The Impact of Fiscal Decentralization towards Income Inequality in the Eastern Region of Indonesia

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Abstract

Inequality in income distribution is one of the most important problems in each country, especially in developing countries. The high inequality of income distribution is an indicator of low social welfare. Because of that, the income inequality problems must be resolved. In Indonesia, the Eastern Region has a higher income inequality than the Western Region. The government has implemented various programs to reduce income inequality in Indonesia, including fiscal policy. This research aims to analyze the influence of profit-sharing, special allocation, general allocation, capital expenditure, and village funds on income inequality in Eastern Indonesia in the short and long term. The data used is panel data on ten provinces in the Eastern Region of Indonesia from 2012-2023 and sourced from the Ministry of Finance. The analysis technique used is the Generalized Method of Moments (GMM) analysis. According to the GMM test, profit-sharing and village funds negatively impact income inequality in the short and long term. In the short term, profit-sharing funds can reduce income inequality by 0,0055 percent; in the long term, they can reduce it by 0,012 percent. Then, the village funds can reduce the income inequality to 0,02 in the short term and 0,05 in the long term. While general allocation funds, special allocation funds, and capital expenditure do not significantly affect income inequality in the short and long term. Based on this result, it is known that the balancing funds provided by the central government to the local government have yet to be fully able to reduce the income inequality in the Eastern Region of Indonesia. The implication of this study to local governments, particularly those in the Eastern Region of Indonesia, is that local governments should increase the optimization of general allocation funds, specific allocation funds, and capital expenditure to reduce income inequality. Then, profit-sharing and village funds must also improve residents' welfare and reduce income inequality.

Keywords: Fiscal Decentralization, Income Inequality, GMM analysis, Village Funds

1.0 Introduction

Inequality in income distribution is one of the most important problems in each country, especially in developing countries. Distribution income inequality measures the difference in income between one resident and others. Income inequality is caused by different chances for access to resources, which causes the difference in income. Residents with convenient access to resources will earn a higher income than those with limited access. The high distribution of income inequality is an indicator of low social welfare. Therefore, the lowest income inequality will increase the social welfare of residents (Janiar & Soelistyo, 2017; Juliana et al., 2018; Sidqiy & Amar, 2020). The distribution income inequality condition in Indonesia for five years (2017-2021) shows a downward trend, although in a relatively small proportion. The Gini ratio value close to zero means perfect equality, while the Gini ratio value close to one means perfect inequality. This condition means that the higher the Gini ratio value, the higher the income inequality (Yanti & Rahardiantoro, 2018). Based on Figure

1, although the Gini ratio value in Indonesia shows downward trends, this value shows that the income inequality in Indonesia, including in the middle category, is between 0,36-0,49 (Todaro & Smith, 2014). Many programs are required to reduce the Gini ratio value to create an income equality distribution among residents.

Source: Central Statistics Agency, 2024

Figure 1: Gini Ratio in Indonesia, 2017-2023

There is a strong correlation between income inequality and the Gross Domestic Regional Product (GDRP) per capita. It is significant because GDP per capita measures regional income inequality and economic progress. In Indonesia, income inequality between islands still occurs. It is also due to the still dominant economic structure in the Western Region of Indonesia (KBI), especially in Java, compared to the Eastern Region of Indonesia (KTI). In the KBI, the tertiary sector dominates the economic structure, which makes the most significant contribution to Gross Domestic Bruto (GDP) compared to the primary and secondary sectors. This condition causes GDP to be higher than KTI at constant prices (ADHK), which KBI contributes. In addition, the tertiary sector also occupies the highest position in terms of labor absorption when compared to the secondary and primary sectors. Actual economic activities are also more focused in the KBI area because most of the population lives in the western region of Indonesia. This condition ultimately impacts low per capita income in the KTI region, thus worsening the condition of income inequality (Kusuma & Yuniasih, 2021; Rosmeli & Nurhayani, 2014). Based on the data of the Central Statistics Agency (2023), the regions that have the highest GDP per capita are, in the way, the islands of Kalimantan, Java, and Sumatera, while the islands of Bali and Nusa Tenggara, Sulawesi, Maluku, and Papua have relatively low GDP per capita.

The Gini Ratio in KTI is 0,367, which means that inequality is moderate and indicates that income inequality is still relatively high. In addition, the low per capita income in the KTI region shows that the people of KTI are still less prosperous than those of KBI. The government has established various mechanisms to reach income equality among residents. One of the mechanisms used is the fiscal policy. Fiscal policy is one of the government programs that realize fiscal resilience, whose estimates are taken from Budgeting Revenue and Expenditure of Country (APBN). This policy aims to create an equal distribution of regional financial capabilities (Christia & Ispiyarso, 2019; Rahmadhana & Utomo, 2022). Through fiscal decentralization, the government transfers funds to the region. Local governments must be able to manage the funds so that income inequality between residents can be reduced. In reducing income inequality, the role of the government becomes crucial. Through fiscal policy, the government makes various funding so that development equality is expected to be optimally achieved. Without the government's role, overcoming income inequality among residents would be difficult because there are differences in resource access.

The government's fiscal policy is channeled in the form of the Transfer of Funds to Territories (TKDD) regulated by Act No.1 of 2022, consisting of several forms general allocation fund (DAU), special allocation fund (DAK), profit sharing fung (DBH), special autonomous fund (Dana Otonomi Khusus), Yogyakarta particular territory privileged fund (Dana Keistimewaan Daerah Yogyakarta), village fund (dana desa) and fiscal incentives fund (dana Insentif fiskal). The province, KBI, and KTI received transfer funds to enhance the region's financial capacity and fiscal independence. Various regional expenditure mechanisms, including capital expenditure, are also being implemented to boost the local economy.

Kharisma and Hanifah (2020), Stossberg and Blochliger (2017); Bojanic and Collins (2021) and Roy et al., (2022) explain that fiscal decentralization has an impact on reducing income inequalities. Fiscal decentralization from the central government to the local government can improve the well-being of low-income and middle-income residents. Fiscal decentralization allows local governments to plan development programs that will improve their operational effectiveness and efficiency. Local governments need a deeper understanding of their resources to use them effectively. It will ultimately affect income equality growth and income inequality reduction (Digdowiseiso et al., 2022; Siburian, 2019). According to Hardanto et al. (2017) and Sidek (2021), capital expenditures can lessen the degree of wealth inequality among residents. It occurs because rising capital expenditures will impact the expansion of economic activity and the number of participants in economic activity (Mulyani & Sakti, 2022). Therefore, this study aims to analyze the short-term and long-term impact of DAU, DAK, DBH, capital expenditure, and village funds with the Generalized Method of Moments (GMM) analysis technique on income inequality in Eastern Indonesia Regions.

2.0 Methods

There is quantitative research in this study. GMM is used to analyze the data. The Central Statistical Authority of 10 provinces has been the focus of twelve years of research and provided the secondary data (2012-2023). The provinces are West Nusa Tenggara, East Nusa Tenggara, Central Sulawesi, South Sulawesi, Southeast Sulawesi, Maluku, North Maluku, and West Papua. They have the lowest income inequality in KTI and the lowest GDP per capita. The dependent variable in this research is the Gini Ratio, while the independent variables used are profit-sharing funds, general allocation funds, special allocation funds, capital expenditure, and village funds. In the village fund variable, a dummy variable is used because the realization of village funds began to be implemented in 2015, so dummy 0 to 2012-2014 before village funds were implemented and dummy 1 to 2015-2023 after village funds were implemented. The equation model is as follows:

$$GR_{it} = \alpha + GR_{it-1} + \beta_1 LnDBH_{it} + \beta_2 LnDAU_{it} + \beta_3 LnDAK_{it} + \beta_4 LnBM_{it} + DummyDD_{it} + e_{it}$$

GR	: Gini Ratio
DBH	: Profit Sharing Fund (percent)
DAU	: General Allocation Fund (percent)
DAK	: Special Allocation Fund (percent)
BM	: Capital Expenditure (percent)
DummyDD	: 0 = before using village funds; 1 = after using village funds
e	: *Error Term*
α	: Constanta
β	: Coefficient

3.0 Result and Discussion

3.1 Result

a) Generalized Method of Moments

The result of the dynamic panel model on the model of income inequality in Eastern Indonesia can be described in the following table :

Table 1: Selection of the Best Models

Variable	FEM	SYSGMM	FDGMM	OLS
$GR_{(-1)}$	0,5040	0,6192	0,4220	0,8659

Source: Stata analysis, 2024

First Different Generalized Method of Moments (FDGMM) is the appropriate model to use when the coefficient value Y(-1) is between FEM and OLS. Table 1. shows that the value of the coefficient Y(-1) is not between FEM and OLS (0,4220 < 0,5040 < 0,8659). Therefore, the FDGMM model is unsuitable for this research, and it is necessary to select the best model using System GMM (SYSGMM). Table 1. shows that the coefficient value of Y(-1) on SYSGMM is between FEM and OLS (0,5040 < 0,6192 < 0,8659). This condition means that SYSGMM is the best selection model in this research.

Table 2: SYSGMM Estimate Results Income Inequality Model

Variable	Coefficient	Std. Error	Prob.
$GR_{(-1)}$	0,6192	0,0859	0,000
DBH	-0,0048	0,0024	0,048
DAU	0,0009	0,0035	0,782
DAK	0,0035	0,0027	0,203
BM	0,0007	0,0012	0,551
DummyDD	-0,0203	0,0063	0,001
C	0,1352	0,0353	0,000

Source: Stata analysis, 2024
Notes :
$GR_{(-1)}$: Gini Ratio $_{(t-1)}$
DBH : Profit Sharing Fund (percent)
DAU : General Allocation Fund (percent)
DAK : Special Allocation Fund (percent)
BM : Capital Expenditure (percent)
DummyDD : Village Funds

Here is a model that can be formulated based on the analysis of income inequality in Table 2:

$$\hat{}GR_{it} = 0{,}1352 + 0{,}6192GR_{(-1)} - 0{,}0048DBH_{it} + 0{,}0009DAU_{it} + 0{,}0035DAK_{it} + 0{,}0007BM_{it} - 0{,}0203DummyDD_{it}$$

b) Dynamic Model Specification Test
1) Instrument Validity Test (Sargan Test)

Table 3. Uji Validitas Instrumen Model *Sys-GMM*

Chi2(26)	*P-value*
48,23828	0,9288

Source: Stata Analysis, 2024

Table 3 shows that the *p-value* on the Sargan test is 0,9288 > 0,05, which means that the model used in this research is valid.

2) Arelano-Bond Test (Consistency Test)

Table 4. Uji *Arelano-Bond* Model *Sys-GMM*

Order	*Z*	*P-value*
1 (AR 1)	-2,3347	0,0196
2 (AR 2)	0,30536	0,7601

Source: Stata Analysis, 2024

Table 4. shows that the *p-value* on the Arelano-Bond test (AR 2) is 0,7601 > 0,05, which means that the model in this research is consistent.

c) Parameter Significance Test
1) Wald Test

Table 5: Wald Test Economic Growth Model

Test Statistic	Value	Probability
Wald	104,94	0,0000

Source: Stata 13 analysis, 2024

Table 5. shows that Wald's probability value is 0,0000 < 0,05. It means that profit-sharing funds, general allocation funds, specific allocation funds, capital expenditure, and village funds simultaneously affect income inequality.

2) Partial Test (Z-test)

Table 6: Partial Test Income Inequality

Variable	Coefficient	Std. Error	Prob.
$GR_{(-1)}$	0,6192	0,0859	0,000
DBH	-0,0048	0,0024	0,048
DAU	0,0009	0,0035	0,782
DAK	0,0035	0,0027	0,203
BM	0,0007	0,0012	0,551
DummyDD	-0,0203	0,0063	0,001
C	0,1352	0,0353	0,000

Source: Stata 13 analysis, 2024

Table 6 gives some information about partial test results as follows:

1. Profit-sharing funds (DBH) have a probability value of 0,048 < 0,05 with a negative coefficient of 0,0048. It indicates that DBH negatively and significantly impacts income inequality in Eastern Indonesian regions.
2. The probability of general allocation funds (DAU) is 0,782 > 0,05. It shows that DAU does not significantly impact income inequality in Eastern Indonesian regions.
3. Specific allocation funds (DAK) have a probability value of 0,203 > 0,05. It shows that DAK does not significantly impact income inequality in Eastern Indonesian regions.
4. Capital expenditure (BM) has a probability value of 0,551 > 0,05. It shows that BM does not significantly impact income inequality in Eastern Indonesian regions.
5. DummyDD (village funds) has a probability value of 0,001 < 0,05 with a negative coefficient of 0,0203. It indicates village funds negatively and significantly impact income inequality in Eastern Indonesia Regions.

d) Time Period Test

1) Short Term Effect
The following elasticity formula can identify short-term effects:

$$Short\ term\ Effect: \frac{\beta}{1-\beta 0}$$

Notes :
β: Beta coefficient on each variable
β0 : Constanta

2) Long Term Effect

The following elasticity formula can identify long-term effects:

$$Long-term\ Effect: \frac{\beta}{1-\beta 1}$$

Notes :
β: Beta coefficient on each variable
β1: Coefficients on the lag-income inequality variable

Table 7: Time Period Test of Income Inequality Model

Variable	Coefficient	Prob.	Short-term effect	Long-term effect
$GR_{(-1)}$	0,6192	0,000	-	-
DBH	-0,0048	0,048	-0,0055	-0,0126
DAU	0,0009	0,782	No Impact	No Impact
DAK	0,0035	0,203	No Impact	No Impact
BM	0,0007	0,551	No Impact	No Impact
DummyDD	-0,0203	0,001	-0,0234	-0,0533
C	0,1352	0,000	-	-

Source: Excel analysis, 2024

Table 7 gives some information about time period test results as follows:

1) Profit-sharing funds (DBH) negatively and significantly impact income inequality in the Eastern Indonesia Region. If DBH increases by one percent, the income inequality in Eastern Indonesia will decrease by 0,0055 percent in the short term and 0,0126 percent in the long term.
2) General allocation funds (DAU) have no impact on the income inequality of the Eastern Indonesia Region.
3) Specific allocation funds (DAK) do not impact the income inequality of the Eastern Indonesia Region.
4) Capital expenditure (BM) does not impact the income inequality of the Eastern Indonesia Region.
5) Village funds (DummyDD) negatively and significantly impact income inequality in the Eastern Indonesia Region. If DBH increases by one percent, income inequality in Eastern Indonesia will decrease by 0,0234 percent in the short term and 0,0533 percent in the long term.

3.2 Discussion

a) The Effect of Profit-Sharing Funds (DBH) on Income Inequality

Based on the t-test, it is known that profit-sharing funds have a significant negative effect on income inequality in the eastern Indonesia region in the short and long term. It means that the existence of DBH can reduce income inequality. These results align with Beauty et al. (2021) and Sidig (2018), which show that DBH negatively affects income inequality. It indicates that each region with abundant natural resources can use DBH to the fullest for development purposes to reduce income inequality. DBH is used for programs that increase labor absorption. The higher the labor absorption, the higher the number of residents contributing to economic activity. This condition can enhance a community's income and reduce income inequality.

In addition, the government often provides cash assistance to underprivileged people through DBH. DBH, which consists of DBH SDA (DBH natural resources) and DBH non-SDA (DBH non-natural resources), plays an inclusive role in accelerating the handling of income inequality problems between residents. DBH, a block grant, provides flexibility to local governments in its allocation. The government can use DBH to finance expenditures to develop the workforce and provide working capital. The regional government carries out this program to reduce income inequality, especially in Eastern Indonesia.

b) The Effect of General Allocation Funds (DAU) on Income Inequality

Based on the t-test, it is known that the general allocation of funds does not significantly affect income inequality in the eastern Indonesian region. It aligns with research conducted by Santoso & Mukhlis (2021), who explain that DAU has no impact on income inequality. This condition occurs because DAU only focuses on regional administrative activities, including paying employee salaries. It causes DAU to be enjoyed only by some people, so DAU is unable to reduce income inequality. According to Putro (2016), most of the DAU is used for routine expenditure by local governments. This condition is exacerbated by the amount of DAU obtained, which is based on a basic

allocation calculated based on the salary of regional civil servants. It causes the DAU obtained by the regional government to be used for routine expenditure, so the use of DAU is minimal for regional economic development activities.

Widodo & Zakiah (2022) explained that every year, the government allocates the use of DAU for infrastructure expenditure by regional governments. It is hoped that increasingly optimal infrastructure expenditure will support public service facilities. Increased employment opportunities can reduce poverty levels and reduce income inequality. However, in reality, the portion of infrastructure expenditure is always smaller than personnel expenditure and goods/services expenditure. It causes DAU to contribute less to reducing income inequality.

c) The Effect of Specific Allocation Funds (DAK) on Income Inequality

Based on the t-test, it is known that the special allocation funds do not have a significant effect on income inequality in the eastern Indonesian region. It indicates that the existence of DAK, which is used to encourage regional government expenditure to stimulate the reduction of income inequality between residents, has not been optimal in its implementation. DAK is used on national priority programs such as improving infrastructure, improving the quality of health, or improving the quality of education. However, it did not have an impact on reducing income inequality among eastern Indonesia residents. It is proven that there still needs to be more adequate infrastructure and educational and health facilities. Hence, this condition causes the gap in income inequality not to be reduced. Inadequate infrastructure, education, and health facilities caused by the distribution of DAK often experience delays, resulting in insufficient use of DAK to finance government expenditure. It indicates that the benefits from DAK realization do not directly impact reducing residents income inequality in the short or long term. The realization of DAK, a specific grant focusing on national priority programs, means that local governments are not flexible enough to use it. Each region with different needs is required to allocate DAK in the same amount as the provinces of the central government. It aligns with research conducted by Maskanudin and Wibowo (2018), who explained that DAK has no impact on reducing income inequality.

d) The Effect of Capital Expenditure (BM) on Income Inequality

Based on the t-test, it is known that capital expenditure does not have a significant effect on income inequality in the eastern Indonesian region. The findings of this research indicate that the government's realization of capital expenditure cannot contribute to reducing income inequality among residents. Realized capital expenditure is used to improve the residents' quality of life through a relatively long procurement, construction, and use process. This condition causes the utilization of capital expenditure to be not optimal. The results of this research are in line with research conducted by Ishak et al. (2018): Prata & Idris (2021), who explain that capital expenditure has not an impact on reducing income inequality.

Furthermore, the capital expenditure aimed at infrastructure development has yet to attract the interest of domestic and foreign investors to invest massively in their capital, especially in eastern Indonesia. Damaged roads, limited public facilities, and infrastructure availability make investors reluctant to invest their capital. Based on Sollow's theory, it is explained that the development of economic activity can be carried

out more quickly if the availability of investment supports it. The better the development of economic activity, the better the distribution of residents' income (Mankiw, 2020; Todaro & Smith, 2014).

e) The Effect of Village Funds (DD) on Income Inequality

Based on the t-test, it is known that the dummy village funds variable has a significant negative effect on income inequality in the eastern Indonesia region in the short term and long term. It means that the existence of village funds can reduce income inequality. The implementation of village funds, which began to be actively rolled out in 2015, is proof of the government's seriousness in rural development programs. Village funds are a source of village income that the government can use to improve the quality of public infrastructure. Apart from that, the government also often uses village funds for resident development. Development of Village-Owned Enterprises (BUMDES), formation of farmer groups, and women's empowerment are superior programs sourced from village funds. These programs can ultimately increase residents' participation so that they contribute to economic activity. This condition ultimately has implications for increasing residents' economic activity to reduce income inequality. It is in line with research conducted by Izharudin & Benardin, (2023); Kharisma et al. (2021); and Rachma et al. (2019), who explained that village funds have a significant negative effect on income inequality. The existence of village funds can encourage improvements in the welfare of village residents. Village governments can also optimize the use of village funds for development, such as building roads, bridges, and other public goods.

4.0 Conclusion

The balancing funds provided by the central government to the local government have yet to be fully able to reduce income inequality in the Eastern Region of Indonesia. It is proven that the presence of DBH and village funds can reduce income inequality, while DAU, DAK, and capital expenditures partially have no significant effect on income inequality.

Some recommendations to local governments, in particular that are in the Eastern Region of Indonesia (KTI), are that local government should optimize the use of DAU, DAK, and capital expenditure to reduce income inequality. The DAU, DAK, and capital expenditure in its use should also focus on improving the overall welfare of the residents so that the existence of DAU, DAK, and capital expenditure can reduce income inequality, particularly in the Eastern Region of Indonesia (KTI). In addition, the Eastern Indonesia region, which is rich in natural resources, must continue to optimally explore its natural wealth so that DBH acquisition can increase and support government programs to increase community income. The government must also realize the need to transmit village funds to support community economic activities, such as training programs and community empowerment, to reduce the income inequality gap among eastern Indonesian residents.

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