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Determinants of Income Inequality in Indonesia

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ABSTRACT

Indonesia's elevation to an upper-middle-income country in 2019 still leaves unresolved issues of income inequality. While the Indonesian government has implemented several policies to address this, the spatial aspects have not been adequately considered. This study utilizes panel data from 34 provinces in Indonesia over the period 2018-2020 to identify the determinants of income inequality and examine the presence of regional spatial connections influencing income inequality. The findings reveal that per capita income and foreign direct investment have a negative relationship with income inequality, whereas exports and imports have a positive relationship. Additionally, there is no evidence of spatial linkages between regions affecting income inequality. These insights suggest that policies aimed at reducing income inequality should focus more on economic factors rather than spatial considerations.
Keywords: Determinants, Income Inequality, Indonesia.

INTRODUCTION

According to the World Bank, from 2007 to 2020, per capita income in Indonesia continued to increase. In 2007, Indonesia had a per capita income of 1,860 US$ and increased to 3,869 US$ in 2020. Based on this condition, the World Bank raised Indonesia's status from a lower-middle-income country to an upper-middle-income country in 2019. However, this success is not always in line with the decline in the existing income distribution inequality. noted that throughout 2007-2020 the value of the Gini index as a reflection of the value of income inequality actually increased (Central Statistics Agency, 2021)

Based on this condition, the change in Indonesia's status to an upper-middle-income country in 2019 has not been able to do much in alleviating the problem of income inequality. This condition illustrates that the economic development that occurs cannot be enjoyed by all levels of society or it can be said that economic development is only enjoyed by a few people. reinforcing this argument through a study entitled (World Bank, 2015) Indonesia's Rising Divide which shows that significantly only 20% of the Indonesian population has been able to enjoy the benefits of economic growth in the past decade.

Several policies have been carried out by the Indonesian government in dealing with the problem of income inequality, one of which is listed in the 2015-2019 RPJMN. stated that the direction of income equality and poverty alleviation policies in the 2015-2019 RPJMN includes (1) building a strong foundation for the economy to continue to grow, (2) producing quality job opportunities, (3) increasing the productivity of economic sectors/subsectors, (4) implementing comprehensive social protection, (5) expanding and improving basic services. (Bappenas, 2017)

The income inequality policy initiated by Bappenas above reflects a weak spatial perspective in the program to overcome income inequality in Indonesia. In fact, as a country consisting of many islands, Indonesia also faces spatial problems. Therefore, this study intends to find out the determinants of income inequality and whether there is a relationship between regions that affect it.

This study aims to investigate income inequality in Indonesia from 2007 to 2020, examining its rise to upper-middle-income status alongside worsening Gini index trends. It evaluates the effectiveness of government policies in the 2015-2019 RPJMN aimed at reducing inequality, while

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also exploring regional disparities within Indonesia's diverse geography. By identifying key factors such as economic growth, job creation, sector productivity, social protection, and regional differences, the research aims to provide recommendations for enhancing policy frameworks to address income disparities and promote inclusive economic development nationwide.

RESEARCH METHOD

The literature review method in this study adopts a theoretical approach involving three main theories: the Kuznets Inverted U-Curve, the Neo-Classical Trade Theory by Hecksher-Ohlin, and the Economic Geography Theory by Krugman. Kuznet's concept of the Inverted U-Curve explains the relationship between industrialization and urbanization and income inequality, while the Neo-Classical Trade Theory by Hecksher-Ohlin assumes capital flows from developed to developing countries to reduce income inequality. In addition, Krugman's Theory of Economic Geography states that trade openness can reduce regional income inequality through new economic agglomerations. The spatial approach is also used in the literature to explain relationships between regions, with spatial analysis taking into account spatial dependencies and spatial heterogeneity. This empirical study uses panel data from 34 provinces in Indonesia and tests spatial autocorrelation with the Moran test before conducting spatial estimation or regression to determine the determinants of income inequality in Indonesia.

RESULTS AND DISCUSSION

Table 1 shows a statistical summary of the variables in this study. For the 2018-2020 period, the average Gini index value is 0.3460. The average level of gross domestic income (GDP) per capita was Rp 34,456 thousand in constant prices in 2010. The average FDI to GDP ratio in 2010 was constant at 0.030141. In addition, the average ratio of exports to GDP in 2010 was 0.187319, while the average import to GDP in 2010 was 0.0401268.

Table 1. Descriptive statistics

	GINI	PDBCAP	FDI	EXP	IMP
Minimum	0.2620	12274	0.001346	0.004916	0.0003223
Median	0.3460	34456	0.030141	0.187319	0.0401268
Mean	0.3532	42349	0.059709	0.252655	0.1286731
Maximum	0.4410	173919	1.219261	0.964787	1.0006868
Observations	102	102	102	102	102

The results of the first estimate using the Moran test were obtained that among the dependent and independent variables, only the Gini index variable that was consistent from 2018 to 2020 was proven to have spatial autocorrelation. The low value of the moran index of this variable is below 1, indicating the weak level of autocorrelation that occurs. However, this result still needs to be proven in spatial estimation. The results of the Moran test are as follows:

Table 2. Moran Test Results

		2018	2019	2020
Gini	I	0,112	0,059	0,093
	P-Value	0,005	0,053	0,021
	I	-0,026	-0,074	-0,067

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PDBCap	P-Value	0,464	0,804	0,749
FDI	I	-0,017	0,006	0,040
	P-Value	0,401	0,203	0,024
EXP	I	-0,015	-0,015	-0,042
	P-Value	0,388	0,389	0,580
IMP	I	-0,044	-0,120	-0,043
	P-Value	0,606	0,957	0,590

Theoretically, with evidence of spatial autocorrelation only in the Gini index variable (Y), the spatial model that is suitable to use is the Spatial Autoregressive Model (SAR). The Spatial Autoregressive Model describes an interaction where the response variable in a location is affected by the response variable in its neighboring location, This occurs when the value (θ=ρ=0) in the General Spatial Nesting (GNS) model. Statistically, the Spatial Autoregressive Model (SAR) is as follows:

$$Y = \lambda WY + X_1\beta_1 + X_2\beta_2 + X_3\beta_3 + X_4\beta_4 + v$$

Where λ is the spatial autoregressive coefficient |λ|<1. W is indicated as a spatial weighting matrix. β describes the predictor coefficient. Y is the Gini index variable, X1 is the GDP per capita, X2 is the FDI ratio, X3 is the export ratio and X5 is the ratio of imports to constant GDP in 2010.

Table 3. Estimation Results of Fixed Effect Model and Spatial Autoregressive Model

Variable	Model FEM	Model SAR
_Cons	0,396396***	0,3985432***
Pdbcap	-1,256e-06*	-1.15e-06*
Fdi	-0,0397052***	-0,0374091***
Exp	0,0288865*	0,0269956
Imp	0,0396337*	0,039712*
Wgini		-0,0001599
N	102	102
R2	0,18756476	0,19899326
R2_a	-0,28212436	0,28415366
Note : * p < 0 = 0,1 ; ** p < 0 = 0,05 ; *** p < 0 = 0,01		

The results of the SAR model estimation in Table 3 show that the Wgini variable as an overview of the spatial coefficient shows insignificant values. This means that there is no inter-regional linkage that affects income inequality in 34 provinces in Indonesia, or it can be interpreted as whether or not trade between regions is close or not does not affect income inequality in other regions.

Statistically, in the Fixed Effect Model (FEM) regression, the per capita income variable has a significant negative influence on income inequality with a coefficient value of 0.00000126 and a probability value of 0.059. This means that every time there is an increase in per capita income by one point, income inequality will decrease by 0.00000126. This shows that the higher the income, the lower the inequality. This is in accordance with the second phase of the Kuznet

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inverted U-curve theory which states that if the labour surplus of the traditional sector has been absorbed by the modern sector, income or wages will continue to increase and income inequality will decrease. This is relevant to research, which states that per capita income reduces income inequality. (Jhingan 2012) (Lim, 2020) (Liddle, 2017)

In line with this, foreign direct investment (FDI) also has a significant negative influence on income inequality with a coefficient value of 0.0397052 and a probability value of 0.010. Where every time there is an increase in FDI points in a province, income inequality will be reduced by 0.0397052 in that province. This is in line with the neo-classical trade theory pioneered by Hecksher-Ohlin which explains the relationship between foreign investment openness and income inequality in developing countries. This theory assumes that labour is an abundant factor of production in developing countries, while developed countries have an advantage in the ownership of capital production factors. Capital flows in the form of direct investment from developed countries to developing countries will have an effect on increasing labour demand so that gradually the level of per capita income will increase and reduce income inequality. This is relevant to research conducted by and which shows that investment can reduce income inequality. (Kuntoro and Widyastutik, 2019) (Wang, Shao and Li, 2019) (Le et al. 2020)

Exports in this analysis have a significant positive influence on income inequality with a coefficient value of 0.0288865 and a probability of 0.10. This result shows that for every one-point increase in exports, income inequality will increase or worsen by 0.0288865. This condition is caused by the polarization effect, namely the weakening of the competitiveness of industries in developing regions against similar industries in the centre of economic growth. So exports in developing regions, which should be expected to increase income, are even worse because of weakened competitiveness. These results are relevant to research conducted by stating that economic openness, one of which is described through exports, has a significant influence in worsening income inequality. Cerra, Cerdeiro, and Komaromi (2017)

In line with that, the import variable also had a significant positive influence on income inequality with a coefficient value of 0.0396337 and a probability value of 0.084. This suggests that a one-point increase in imports would increase or worsen income inequality by 0.0396337. This is in accordance with the theory of import dependence which states that the economic life of a country is influenced by the development and expansion of other countries. Import dependence makes domestic production decrease and in turn, income will decrease and inequality will increase. This is relevant to research conducted by those who state that imports can exacerbate income inequality. Wiguna and Panennungi (2019b)

CONCLUSION

The results and conclusions of this study have at least three important points obtained. First, income inequality in Indonesia during 2007-2020 is getting worse. Although it tends to decrease, the value is not smaller than the lowest point in 2009. The results of the regression analysis show that per capita income and FDI are significantly able to reduce income inequality in Indonesia. Meanwhile, exports and imports significantly exacerbated income inequality. Meanwhile, the third spatial with the Spatial Autoregressive (SAR) model does not prove that there is a relationship between regions that affects income inequality in Indonesia. The closeness of trade between provincial areas does not have a significant effect on income inequality from one province to another.

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