wealth of the four richest in Indonesia, which has more of the wealth of the poorest 100 million people. The research also noted that the wealthiest 1 percent of the population owned nearly half (49 percent) of the total wealth in 2016.

On the other side, government efforts to lessen income inequality have been conducted for long. In 1974, for instance, the government adopted Repelita II (the Second Five-Year Economic Development Plan) was followed by the 2001 fiscal decentralization. In this case, the central government has distributed the authority and resources to local governments in some regions such as the term political, financial, economic, and social

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[1] Effect of Unemployment on Labor Earnings Inequality: Argentina in the Nineties. Princeton University, Woodrow Wilson School of Public and International Affairs, Research Program in Development Studies, Working Paper No. 216. Gonzales and Menedez, (2000)

[2] The Links between Finance and Inequality: Channel and Evidence. It contained by Claessens and Perotti (2015)

[3] The emerging economies need to address to improve income distribution and curb inequalities, while promoting more and better jobs. OECD (2011)

[4] The number of billionaires in Indonesia has grown rapidly from one in 2000 to 20 in 2016 conducted by Oxfam (2017).

aspects. Kim (1992) noted that the study of spatial planning and regional development in Indonesia to be much more interesting since the country experienced high economic growth in the 1980s and 1990s.

This study aims to investigate the determinants of income inequality in Indonesia using the 33 provinces during the period 2011-2016. After the introduction, the paper will be followed by the literature, the model and findings. The last part is to be policy recommendations.

II. LITERATURES BACKGROUND

2.1 Income Inequality and Fiscal Decentralization

Proponents of fiscal decentralization believes that strategy can reduce regional disparities because there is a promotion for distribution through the transfer of funds from the central government. Furthermore, decentralization promotes efficiency and equity. However, Kim et al (1992) and Azis (1992) find that regional economic development is the contribution of government transfer are relatively small.

The results presented in the paper of Irawan (2014) revealed that the greater fiscal decentralization reduces regional disparities. This study also highlights that the impact of development spending, manufacturing sector, infrastructure, urban concentration, and public sector size has a significant influence on the equalizer in 33 provinces in Indonesia.
Decentralization also potentially a variety of spatial inequality due to: (i) the bargaining power of the rich regions to influence central government is relatively higher than poor ones; and (ii) the rich regions is much more appeal for investors than the poor regions because of a significant difference of resources (Rodríguez-Pose and Gill, 2005). Irawan (2014) outlined that the decentralization increased regional disparities or income inequality due to potential costs associated with institutional capacity, quality of government, and social-economic endowment.

There are two reasons why spatial inequality or regional disparities is essential for both central and regional government: (i) it influences to overall inequality; and (ii) regional disparities have a detrimental impact on society, social, and political stability (Irawan, 2014). The study findings of the relationship between fiscal decentralization and regional disparities different such as find the positive relation[5], and the other side concluded the negative[6].

[5] In Addition, Bonet (2006); Qiao et al (2008) and Kim et al (2003) decided for positive relation findings of the relationship between fiscal decentralization and regional disparities.
[6] This term was first coined by Akai and Sakata (2005) and Calamai (2009).

2.2 Income Inequality and Economic Growth

Economic development is associated with changes in inequality Kuznets (1995 in Sagala et al, 2013). There is an increase of income distribution in the first of economic development, plateaus, and then decreases. Kuznets noted that income inequality tends to soften when the share of non-agriculture sector rises.

The studies regarding the relationship between inequality and economic growth has been conducted by academicians. Results and different conclusions[7]; while Forbes (2000) find a positive sign.

There are three theoretical frameworks that underlie the negative relationship between income inequality and economic growth (Son, 2016). The first is the credit market imperfection theory, which is focused to analyze the number of bottlenecks faced by low-income families to access financial sector. As these income groups have limited access to both formal and informal credit market, the families will be the trap under of income.

The second theory based on political economy theories where economic inequality leads to distorted redistribution polities. This circumstance may decrease labour incentives and slow down economic growth. Finally, the view of socio-political instability of the state that there is a relation between greater inequality in wealth and income with highly destructive (such as crime, rioting, and revolution) resulting instability and hampers long-run economic growth.

2.3 Income Inequality and Financial Sector

The financial sector has an important role to reduce income inequality through economic growth. However, it requires a well-developed financial that offers inexpensive credit. Entrepreneurial activity, for instance, can create employment opportunities, increase economic growth; reduce income inequality when there is support from the financial sector. The financial sector may improve the liquidity sources to the business entity so that they no longer depend on internal financial resources (self-finance). For poor families, access to financial institutions also allow them to increase human resources with investment in health and education (Younsi and Bechtini, 2018).

In Vietnam, to deteriorate income inequality requires the interaction between financial development and education[8] (Hoi and Hoi, 2013). The research in China, Liang (2016) concluded that a high open financial market contributes to a low-income inequality. Meanwhile, there is the advantage of opening a rural bank to income distribution and total

[7] As the results from Alesina and Rodrik (1994).

[8] Financial Sector Development and Income Inequality in Vietnam: Evidence at the Provincial Level by Hoi and Hoi (2013)

per capita output in India (Burgess and Rohini, 2005). In Africa, financial development has no impact on poverty and inequality (Fowowe, 2013).

On the other side, the Gini coefficient can be increased because of financial development. During the initial stage of financial development, the cost to access the financial sector is relatively expensive for the poor. Consequently, the benefit of the development of financial is only limited for the rich. In the light of obtaining credit, poor experiences with a higher interest rate due to a risk profiling. In addition, the cost of credit for the poor is much more expensive than credit for the rich so that it required several requirements such as surveys and insurance.

Levine and Demirguc-Kunt (2009) explains that access to the financial sector determines the development of skill, especially for low-income families. In addition, the factors of parents' wealth, social status, as well as political relation also have an impact on financial access for society. Levine and Demirguc-Kunt (2009) agreed that the financial sector functions in income distribution begins with the allocation of capital. However, the intermediation function runs sufficiently, it will produce a positive spillover to the human resources, economic growth, and income distribution. Flug et al (1998) found that lack of access to financial institution reduces student's school participation. This study uses panel regression cross-country from 1970 to 1992.

According to Evans and Jovanovic (1989) explains that moral hazard and adverse selection make the cost of the funds more expensive depicted by a high-interest rate. A household survey in Vietnam undertaken by Ellertsons (2012) revealed that income inequality reduces due to the high access to credit for low-income families.

2.4 Income Inequality and Inflation

The relation between income inequality and inflation is positive[9]. Income inequality experienced a jump when the inflation rate tends to increase. Inflation has an impact that more the low-income households than rich-income ones (Laidler and Parkin, 1975, Fischer and Modigliani, 1978). The influence of inflation on income inequality can usually be traced from the wage growth. In developing and emerging economy, the growth of wages relatively lower than the inflation changes.

Walsh and Yu (2012) examined the impact of food inflation and non-food inflation (education for instance) on income inequality in China. It is clear that food prices in general impact on poor households, especially in urban areas, but it has a positive impact on the rural region. In India, this study concluded that non-food inflation aggravated income inequality both in urban and rural areas, while food inflation jeopardizes income

[9] Consider of Inflation and Inequality, this term contained by Albanesi (2002).

inequality in the rural area. In Thailand, to identify the impact of food price to the household. The middle group earned a profit of more expensive food prices[10].

Christaensen and Demery (2006); Rashid (2002); Warr (2005) believed that wage could not directly adjust to food price so that real wages tend to decline in the midst of higher inflation. Since most of the income of the lower-income households to food, their ability to raise from the bottom of income categories has been much harder. Wodon and Zaman (2008) argue that the impact of food prices on household depends on net consumption (production minus production).

2.5 Income Inequality and Unemployment

In several kinds of literature, the center of the unemployment and inequality issues based on two perspectives: (i) the reaction of unemployment and inequality in a fundamental change in the economy, such as a trade or technological shock; and (ii) the impact of unemployment changes in income inequality.

By using the US' between 1947 and 1974, unemployment worsens the income distribution[11]. Mocan (1999) seek the relationship between macroeconomic conditions and income distribution. The investigation concluded that income inequality was countercyclical in the behavior. The position of the low-income groups deteriorated in the case of an increase in unemployment. During the period 1949 to 1994, the income share of the bottom three quintiles and the second highest quintile reduce due to an increase in structural unemployment.

The higher unemployment the income shares of the top quartile in Sweden from 1960 to 1973[12]. Gonzalez and Menendez (2000) find the surge in unemployment impact of about 43 percent in the increase of inequality in Argentina during the years 1991 to 1998. In addition, education is responsible for determining income inequality by 32 percent. Whiteford and Van Seventer (2000) argue that trade liberalization is associated with rising income inequality through the skill composition shifting towards high skill labour.

Sheng (2011) undertook a study to investigate the relationship between unemployment and income inequality in the US in 1941-2010. The study concluded that there was a positive relationship between unemployment and income inequality. It discovered from the tradeoff between the change rates of unemployment and the wage share. The wage share in aggregate personal income is used as a proxy for income inequality. Soaring unemployment is as one of the reasons behind rising income inequality.

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[10] Daton (1989) used analysis nonparametric. Here, for simplicity, we kept the price that is changing implicit. On the consumer side, the change is in the consumer's price; on the producer's side, the change is in the output price. $q_i = -\frac{\frac{\partial \psi}{\partial p_i}}{\frac{\partial \psi}{\partial I}}, y_i = \frac{\partial \pi}{\partial p_i}$

[11] As said by Blinder and Esaki (1978) in "Macroeconomic Activity and Income Distribution in the Postwar United States."

[12] Unemployment and Income Distribution: Time-Series Evidence from Sweden. Consider by Björklund (1991).

Tregenna (2011) examined the extent to which changes in the unemployment rate have an impact on income inequality in South Africa. The study revealed that employment status is considered as the center of the determinants of the level and trend of income inequality. On the other hand, the share of labour in the formal sector and informal have little impact to explain the inequality of income.

Wage inequality has increased due to changes in the demand for skilled workers relative to unskilled workers. The trend has been consistent in the period of 1980s and 1990s because the intelligence of the workers has been far more important than physical strength in the labour market. In term of the labour market, the income for unskilled workers tends to decrease compared to the educated workers. If inflation is high, unskilled labor that is experienced sufferers of the skilled ones.

III. MODEL SPECIFICATION AND ESTIMATION RESULT

The study presents five independent variables to investigate their impact on income inequality in Indonesia from 2011 to 2016. The inflation rate (inf), economic growth (growth); the unemployment rates (u) are the macroeconomic variables, while the share of the tradable sector credit to total provincial credit (stdc) and total expenditure (lte) are the financial sector and the fiscal sector variables respectively.

The fixed effect panel estimation framework is applied to find the particular characteristics of the 33 provinces. The estimation results concluded that there are four of the five independent variables that have a significant impact on the Gini ratio during the given period. Inflation and growth are significant at 5 percent, while the share of credit of the tradable sector to the total provincial credit and unemployment are significant at the level of 10 percent. On the other hand, there is no significant relationship between an amount of regional expenditure and the Gini ratio in this study.

Table 1. Estimation Result

Variable	Remaks	Expected sign	Coefficient	Prob.
gini	gini ratio (index)			
c	constanta		0.369825	
inf	inflation (year on year,%)	+	0.001326	0.0104*
growth	economic growth (year on year,%)	+/-	0.002639	0.0472*
stdc	share of tradable sector credit to total province's credit (%)	+	-0.000782	0.0636**
u	unemployment rate (%)	+	0.002527	0.0970**
$lnte_{it}$	total expenditure (ln)	-	-0.001400	0.5491
ε_{it}	error term			
Adjusted R-squared		0.810705		
Prob(F-statistic)		0.000000*		
Durbin-Watson stat		1.862369		

*sig 5 percent; **sig 10 percent

As for between 2011 and 2016, the Gini ratio on the national level increased by 0.01, from 0.388 to 0.394. Data released by Central Statistics of Indonesia revealed that the contribution of the 40 percent lowest groups total expenditure decreased by 0.56 percent from 2011 to 2016, from 17.67 percent to 17.11 percent. On the other hand, the share of 40 percent of the middle group and 20 percent of the highest group increased by 0.44 percent and 0.11 percent respectively. In 2014, the ratio reached the highest point and became the lowest share of the 40 percent lowest income in a particular period.

Table 2. Distribution of Expenditure per Capita and Gini Index, 2010-2017

	40 percent lowest	40 percent intermediate	20 percent highest	Gini-ratio (righ)
2011	17.67	35.89	46.45	0.388
2012	16.88	34.18	48.94	0.413
2013	17.25	34.25	48.50	0.406
2014	16.48	34.83	48.69	0.414
2015	17.45	34.70	47.84	0.402
2016	17.11	36.33	46.56	0.394
2011-2016	-0.56	0.44	0.11	0.01

Source: Indonesia Central Statistics, 2018

The relationship between inflation and the Gini ratio in this study is in lines previously[13]. During the study period, headline inflation tends to soften but the volatile food inflation remained high. The headline inflation in 2011 was 3.79 percent and decreased to 3.02 percent in 2016. However, the inflation experienced over 8 percent in 2013 and 2014 due to rising oil prices. Rising oil prices impact on the low-income group through staple food price. During the period 2011-2016, the price of rice rose by about 7 percent per year that was more than the headline rate of inflation. In the year 2015, the price of rice accelerated 13.25 percent (yoy).

The figure below depicts that there are 23 provinces that have the staple food inflation more than inflation. In 2016, the staple food inflation in North Sumatra is 15.55 percent (yoy) that about 9 percent above inflation. A higher inflation has a detrimental effect on real wages of the lowest income group. In 2013 for example, real wages of farmers decrease of 1.94 percent while the inflation rate was 9.38 percent. This circumstance traps the group at the bottom of the pyramid. Inflation will reduce the value of money against service and goods. Since the lowest income group only has cash, their value of money will decline in case of an inflation increase. It is the difference relative to the middle and the highest income group because they can diversify their wealth into some instruments such as gold, government bond, and time-deposit.

[13] *Ibid.* Consider of Inflation and Inequality.

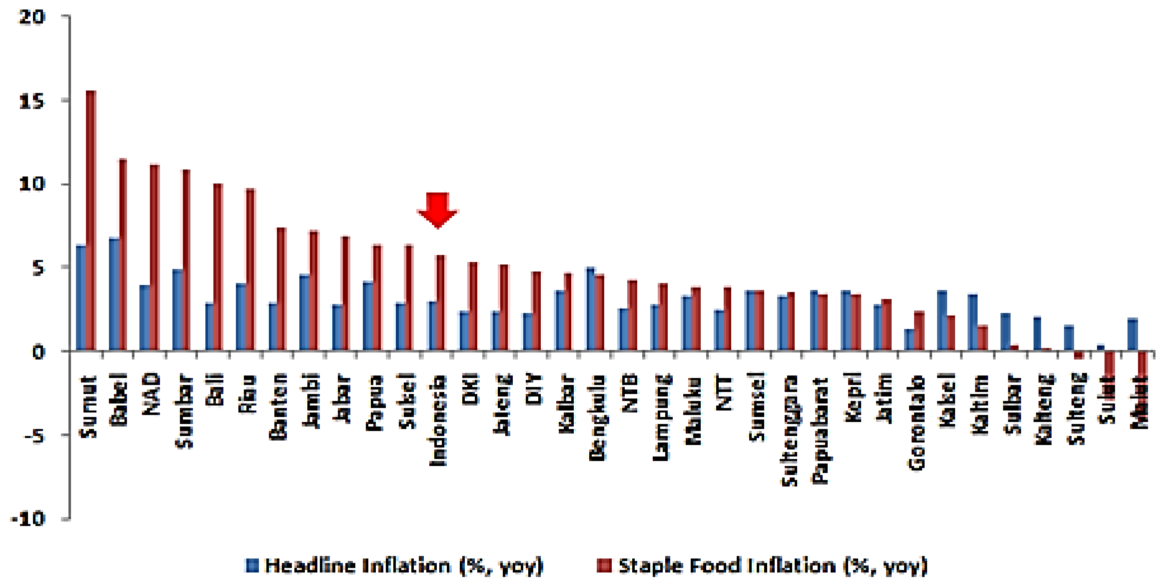

Figure1. Headline Inflation and Staple Food Inflation in 33 Province in 2016
Source: Indonesia Central Statistics, 2018

The study noted that the growth in economic income inequality. In the case of 33 provinces in Indonesia, it is clear that the role of tradable sectors is significant not only for the Gross Domestic Product (GDP) but also to absorption. In 2016, the tradable sector contributed about 41 percent of GDP at the national level but the growth was only 2.86 percent on average. At the provincial level, there are 12 provinces with the contribution of the tradable sector more than 50 percent. The economy of Riau, for instance, is contributed about 75 percent by the tradable sector with a growth of about 1.4 percent. In terms of employment, the tradable sector employees of about 45 percent of workers nationwide.

The challenge to reducing inequality in Indonesia concern among factors, such as economic structure, human resources quality, labour market rigidity and widespread regional divides. The transformation of the economy from agriculture towards industry and services do not successfully change the structure of the labor distribution. The amount of agricultural employment is still dominant, while there is a decrease in the amount of unemployment due to deindustrialization. The contribution of the agriculture sector in Regional Gross Domestic Product declines Product declined but the employees of the sector about 30 percent of the workers.

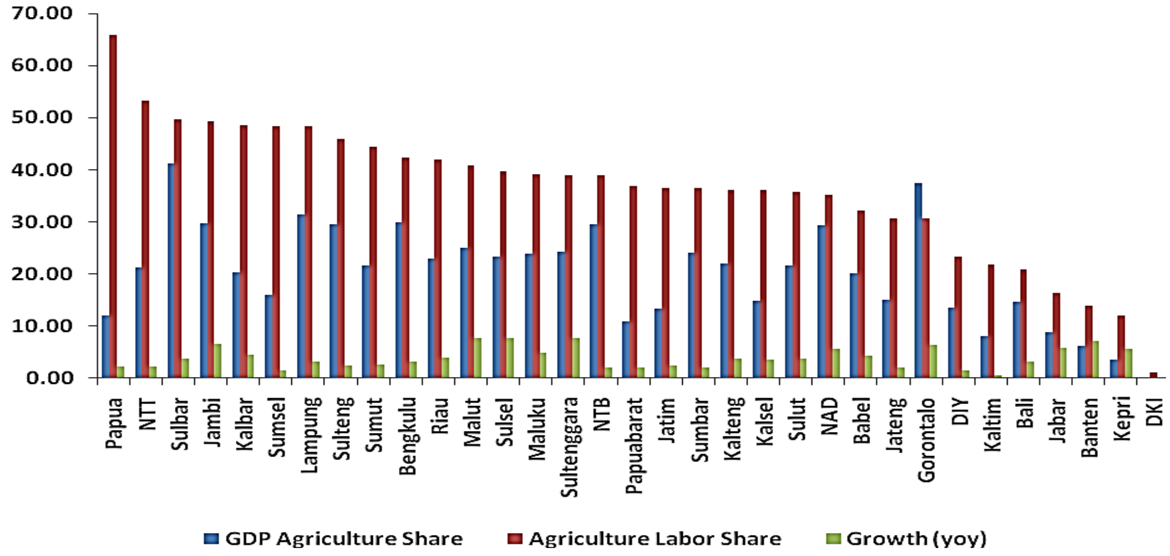

Figure2. Share of Agriculture to RGDP and Labour Force of 33 Provinces in 2016

Source: Indonesia Central Statistics, 2018

The financial sector also contributes to lessen the income inequality in 33 provinces in Indonesia. According to provincial data, there is an imbalance between the economic structure and financial support. In 2016 for instance, share of tradable credit to total credit in North Maluku was only 1.44 percent, while the economy contributed by these sectors is about 39 percent. The government also has the microcredit program in order to improve the distribution of funding to lower-income groups. However, the program is not interesting for the tradable sector, because most of the credit channeled to the trade sector.

Satria and Subugti (2017) argue that the banking sector in Indonesia been moved from the function of traditional to nontraditional than can be identified by an increase in fee-based income and off-balance sheet activities. Since to finance the real sector is much more risky, commercial banking tends to increase the share of a zero-risk asset such as government bonds. Therefore, the level of interest rates, as well as the risk (NPL), impacted on the amount of the allocation of credit to the real sector after the monetary crisis in Indonesia. It is also projected that the credit disbursement declined as the spreading of financial technology[14].

[14] It also added Harmanta and Ekananda (2005) in Disintermediation the Functions of Banking in Indonesia After the 1997 Crisis: Demand Factors or Credit supply, An Approach with a Model of Disequilibrium.

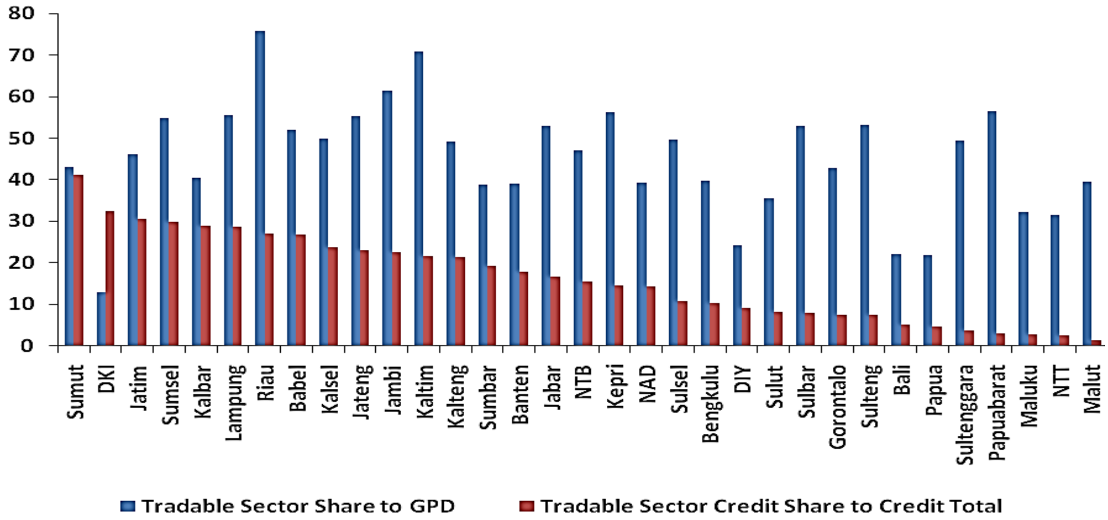

Figure 3. Share of the Tradable Sector to GDP and Credit of 33 Provinces in 2016

Source: Indonesia Central Statistics, 2018

The study concluded that income inequality is influenced by the level of unemployment. In the study period, the unemployment rates declined. However, the conditions of labour sector in Indonesia are still facing several challenges, namely: (i) the quality of the labor remained low since the share of lower education employment (lover than junior high school) (the lover of junior high school) is almost 60 percent; (ii) agriculture, forestry, and fishing absorbed about 30 percent of the workforce in the midst of declining performance (iii) about 58 percent of employment works for informal sectors that is very vulnerable since this sector does not have an income inflation adjustment, economic and social security, and (iv) the amount of employment work is not full (1-34 hours) category high which is about 31 percent of the total workers. About 7.6 percent of the employment is a half unemployment category, while there were 23 percent of employees who a-part time workers.

The total expenditures of the regional budget are insignificant to reduce income inequality. In terms of structure, the budget of the region is especially for current expenditure such as personnel expenditure, goods, and services. The portion of personnel expenditure was above 50 percent of the regional budget. However, personnel expenditure has no relationship with the government's efforts to reduce social problems, including income inequality. On the other hand, the share of capital expenditure in the regional budget is relatively low. In 2016, there was a lot of budget for capital expenditure that is allocated to the increase of fixed assets such as land, machines, office instead of the road, irrigation, and networks. Type of budget is very important for the poor income group, mainly for the farmer. The portion of capital expenditure that is used for roads, irrigation, and network purposes is 37 percent, whereas about 57 percent was for other fixed assets.

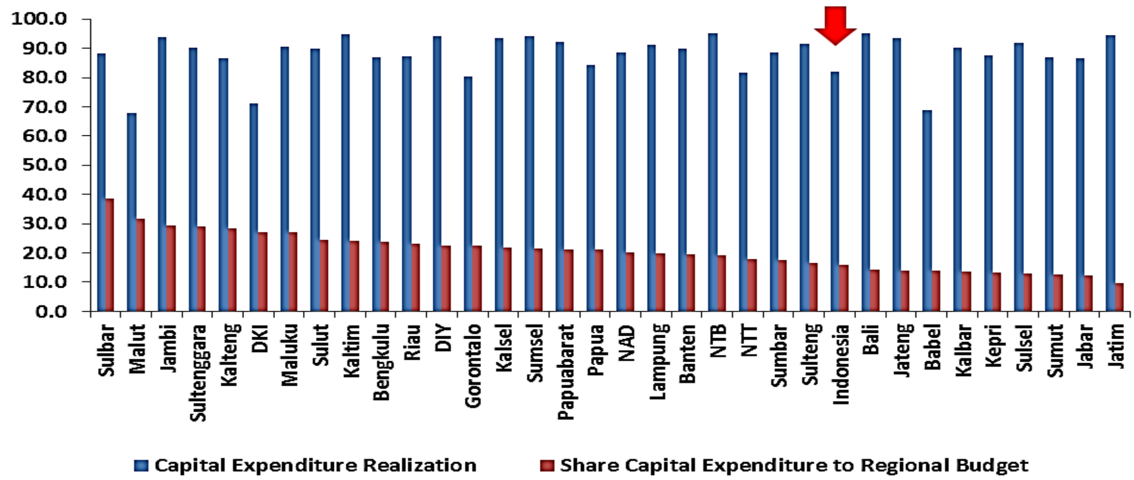

Figure4. Share of Capital Budget to Province's Budget and Its Disbursement in 2016

Source: Indonesia Central Statistics, 2018

According to data from the provincial level, only two provinces (West Sulawesi and North Maluku) have a share of the capital budget for a total budget of more than 30 percent. Nevertheless, the disbursement of the budget is low. In North Maluku for instance, the disbursement of capital budget was merely 67 percent in 2016. The lowest percentages of the capital budget to the regional budget were for East Java, only 9.69 percent, followed by West Java and North Sumatera approximately 12.4 percent and 12.49 percent, respectively.

IV. POLICY RECOMMENDATIONS

The recommendations of the study are:

a. The government needs to keep the pace of inflation rate, particularly for the staple food categories such as rice since it impacts on income inequality. In addition, the lower the rate of inflation has an impact on the financing of the interest rate.

b. The government maintains the performance of the tradable sector as this is very important for the province's economic growth, labour absorption, and income inequality.

c. The government should allocate more budgets to capital purposes, in particular for roads, irrigation, and networking instead of personnel expenditure.

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