The Effect of Fiscal Decentralization on Economic Development Performance in Indonesia

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Abstract

This study aims to test and analyze the effect of fiscal decentralization on Indonesia's development performance using a structural equation model. This type of data uses panel data from thirty-four provinces and five-year series (2015-2019), bringing the number of observations to 180. Data is sourced from the Directorate General of Fiscal Balance and the Central Bureau of Statistics (BPS). Data analysis uses a structural equation modeling-partial least square (SEM-PLS) with Smart-PLS 3. The evaluation results of the external model conclude that all indicators of fiscal decentralization variables and economic development performance variables are valid. The most powerful indicators that reflect the latent variables of budgetary decentralization are regional income ratios, and economic development performance indicators are economic growth. The results of the evaluation model found that there was a positive and significant effect of fiscal decentralization on economic development performance. Inequality of fiscal decentralization among the provinces in Indonesia caused the ratio of original regional income in research to have the lowest effect compared to the proportion of provincial revenues and expenditures.

INTRODUCTION

Economic development performance in Indonesia, especially in the province, is an interesting study topic for researchers in the economic and social fields. Assessment of results or economic development performance often used in research, especially in Indonesia, are economic growth, poverty rates, and income inequality. Along with the departure of autonomy that has been running for more or less 20 years, the study of the extent of the implementation of fiscal decentralization and its relation to achieving the performance of regional economic development in Indonesia has become interesting.

The theory of fiscal federalism and agency theory is the underlying economic theories of the link between budgetary decentralization (receipts and expenditures) and economic growth, poverty, and economic inequality. The theory of fiscal federalism is a theory that explains how decentralization relates to the economy, public services, and public welfare. In various studies on budgetary federalism, two

theoretical perspectives define the economic impact of decentralization: first-generation theories and second-generation theories.

Traditional theories state that decentralization has two advantages: (1) Hayek uses "knowledge in society". Using efficient information will make it easier in the decentralized decision-making process. That is due because the local government is closer to the community. In the context of public finance, local governments have better information about the conditions of their funds than the central government. As such, decision-making about the supply of public goods and services is certainly better than the central government. 2) Tiebout: "the dimensions of competition between local governments". With the competition about public expenditure allocations, the masses can choose public goods and services to their tastes and desires. That would not happen in a centralized government if the central government provided public goods and services uniformly (Khusaini, 2006).

Ideal conditions that fiscal decentralization can improve a country's economic performance of a country or region, (Sato, 2002); by applying the *Market Preserving Federalism* that encourages economic competition between regions, regional economic development can be optimized. While local governments compete to attract investors to invest in their areas simultaneously, the central government ensures there are no barriers to the movement of goods and people between regions. Local governments will be encouraged to provide the best infrastructure and create conducive local regulations for investors with these conditions. The central government will also do its almost to prevent possible barriers to the movement of people and goods between regions that are very likely to be carried out by several local governments while performing the function of supervision and supervision of the region's autonomy. As a result, the national economy will receive optimal benefits in stable economic growth.

Some research results, both in Indonesia and in other countries, found differences. The science of fiscal decentralization drives economic growth to a central issue and attracts the attention of many researchers, among them (Martinez-Vazquez & McNab, 1992); (Litvack & Seddon, 2002); (Gramlich, 1993); (Bird, 1993); (Oates, 1993); (Bird et al., 1995); World Bank (1997), and (Zhang & Zao, 2001) which states that by implementing fiscal decentralization, it is expected to improve community services which which further stimulated growth and community welfare.

Knowledge of regional characteristics forms the basis of implementing fiscal decentralization as a stimulus for economic efficiency and dynamic economic growth in the regions (Oates, 1993), (Martinez-Vazquez & Mcnab, 1997). The argument that if the regions know their needs, local governments allocate funds in the economic sector is believed to be more efficient than the central government. However, if fiscal decentralization is not effective, economic growth will not be realized (Zhang & Zao, 2001).

In line with (Oates, 1993), Findings (Gramlich, 1993); (Bird, 1993); (Oates, 199); (Bird et al., 1995); and (Zhang & Zou, 1998), ways to reduce budget deficits, improve public sector efficiency, and encourage economic growth by implementing decentralized income and expenditure. Knowledge of the needs of the region forms the basis of this argument. The experts assumed that knowledge of local requirements and local governments was considered to be more understanding than the central government.

Research (Peterson &Anderson, 1995) found that fiscal decentralization positively influenced regional economic development in the future. The effect of budgetary decentralization is directly and indirectly. Intuitively fiscal autonomy can stimulate economic efficiency, especially in the public sector, and ultimately have an impact on regional economic growth. This explicitly shows that community spending, especially infrastructure spending, will be more effectively provided by local governments than by the central government.

Although research on fiscal decentralization is growing rapidly, some controversies about the fiscal decentralization indicator remain unsolved. An important focus of the problem is an indicator of fiscal decentralization. It is most widely used and has been criticized as a measure too simple to measure fiscal decentralization among the countries that implement it accurately. Based on this, research (Liu, 2017) using the model (Oates, 1993) using second-generation statistics,l analysis, namely: SEM-PLS with analysis units of 64 countries in 2017. The finding is that fiscal decentralization positively and significantly impacts economic performance.

Several other studies have tested the relationship between financial performance and economic growth, using state or regional analysis units that find mixed / inconsistent results. Research (Zhang & Zou, 2001) concluded that negative fiscal decentralization and significant economic growth in China and vice versa in India had a positive effect. Another finding is that a high degree of decentralization has an impact on low economic growth in the Chinese region. On the other hand, (Davoodi & Zou, 1998; Woller & Phillips, 1998) found fiscal decentralization affecting negative economic growth in developing countries. Conversely, in developed countries, positive influence.

Not much different from the results of research in other countries, in Indonesia, research into the same theme, also produces diverse conclusions. (Bashir, 2011), negative and significant decentralization of economic growth. Using the same analysis, namely the regression of panel data (Hariyanto, 2012), also found different results, namely positive and significant to economic growth. Furthermore, using the simultaneous equation, (Kharisma, 2013 concluded that the effect of fiscal decentralization with income and expenditure indicators with its findings is in line with (Hariyanto, 2012).

This research refers to Aulia (2014), Aulia's research (2014),

This study refers to Aulia (2014), which uses canonical analysis to examine the relationship between fiscal decentralization and economic growth, poverty, and economic inequality. His findings are a close relationship between fiscal decentralization, economic growth, poverty rates and income inequality of districts and cities in East Java. Based on Aulia's (2014) conclusions, this study expanded the subject of research into provinces in Indonesia and used the structural equation model (SEM). The author has several considerations in developing research (Aulia, 2014).

First, there is a close relationship between fiscal decentralization and economic growth, poverty rates, and income inequality. This conclusion statistically requires further testing, namely the influence test between variables. Second, of the four indicators of fiscal decentralization used to analyze its relationship to economic growth, stability, and income inequality, only the indicators of the degree of budgetary decentralization have a close relationship.

Based on this, the study used fiscal decentralization again by adopting the measurement model conducted by Akai & Sakata (2002), i.e., the performance of fiscal decentralization of revenue and performance of decentralized fiscal expenditures (regional expenditures), i.e., implementation of fiscal decentralization of revenue and performance of decentralized fiscal expenditures (regional expenditures). Third, variable economic growth, poverty rates, and income inequality are indicators of economic development performance that are often used in research. According to macroeconomic theory and previous research, the three economic performance indicators are macroeconomic indicators. Based on this, the study elaborated on the three economic performance indicators in one contingency of economic performance.

Based on these three considerations, the study aims to deeply analyze the relationship between fiscal decentralization and economic growth, poverty rates and income inequality by using Structural Equations Models by operationalizing fiscal decentralization variables into latent variables and operationalizing economic growth variables, human development index, and income inequality as well as latent variables of economic performance and testing measurement models and structural models simultaneously.

METHOD

This study uses the subject of provinces in Indonesia with the object of research on fiscal decentralization and economic performance. This study uses panel data: thirty-four provincial cross-section data and five-year time data (2015-2019). Thus, the number of research observations amounts to 180 observations. Data sources are sourced from the Site of the Directorate General of Financial Balance of the Republic of Indonesia, and the Central Statistics Agency (BPS). Data analysis uses partial least square-structural equations modeling analysis with Smart-PLS 3.

Based on the research object, the variables used are the latent variables of fiscal decentralization and economic development performance. Because the two variables cannot be measured directly (latent variable), the position of the fiscal decentralization variable is domiciled as an exogenous latent variable and the economic development performance variable as an endogenous latent variable. Therefore, analytical techniques use partial least square-structural equation modeling analysis. SEM-PLS is a multivariate statistical technique used for complex models and tested simultaneously (Geladi, Paul & Kowalski, 1986).

SEM-PLS is a predictive technique that uses multi-independent variables, not least if there are multicollinearity symptoms between independent variables (Ramzan & Khan, 2010). SEM-PLS is an analytical tool that can involve many variables (independent and dependent) in the research model. Besides PLS, it does not require many assumptions, such as normality and multicollinearity tests, and does not require multivariate normal distributed data. Other advantages are that they do not require sample sizes to be large and can even use indicators in the form of category, ordinal, interval, and ratio data.

This research model uses two latent variables, namely: latent variables of fiscal decentralization (FD). The latent variable of fiscal decentralization is operationalized using three indicators and adopting measurements (Akai & Sakata, 2002), namely: degree of decentralization of fiscal income (DF_1), decentralization

of fiscal expenditure (DF2), and degree of decentralization of regional original revenue (DF3). Indicators of fiscal decentralization income (DF1) compare provincial and central government revenues. The fiscal decentralization of regional expenditure (DF2) is a comparison of provincial government spending with central government spending, and indicators of fiscal decentralization of regional original income (DF3) is a comparison of the original provincial government revenue with the provincial government revenue center.

Furthermore, the latent variable economic development performance (PD) is operational into three indicators, namely: income inequality (GR), economic growth (GRDB), and human development index (IPM). GR is measured using the gini index number. GRDP is an added value of 17 sectors per province, and HDI is an index of human resource quality.

Based on tool analysis and variables' operationalization, this research conceptual model is seen in the Figure below.
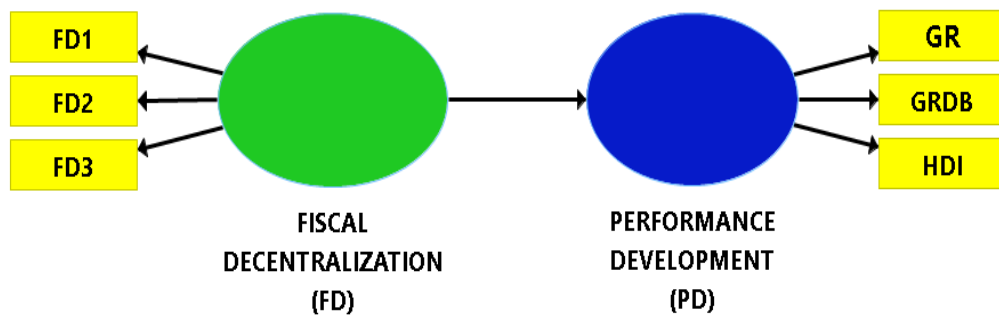

Figure 1. Conceptual Model

In figure 1, there are two models, namely, outer models and inner models. The outer model is a latent variable construct model (FD and PD), and the inner model is a model of the relationship structure between latent variables. The actual outer model measures the extent to which indicators $(FD_1, FD_2, FD_3, GR, GRDB,$ and HDI) can reflect the latent variables they measure. Based on Figure 1, the latent variable measurement model is:

$$FD_1 = \lambda_1 FD + e_1 \tag{1}$$

$$FD_2 = \lambda_2 FD + e_2 \tag{2}$$

$$FD_3 = \lambda_2 FD + e_2 \tag{3}$$

$$GR = \lambda_4 PD + e_4 \tag{4}$$

$$GRDB = \lambda_5 PD + e_5 \tag{5}$$

$$HDI = \lambda_6 PD + e_6 \tag{6}$$

Equations 1, 2, and 3 test the measurement model hypothesis that the level of fiscal decentralization, income ratio, expenditure ratio, and regional original income can reflect fiscal decentralization. Furthermore, equations 4, 5, and 6 are used to test the hypothesized economic performance measurement model that Gross Regional Domestic Product (GRDB), Human Development Index (IPM), and income inequality (GR) can reflect economic performance. According to (Hair et al., 2009), the indicator requirement reflects the latent variable it measures if the

loading factor is greater than 0.5. Furthermore, the structural equation model describes the relationship between exogenous and endogenous latent variables or nothing but tests the research hypothesis and can be formulated in structural equations:

$$PD = \beta\,FD + z \tag{7}$$

Equation 7 examines the structural relationship between exogenous latent variables and endogenous latent variables, which tests the significance of the effect of fiscal decentralization on the performance of regional economic development in Indonesia. The hypothesis testing criterion is that if the regression coefficient probability value (β) is less than the alpha value of 5%, the proposed hypothesis is accepted.

RESULTS AND DISCUSSION
Results

Based on the analysis tool described, hypothesis testing uses SEM-PLS with SmartPLS 3. The stages of hypothesis testing using structural equation models are:

Formulating a Complete Path Model

The complete path model obtained from processing Smart-Pls 3 software consists of two models: (1) the initial model and (2) the final model. The initial model is used to evaluate the measurement model. The final model is a hypothetical test obtained by developing sample data from 500 observations using the bootstrapping method. The initial model and final model are seen in Figures 2 and 3.
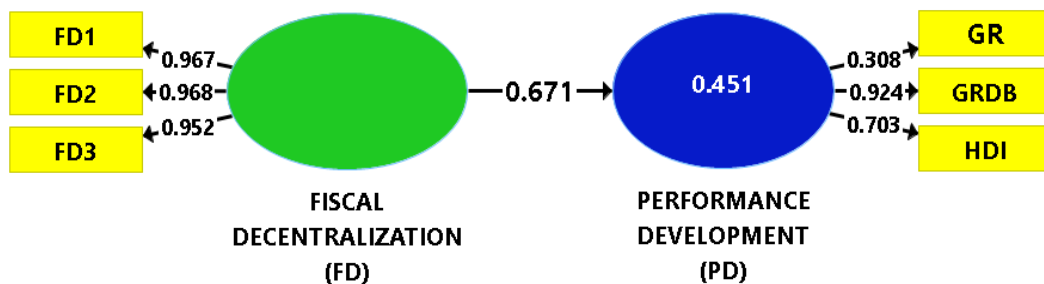

Figure 2 The final result of processing a latent variable measurement model

Based on the results of data processing (Figure 2), an equation can be arranged for the measurement model of the latent variable fiscal decentralization and economic development performance is:

$$FD = 0.967\,X + e_1 \tag{8}$$

$$FD_2 = 0.968\,X + e_2 \tag{9}$$

$$FD_3 = 0.952\,X + e_3 \tag{10}$$

$$GR = 0.308\,PD + e_4 \tag{11}$$

$$GRDB = 0.924\,PD + e_5 \tag{12}$$

$$GR = 0.703\,PD + e_6 \tag{13}$$

Furthermore, the evaluation results of the measurement model are seen in the table below.
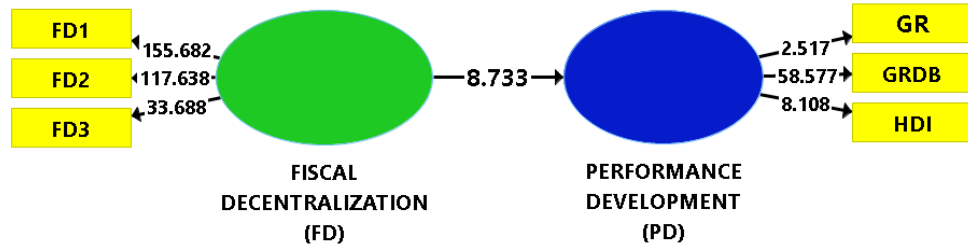

Figure 3. Results of model evaluations by bootstrapping method

Outer Model Evaluation

The results test of the measurement models and structural models with the model bootstrapping method are seen in Table 1.

Table 1. Outer Model Evaluation

	Loading Factor	T Statistics	P Values
FD1 <- FISCAL DECENTRALIZATION (FD)	0.967	155.682	0.000
FD2 <- FISCAL DECENTRALIZATION (FD)	0.968	117.638	0.000
FD3 <- FISCAL DECENTRALIZATION (FD)	0.952	33.688	0.000
GR <- PERFORMANCE DEVELOPMENT (PD)	0.308	2.517	0.012
GRDB <- PERFORMANCE DEVELOPMENT (PD)	0.924	58.577	0.000
HDI <- PERFORMANCE DEVELOPMENT (PD)	0.703	8.108	0.000

Source: Ministry of Finance data processed (2021)

The p-value of all latent variable indicators of fiscal decentralization (FD$_1$, FD$_2$, and FD$_3$) and economic development performance (GR, GRDB, and HDI) is less than 0.05. On the other hand, the AVE value is at least 0.5, so it can be concluded that all indicators are valid in reflecting their latent variables. The evaluation results of the outer model are known that the model shopping indicator (X$_2$) causes a decrease in the province's fiscal decentralization performance in Indonesia. Then the income inequality indicator (Y$_3$) has a loading factor value smaller than 0.7, but the author does not eliminate it in the model because the p-value is still smaller than 0.05.

Inner Model Evaluation

Evaluation of inner models is done to determine the structural relationship between latent variables in the research model—evaluation of identic inner models with hypothesis tests. For example, the influence between latent variables of fiscal decentralization is significant if the p-value is smaller than the alpha value of 5%. The results of the inner model evaluation are seen in Table 2.

Table 2. Evaluation of Inner Models

	Coefficient	T Statistics	P Values
Fiscal Decentralisation (Fd) -> Performance Development (PD)	0.671	8.733	0.000

Source: Ministry of Finance data processed (2021)

Table 2 shows that the p-value of the effect of fiscal decentralization on economic development performance is 0.000, and smaller than the alpha value of 5%. Thus, it can be concluded that at a confidence level of 95%, there is a positive and significant influence of fiscal decentralization on the economic development performance of the Province in Indonesia.

Discussion

Discussion of the study results explains the statistics using an evaluation of outer and inner models and confirms the results with previous research. The results of the outer model evaluation show that statistically, it is known that the loading factor value of fiscal decentralization of capital expenditure is smaller than the critical value (0.7). However, in this study, the indicator was not issued in the latent variable measurement model of fiscal decentralization, considering that the fiscal decentralization indicator is an inseparable entity and is also due to the possibility of limited data size.

The evaluation results of the outer model by setting the sample size to 500 data show that all indicators of fiscal decentralization and economic performance can reflect the latent variables it measures. This result is indicated by a t-statistical value (p-value) smaller than the p-value (0.05). The two indicators of fiscal decentralization, the most powerful fiscal decentralization performance indicators, reflect the province's fiscal decentralization in Indonesia. That indicates that regional autonomy can increase regional decentralization, although efforts are still needed to explore or optimize the potential sources of original regional income.
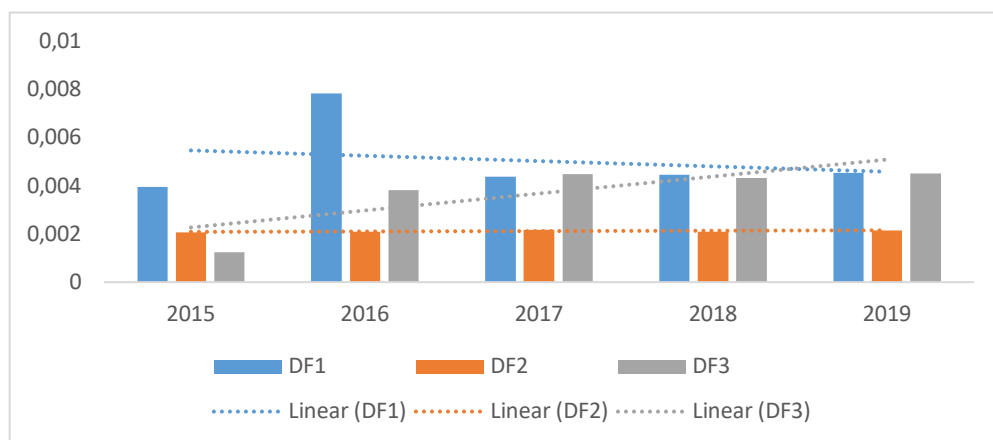

Figure 4. Regional Revenue, Expenditure, and Original Income Ratio

The evaluation of fiscal decentralization is in line with the development of average regional spending and regional original income throughout the province in 2015-2019 (Figure 4). The average growth in regional expenditures and original income shows an increasing trend. These two indicators improve the performance of local fiscal decentralization in Indonesia. This phenomenon is in line with the development of regional economic performance indicators in the same period (Figure 5).

Figure 5 explains the development of provincial economic performance indicators in Indonesia. The average of HDI and GRDP shows an increasing trend, but different averages of the Gini ratio (GR) are volatile and tend to be. This

phenomenon is undoubtedly in line with the evaluation results of the outer economic performance model with GR indicators with the smallest loading factor value compared to HDI and GRDP indicators.
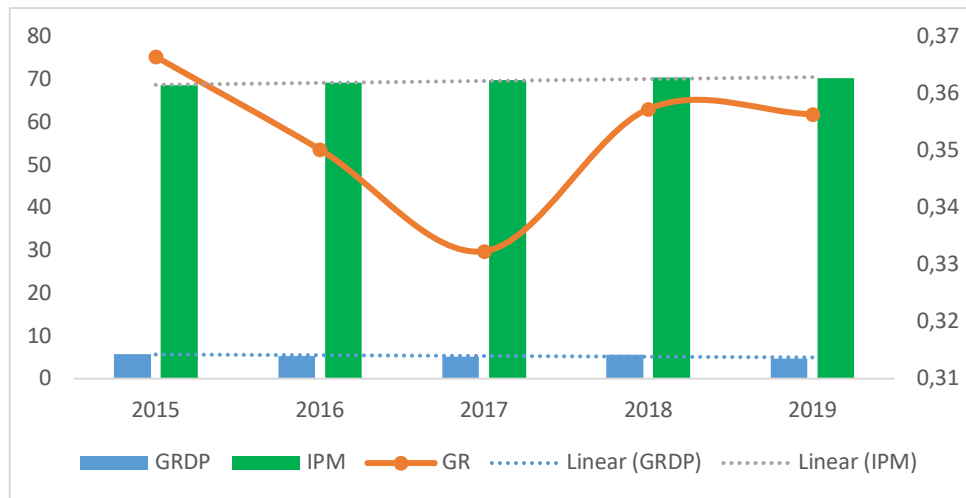

Figure 5. Economic Performance (HDI, GRDP, and Gini Ratio)

As stated in the previous section, the increasingly effective implementation of fiscal decentralization has led to increased economic development performance. This statement is in line with the results of testing the model with the bootstrapping method, which concludes that fiscal decentralization significantly influences the economic development performance of provincial in Indonesia. The results of this study reinforce Liu's findings (2017), using an analysis similar to this study found a significant effect of positive fiscal decentralization on economic performance. The results of this study support the results of Liu's research (2017) and prove that using a different model from Aulia's (2014) produced consistent conclusions. In addition, this study demonstrates that the findings of research conducted by (Martinez-Vazquez & McNab, 1992); (Litvack & Seddon, 2002); (Gramlich, 1993); (Bird, 1993); (Oates, 1993); (Bird et al., 1995); World Bank (1997), and (Zhang & Zao, 2001); which states that by implementing effective fiscal decentralization will encourage regional economic growth and community welfare through economic efficiency.

Argumentation (Oates, 1993) (Martinez-Vazquez & Mcnab, 1997) states that economic growth in an area can be driven by fiscal decentralization through economic efficiency drives. This statement is based on the view that local governments have complete information about their regions, so allocating funds to each economic sector will be efficient. Therefore the local government is considered more capable than the central government. Ineffective implementation of decentralization causes no increase. Therefore, local governments are considered better than the central government (Zhang & Zao, 2001).

In line with (Oates, 1993), Findings (Gramlich, 1993); (Bird, 1993); (Oates, 1993); (Bird et al., 1995); that the effective implementation of fiscal decentralization (income and expenditure) causes increased efficiency in the public sector, reduces budget deficits, and encourages economic growth. This statement is based on the assumption that local governments know more about the characteristics of their regions than the central government. Therefore local

governments are considered more appropriate. Furthermore, it was strengthened by the results of research (Peterson & Anderson, 1995)) that the application of fiscal decentralization had a positive influence on the development of regional economic growth in the future. These influences can be direct and indirect. Intuitively it can be said that the adoption of effective fiscal decentralization drives increased economic development through regional economic efficiency. Dominant, explicitly allocating community spending, especially infrastructure spending, will be more effective if done by local governments than the central government.

CONCLUSION

Based on the results of research and discussion, it can be concluded that the performance of fiscal decentralization, in general, has improved the economic performance of provinces in Indonesia. That with the implementation of fiscal decentralization in Indonesia since 2001 can significantly increase economic growth and the quality of human development. Implementing fiscal decentralization can also reduce people's income inequality caused by the uneven performance of provincial capital expenditures. However, it still needs to be improved again in the future.

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