

The impact of fiscal decentralization on economic growth in Indonesia

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Abstract

Fiscal decentralization was firstly implemented in 2001 and has brought a new era of local autonomy in Indonesia. The objective of fiscal decentralization to local government is to increase the economic growth and public service. This research uses a panel data regression and quadrant analysis method with the data of cluster districts and cities in Indonesia from 2013 to 2018. **Findings/Originality:** The panel regression estimation shows that fiscal decentralization has a positive and significant effect on economic growth in all clusters. However, the quadrant analysis results show that on average 86.7% of all clusters districts and cities were in quadrant IV which reflects low fiscal decentralization and low economic growth. The implication of the result is that the government should increase the allocation of capital expenditure in local budget to accelerate local economic growth of the districts/cities in all clusters.

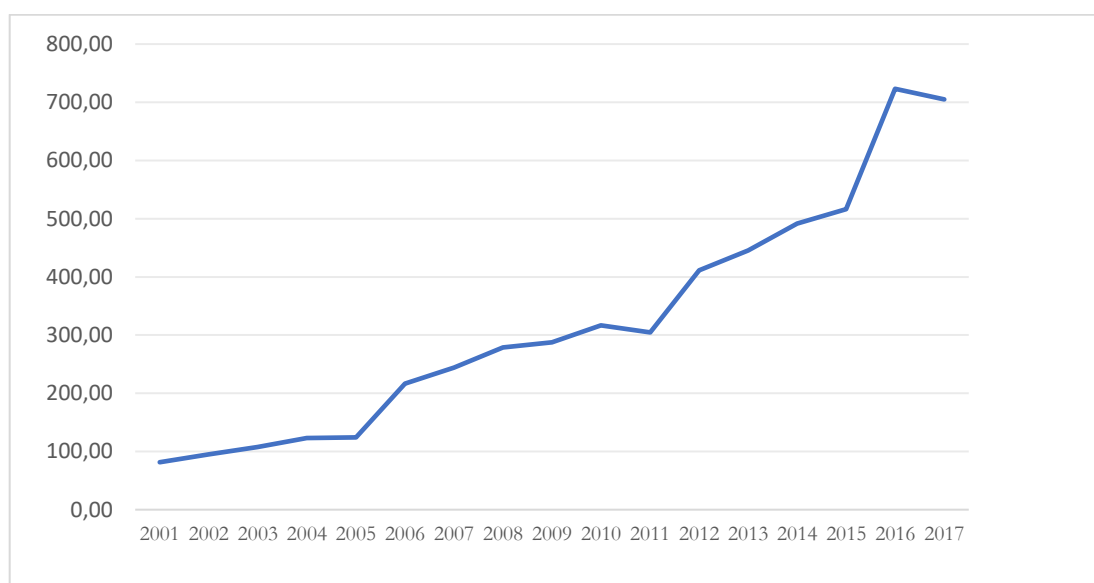
Introduction

Decentralization in Indonesia has experienced ups and downs in the history of Indonesia as a nation. The history stretched from the era of pre-independence, post-independence, the Old Order regime, the New Order regime, to the present era of post Reform (*Reformasi*). Several developments, especially in the Old Order and the New Order era, have resulted in a more centralistic government where nearly all powers and authorities were concentrated in the hand of the President. One of the consequences was that some provinces that were rich in natural resources expressed dissatisfactions over an allegedly unfair distribution of income earned from the exploitation of natural resources where the Central Government controlled the largest of the pie. This centralized government also produced other related effects, namely the emergence of regional disparities between Java and outside Java, and between the west parts and the east parts of Indonesia (Kuncoro, 2014).

The dissatisfactions of various local governments over the overly centralized government system was culminated in the form of separatist movements in various provinces in Indonesia, from Aceh to Papua. Kuncoro (2014) explains that the unfair fiscal decentralization policies have triggered the local governments' dissatisfactions with the central government policies. The demand for broader autonomy inevitably came to the fore in almost all local governments in Indonesia. As a result, after the 1999 reform, President Habibie issued the Law No. 22 on Local Government and the Law No. 25 of 1999 on Financial Balance between Central and Local Governments. These laws served as the driving force for decentralization and autonomy in Indonesia.

Figure 1 shows annual fund transfers from the central government to local governments, for the period 2001-2017, which clearly showed an upward trend. While in the year 2001 the value of funds transferred to local governments was Rp 81.05 trillion, in 2017 the value achieved Rp

704.9 trillion, an annual growth rate of 53 percent. This means fiscal decentralization funds have increased by 763% during the same period.



Source: DJPK, Ministry of Finance, 2019.

Figure 1. Fiscal decentralization fund 2001 – 2017

Tiebout (1956), a pioneer in the study of fiscal decentralization, argues that fiscal decentralization may have an impact on the efficiency of public services provided by the local governments. In countries where the central governments provide fiscal decentralization funds to the local governments, the local people receive the most benefits. Oates (1972) developed a more comprehensive theory related to fiscal decentralization that hypothesizes that there is a trade-off between the level of government responsiveness to the local government to their willingness and the capacity of the local governments. This means that if the local governments are given more fiscal capacity, they can provide public services more effectively to the people.

Lin and Liu (2012) conducted a study with a sample of 28 provinces in China and data from 1970 to 1993, and found that the fiscal decentralization was proven to have driven economic growth. In line with the study, Akai and Sakata (2002) also found in their study using data from United States that fiscal decentralization has positive effects on economic growth.

The aim of this paper is to analyze the effects of fiscal decentralization on economic growth, relying on a framework of economic growth calculation taken from various literature. In so doing this paper employs the Cobb-Douglas production function (Mankiw, Romer, and Weil, 1992) of the form.

$$y(t) = A(t)k(t)^{\alpha}Q^{1-\alpha} \quad (1)$$

where y is GDP, k is capital, A is the level of technology, and Q is labor that is assumed to be constant. Equation (1) is converted into a growth equation so that the economic growth follows a process expressed in equation (2) below:

$$g(t) = y(t) = A(t) + \alpha k(t) \quad (2)$$

Based on equation (2), economic growth depends on technology growth and capital growth. The growth in technology according to Lin and Liu (2012) does not only come from changes in technology but also differences in natural resources and in regional developments. The change in technology is in turn depends on fiscal decentralization. Meanwhile, a study by Zhang and Zou

(1998) shows that economic growth in local governments is influenced by public spending by the local governments. In addition, economic growth is also significantly influenced by population growth (Peterson, 2017).

Furthermore, Lin and Liu (2012) augmented Ganaie and Khan (2018)'s panel regression model by adding variables that include the number of population and investment or capital expenditures to analyze the effect of fiscal decentralization on economic growth. The results show that in addition to fiscal decentralization funds, one of the important factors affecting growth is regional government capital expenditure devoted to increasing regional economic growth. Meanwhile, Nguyen and Anwar (2011) with additional variables that include the number of residents and investment or capital expenditure also studied the effect of fiscal decentralization on economic growth and suggest that besides the above factors, other factors also influence economic growth, including inflation and human resources. So the panel regression model used is as follows:

$$Y_{it} = a_{it} + b_{it}DF_{it} + c_{it}POP_{it} + d_{it}BM_{it} + e_{it}IF_{it} + g_{it}HR_{it} + \epsilon t \quad (3)$$

where Y_{it} is regional economic growth, a is a constant, b , c , d , e and g are regression coefficients, DF_{it} is district/city fiscal decentralization, BM_{it} is growth in capital expenditure, POP_{it} is population growth, IF_{it} is inflation and HR_{it} is human resources proxied by the number of graduates and ϵ_{it} is the error term; i indicates the *cross section* while t signifies the time period from 2013 to 2018 using a *cross-section*.

Based on the previous findings, this study, therefore, focuses on: (1) mapping the local government conditions based on fiscal decentralization and economic growth by making use of quadrant method; (2) analyzing the impact of fiscal decentralization on local economic growth. The rest of this paper is organized as follows. The next section presents research method followed by the section on results and discussions. The final section offers a conclusion.

Methods

This study employs a mixed method that includes qualitative method and panel data regression. The qualitative method is used to draw facts and data in three steps that consist of data reduction, data presentation, and conclusion drawing. While in the data Reduction we conduct data editing and categorization in accordance with the problems and objectives at hand, in the next step we present the result of data reduction and conclusion drawing.

The panel data regression is based on panel data from across districts and cities of various provinces in Indonesia covering the period of 2013 to 2018. The data from districts and cities are divided into 4 clusters. While the first cluster includes districts/cities that received special funds in addition to fiscal decentralization funds, the second cluster consists of districts/cities with local government revenues greater than 50 percent of fiscal decentralization funds. The third cluster embraces districts/cities with local government revenue between 25-50 percent, whereas the fourth cluster comprises districts/cities with local government revenue lower than 25 percent.

According to Baltagi (2008), the panel regression often used is of three models, namely fixed effect model (FEM), random effect model (REM), and common effect model (CEM). The choice of the model is made based on the Wald test and Hausman Test. Wald Test is used to choose either we use common effect model or fixed effect model. Then the Hausman Test is used to choose either we use a fixed effect model or random effect model. The hypothesis was tested at 1%, 5% and 10% of the significance level.

Further, the quadrant method is used to categorize and map the districts and cities into 4 clusters. This mapping is important to investigate and compare the impact of fiscal decentralization on local economic growth. The quadrants are as follows: Quadrant I is for the districts/cities with large fiscal decentralization and high economic growth; Quadrant II is for the districts/cities with large fiscal decentralization but low economic growth; Quadrant III is for the districts/cities with

low fiscal decentralization but high economic growth; and Quadrant IV is for districts/cities with low fiscal decentralization and low economic growth.

Results and Discussion

Table 1 shows the results of the Wald Test of clusters 1 until 4.

Table 1. Wald Test on Panel Regression Model Impact of Fiscal Decentralization on Economic Growth

Model	Cluster I	Cluster II	Cluster III	Cluster IV
Prob (F)	0,000	0,000	0,000	0,000
Result	FEM	FEM	FEM	FEM

Wald test: using a critical value of 1%, 5%, and 10%.

The test suggests that all the four-cluster panel models use fixed effect model (FEM). However, further test is needed to choose between the fixed-effect model and random effect model. Table 2 reports the result of the Hausman test that suggests that while cluster I and II employ fixed effect model, cluster III and IV use random effect model.

Table 2. Hausman Test on Panel Regression Model Impact of Fiscal Decentralization on Economic Growth

Model	Cluster I	Cluster II	Cluster III	Cluster IV
Prob (F)	0,000	0,000	0,000	0,000
Result	FEM	FEM	REM	REM

Hausman test: using a critical value of 1%, 5%, and 10%.

Table 3 presents the estimation results of the adopted panel data models of the four clusters.

Table 3. Impact of Fiscal Decentralization on Economic Growth

Variable	Cluster I (FEM)	Cluster II (FEM)	Cluster III (REM)	Cluster IV (REM)
Constanta	17.926	21.222	12.654	8.175
FD	0.013**	0.027*	0.036**	0.010**
Pop	-0.386	-0.305	0.079	0.058***
BM	0.010	0.042***	0.023	0.003
IF	0.0124**	0.0083	0.001	0.013***
HR	0.004	0.218***	0.333**	0.479***
R-Square	0.699	0.697	0.792	0.528
Adj. R ²	0.699	0.696	0.738	0.526
Prob F-Stat	0.000	0.000	0.000	0.000

*significant at 10%;

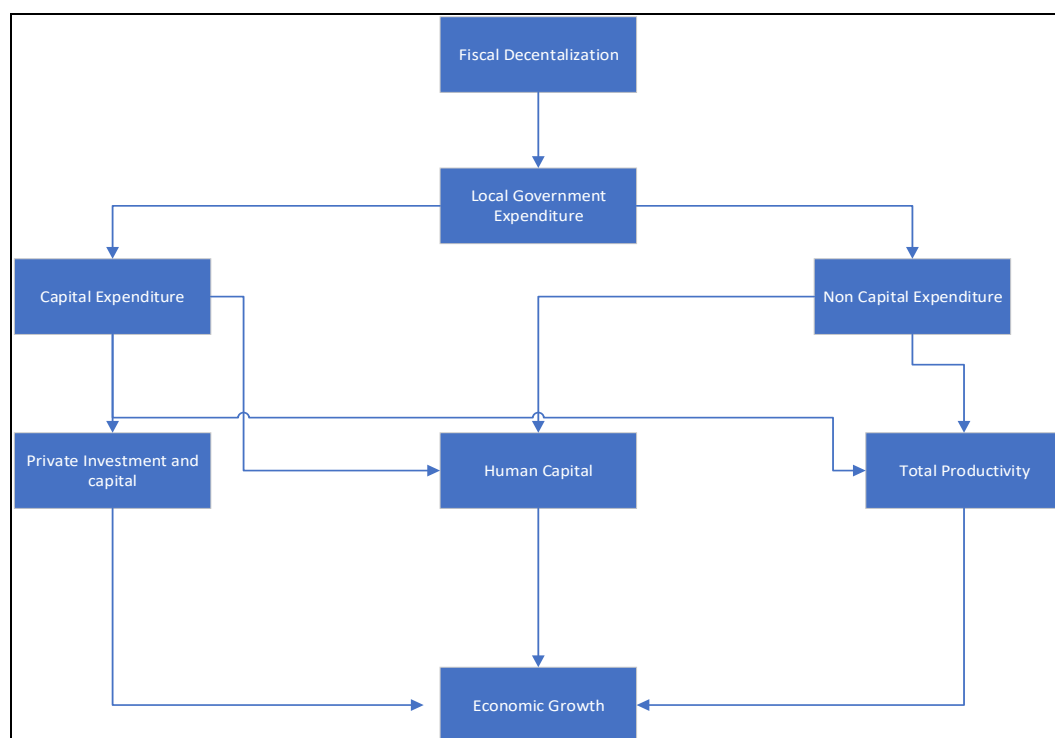
**significant at 5%;

***significant at 1%

Based on the results, fiscal decentralization (FD) has a positive and significant effect on economic growth in all clusters, namely clusters I, II, III and IV. While number of populations (PoP) has a positive and significant effect on economic growth only in one cluster, namely cluster IV, inflation (IF) has a positive and significant effect on economic growth only in clusters I and IV. Further,

capital expenditure has a positive and significant effect on economic growth only in cluster II, whereas human resources (HR) has a positive and significant effect on economic growth in three clusters, namely clusters II, III, and IV.

The effect of fiscal decentralization on economic growth according to Blochliger and Akgun (2018) can be explained in Figure 2 below. The fiscal decentralization provided the fund for the local government to increase local government expenditure. The increased local government expenditures induced local governments to increase capital expenditures needed to increase economic growth. Thus, the increase in fiscal decentralization has an effect on local economic growth.

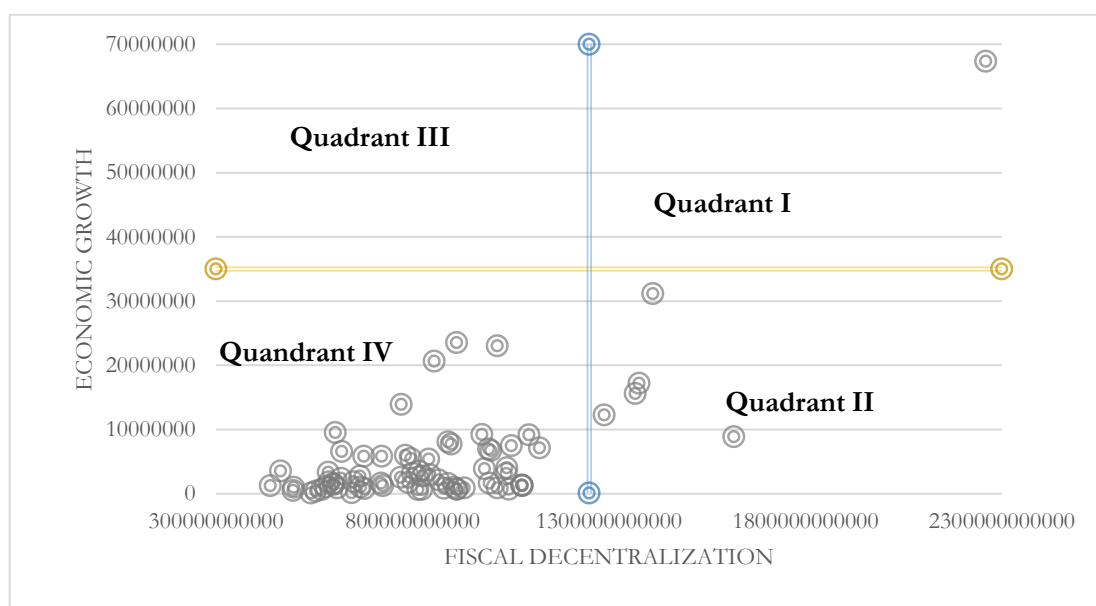


Source: Blochliger and Akgun (2018).

Figure 2. The Link between Fiscal Decentralization and Economic Growth

The panel data regression results show that fiscal decentralization has a positive and significant effect on economic growth, although the estimated coefficient of the effect is relatively small. The results corroborate the previous studies that include Kalirajan (2012), Thornton (2007), Cai and Treisman (2006), González et al., (2014).

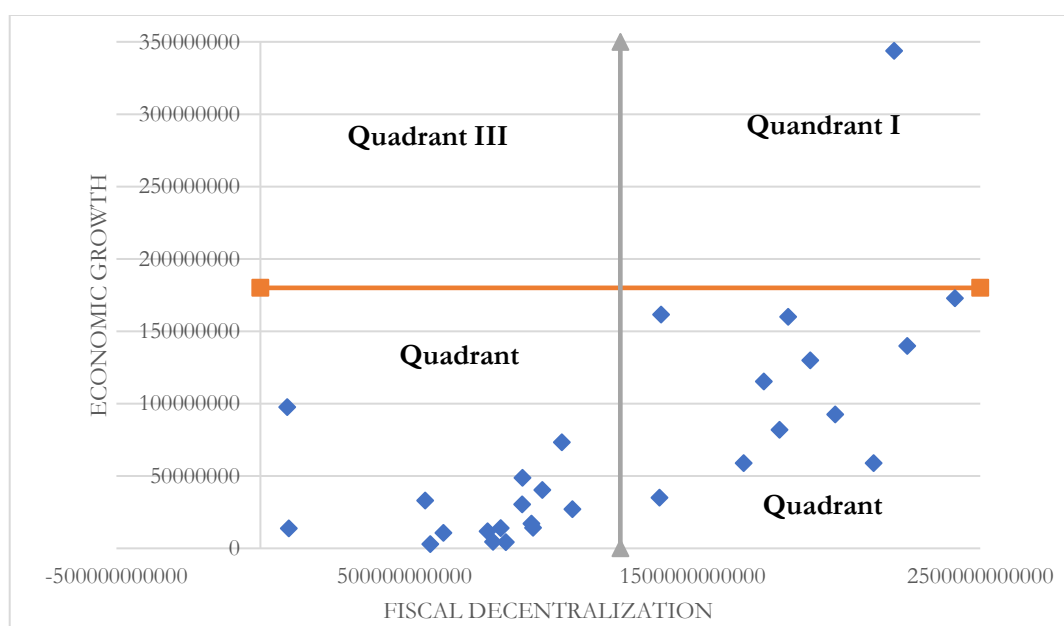
Figure 3 presents the results of the quadrant analysis for cluster I. There is only 1 district/city in quadrant I, namely Mimika. It implies that Mimika has high fiscal decentralization and high economic growth. Districts located in quadrant II include Sleman, Bantul, North Aceh, Gunung Kidul, and Merauke. These districts have high fiscal decentralization but low economic growth. No district/city occupies quadrant III. Most or 90 percent of districts/cities in cluster I are found in quadrant IV, including Banda Aceh City, Yogyakarta City, Sorong City, and other districts and cities. This means these districts/cities have low fiscal decentralization and low economic growth.



Source: Data Processing (2019).

Figure 3. The Quadrant Analyzes Fiscal Decentralization and Economic Growth in Cluster I

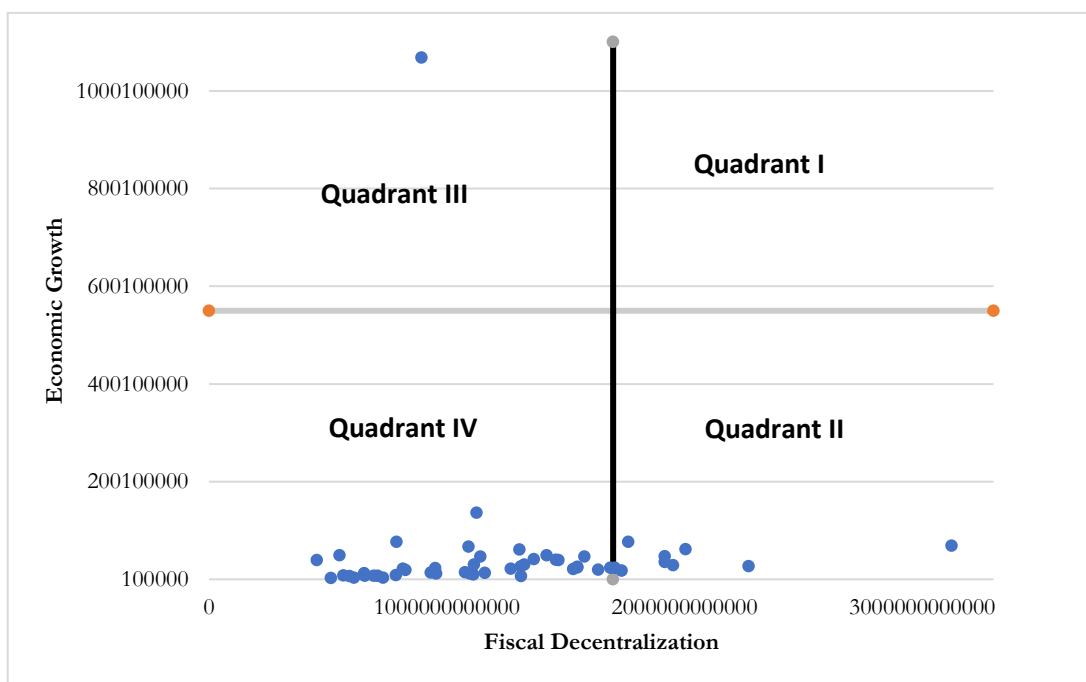
Figure 4 shows the quadrant analysis results for Cluster II. There is only one district/city, Surabaya, in quadrant I, implying that Surabaya has high fiscal decentralization and high economic growth. Quadrant II contains Tangerang City, Sidoarjo District, Bandung City, Medan City, Makassar City, Palembang City, Tangerang District, Bandar Lampung City, Bekasi City, and Kawarang District. These districts/cities have high fiscal decentralization but low economic growth. No district/city fills in quadrant III. Quadrant IV comprises 71 % of districts and cities in cluster II, such as Batam City, Balikpapan City, Tabalong City, Depok City, Tangerang City, and other districts and cities. This means 71% of the districts/cities have low fiscal decentralization and low economic growth.



Source: Data Processing (2019).

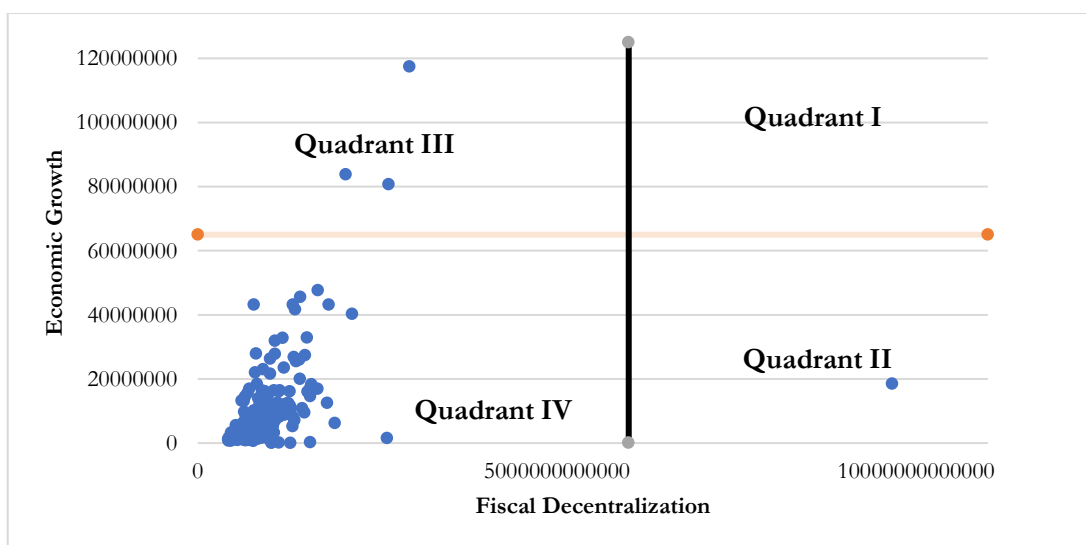
Figure 4. The Quadrant Analyze Fiscal Decentralization and Economic Growth in Cluster II

Figure 5 presents the results of the quadrant analysis for Cluster III. No district/city is contained in quadrant I. There is no district/city with high fiscal decentralization and high economic growth. Quadrant II comprises Bandung District, Cianjur District, Kediri District, and Deli Serdang District. These districts have high fiscal decentralization but low economic growth. Based on the quadrant analysis showed that the quadrant III there was Mataram City. It implied that Mataram City had a low fiscal decentralization but had high economic growth. The majority of districts/cities, 88 percent, are found in quadrant IV. They include Jambi City, Padang City, Kediri City, Mojokerto City, and other districts/cities. It implies that 88% of the districts/cities in Cluster III have low fiscal decentralization and low economic growth.



Source: Data Processing (2019).

Figure 5. The Quadrant Analyze Fiscal Decentralization and Economic Growth in Cluster III



Source: Data Processing (2019).

Figure 6. The Quadrant Analyze Fiscal Decentralization and Economic Growth in Cluster IV

The results of the quadrant analysis for the Cluster IV are presented in Figure 6. No district/city is included in quadrant I. There is no district/city with both high fiscal decentralization and high economic growth. Quadrant II contains Kutai Barat District only, which has high fiscal decentralization but low economic growth. There are three districts: Kutai Kertanegara, Kutai Timur, and Bengkalis included in quadrant III. It implies that these districts have low fiscal decentralization but high economic growth. Quadrant IV contains 98 percent of districts/cities cluster IV. Likewise 98 percent of districts/cities in Cluster IV have low fiscal decentralization and low economic growth.

The panel regression analysis found that the fiscal decentralization has a relatively small effect on economic growth, as shown by the quadrant analysis. The small effects might result from mismanagements of the districts/cities' budgets. The data show that the budgets of those local governments are more focused on apparatus expenditure than on capital or public expenditures with a ratio of 70: 30. Equally important is the problem of a lack of consistency between the program plans and their real activities. Activities that have been planned in the regional planning documents, such as the Regional Government Work Plan (RKPD), in reality often do not appear in the APBD. Some activities that are included in the APBD sometimes often appear suddenly without knowing whether the community needs these activities as capital expenditure or public expenditure. Further, the quadrant analysis revealed that on average 86,75% of districts/cities in Clusters I, II, III, and IV are in quadrant IV. This means that 86,75% of the districts/cities have low fiscal decentralization and low economic growth.

Conclusion

This Paper found that fiscal decentralization has a positive and significant effect on economic growth of districts/cities in all Clusters I, II, III and IV. However, the low regression coefficient of fiscal decentralization implies that increasing the local economic growth by relying on fiscal decentralization only is not enough. Fiscal decentralization serves as a necessary condition, but not sufficient condition, for economic growth.

The quadrant analysis shows that on average 86,7% of all districts/cities in clusters I, II, III, and IV are in quadrant IV. This indicates that these districts/cities have low fiscal decentralization and low economic growth. This result is in line with the result of panel regression, namely fiscal decentralization has a positive and significant effect on economic growth albeit with relatively small coefficient.

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