Does Fiscal Decentralization Affect Education Inequality?

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Abstract: There are no regency or city in East Java Province that have the developed and grew rapidly area category. Based on the analysis of such data, need for more attention to fiscal decentralization and inequality of education to see the success of economic development, not just look at the economic growth. The aim of this study is to analyze the effect of fiscal decentralization on education inequality among regency or city in East Java Province. Data analysis techniques used panel analysis method. The result showed that fiscal decentralization has negatively and significant effect on education inequality.

1 INTRODUCTION

Decentralization is the transfer of authority of the government by the central government to the autonomous regions to regulate and administer government affairs in the system of the Unitary State of the Republic of Indonesia (Article 1 paragraph (7) of Law Number 32 Year 2004). Fiscal decentralization is fundamental to the regional autonomy system in the financial aspect. Where fiscal decentralization is a central government's financial transfers to sub-national governments (Boex and Martinez-Vazquez, 2001). Fiscal decentralization between the central government and regional governments is done by transferring the balance funds.

Based on data from the Revenue Service Office of Finance and Regional Assets of East Java Province (2013 on East Java Provincial Government, 2014), from year to year locally original revenue became the largest contributor of revenue in East Java Province. In 2011, locally original revenue of East Java Province amounted to 11.49 trillion rupiahs, increasing in 2012 by 15.4 trillion rupiah and increasing again in the year 2013 amounted to 17.39 trillion rupiah. Similarly, the number of Balanced Funds received, indicates an increase in the number, but the percentage of total income actually shows a decline. Such conditions indicate that the ability of the Government of East Java Province to explore its potential is very good. In addition, it also shows the decreasing level of dependency of East Java Provincial Government on transfers from the Central Government to finance

their expenditure, in other words the level of provincial independence is quite high.
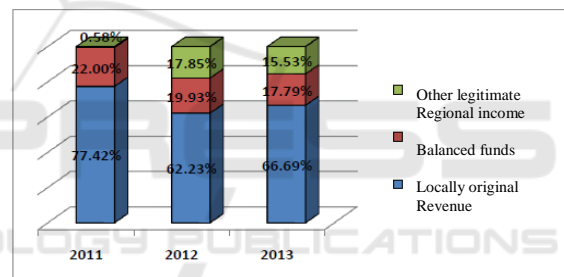

Figure 1: Composition of Revenue Realization East Java Provincial Government

Source: Revenue Service Office of Finance and Regional Assets of East Java Province, 2013

From an economic perspective, Waluyo (2007) says that fiscal decentralization will have an impact on reducing income inequality between regions if the role of local government is optimal. So the condition of income inequality that occurred in East Java Province which tends to increase can be resolved. Meanwhile, in terms of non-economic, fiscal decentralization should be able to improve the quality of human resources area (human capital). Soejoto et.al. (2016) suggested that education gini index trend in East Java Education in 2011-2014 was increased. Thus illustrated on figure 2,
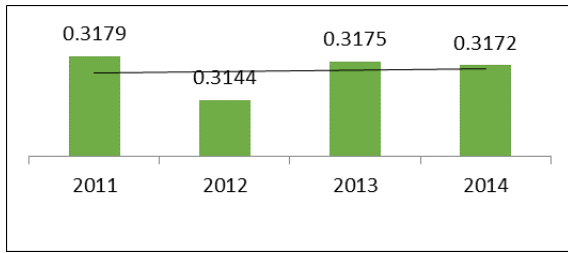
Figure 2: Education Gini Index of East Java Province, 2011-2014

Source: Soejoto et.al. (2016)

Pattern of regional development in East Java Province mapped to 5 classification, among others: 1) Developed and grew rapidly (developed) area; 2) Advanced but depressed area (stagnant); 3) Potential areas may still be developing or (developing); 4) Relatively lagging (underdeveloped) area; and 5) Very underdeveloped area. The classification of the regional development pattern was obtained by developing the concept of Klassen Typology. The results of the data analysis show that there are no city/regency that are classified as developed and grew rapidly (Soejoto et. al., 2016). The regional development pattern of each city/regency in East Java Province is described in Table 1.

Table 1: The Regional Development Pattern of Each City/Regency in East Java

No.	Classification	City/Region
1.	Developed and grew rapidly (developed) area	–
2.	Advanced but depressed area (stagnant)	Tulungagung regency, Kediri regency, Banyuwangi regency, Pasuruan regency, Sidoarjo regency, Mojokerto regency, Ngawi regency, Bojonegoro regency, Tuban regency, Lamongan regency, Gresik regency, Sumenep regency, Surabaya City

Table 1. Cont.

3.	Potential areas may still be developing or (developing)	Pacitan regency, Ponorogo regency, Blitar regency, Malang regency, Jember regency, Jombang regency, Nganjuk regency, Blitar City, Malang City, Probolinggo City, Madiun City, Batu City
4.	Relatively lagging (underdeveloped) area	Trenggalek regency, Lumajang regency, Bondowoso regency, Situbondo regency, Probolinggo regency, Magetan regency, Sampang regency, Pamekasan regency, Kediri City, Pasuruan City, Mojokerto regency
5.	Very underdeveloped area	Madiun regency, Bangkalan regency

Source: Soejoto et.al. (2016)

There are no city/regency in East Java Province that have categories of developed and grew rapidly (developed) area, this means that although they have economic growth or the balance funds larger than other city/region, still have problems of income inequality or inequality of education. There is still a city/regency that is categorized as a very underdeveloped area, which means that the regency has low economic growth and low balance funds, while the income inequality and education inequality is high value. In fact, the balance funds aims to state regional revenues. Thus it is necessary to pay more attention to fiscal decentralization and educational inequality to see the success of economic development, not just economic growth.

The balance funds aims to increase local fiscal capacity, reduce fiscal gap between central and regional as well as inter-regional, improve the quality of public services in the regency, and increase attention to development in disadvantaged areas, outermost and leading.

Revenue-sharing is allocated to regencies based on State Budget of Admissions and Expenditures, revenues to fund local needs for decentralization. The general allocation fund is allocated to minimize fiscal imbalances among regencies in funding governmental affairs under regional authority. The special allocation funds are allocated to assist regencies in funding programs/activities that are

under regional authority and a national priority (Minister of Finance, 2013).

Potential resources owned by each city/regency in East Java Province vary. Thus, the ability of each city/regency to produce goods and services as a source of income is also different. The economic growth generated by the city/regency economy also varies. Thus, the amount of balance funds received each city/regency is expected to support the city/regency that can still generate low income or low economic growth. In the long term, the balance funds are expected to make the community welfare. The welfare of the people is not only measured by the increase in city/regency income or economic growth, but also other socio-economic indicators such as equity of income and education.

Equity of education can be supported by government through education investment in education expenditure function. Based on Article 31 Paragraph 4 of the 1945 Constitution of the 4th Amendment, the state at least 20 percent of the State Budget of Admissions and Expenditures as well as from the Regional Budget of Admissions and Expenditures prioritize the education budget to meet the needs of the implementation of national education.

Doriza et.al. (2012) suggested that the special allocation funds for education, the special allocation funds non education, and locally original revenue had significant impact in reducing education access disparity along with the wealth and regional characteristics. Nonetheless efforts need to be done to optimize the equalization of education access including strengthening the provincial government role in resources allocation and distribution of basic education services. It means that fiscal decentralization has negatively effect on education inequality.

Akai et.al. (2007) suggested that financial decentralization has effect on education. But, the effect of financial decentralization is not clear in the primary level. The financial decentralization is effective in the secondary level. The paper analyses the effect of financial decentralization by focusing on the difference of levels of education, primary and secondary educations.

Ahmad (2016) suggested that "different sources of fiscal decentralization have distinct effects on education expenditure and quality. While subnational governments that are financed through own-tax revenues are more likely to increase the funds allocated to education, they also seem less concerned with maintaining teaching quality. The study provides evidence that decentralized structures

cater better to local social needs. Fiscal decentralization is, therefore, an important policy instrument for achieving social goals".

Bakti and Kodoatie (2012) had a different opinion, they suggested that fiscal decentralization did not have significant influence to women education access in Special Region of Yogyakarta.

The balance funds that are transfers of funds from the central government to the regencies are sourced from the State Budget of Admissions and Expenditures, not only concerning the potential aspect of resources of each regency in generating revenue, but also paying attention to the direction of national priorities. This means that the use of the balance funds is not only intended to meet the needs of the city/regency in running its economy, but also to support national priorities allocated in special allocation funds. This national priority, during the era of President Jokowi's administration is contained in the Economic Policy Package.

Besides influenced by national priorities, the amount of the received funds is also influenced by regional needs as stated in the regional development Work Plan. According to regional development Plan of East Java Province 2016 (East Java Provincial Government, 2015), it is mentioned that the priority and direction of spatial development policy of East Java Province in 2014-2019 is directed at consolidation of urban National Centre of Activities as metropolitan in East Java Province, Activities of Territory, and increasing the linkage of the main production pockets in East Java Province with the processing and marketing centre as the core of agropolitan system development as well as stabilizing the development of strategic area by dividing the strategic role of regional development. The focus is on areas that functionally can contribute to economic growth for the strategic regency and the surrounding area.

The aim of this study is to analyze the effect of fiscal decentralization on education inequality among regency or city in East Java Province.

2 METHODS

This type of research is an explanatory research using quantitative method used to test and analyze the effect of fiscal decentralization on education inequality between city/regency in East Java Province. Data analysis techniques used panel analysis method.

Fiscal decentralization is a balance of funds consisting of revenue-sharing funds derived from

taxes and natural resources, general allocation funds and special allocation funds each city/regency in East Java Province.

Inequality of education is a problem of inequality of education in an area by using gini index education indicators. Gini index of education is measured by using population based on education graduate in city/regency of East Java Province. The index of education has a value ranging from 0 (indicating perfect equity) and 1 (indicates inequality perfect). The calculation of educational index directly using the following formula (Thomas, et al, 2000).

Gini index of education:

$$E_L = \left(\frac{I}{\mu}\right) \sum_{i=2}^{n} \sum_{j=1}^{i-1} p_i \, |y_i - y_j| \, p_j$$

Where:

E_L : The educational index is based on the distribution of school attainment

μ : Average length of schooling from population

p_i and p_j : the proportion of the population with a definite level of school attainment

y_i and y_j : years of schooling at different levels of educational attainment

n : The number of categories of school attainment in the data

The criteria of inequality used in the Education Gini Index follow Todaro (2010) as follows: very high inequality area (0.71 and above); high inequality area (0,5-0,70); moderate inequality area (0.36-0.49); low inequality area (0.21-0.35); very low inequality areas (Less than 0.20).

2.1 Econometric Model

The effect of fiscal decentralization on education inequality is investigated by employing the following model:

$$fiscal_{r,t} = b_0 + b_1 eduine_{r,t} + e_{1r,t}$$

Where fiscalr,t is fiscal decentralization of city/regency r at time t; eduiner, t is the education gini index of city/regency r at time t; b0 is the constanta; b1 is the regression coefficient of education gini index variables; and e1r,t is the error term.

3 RESULTS AND DISCUSSION

This study was conducted to examine whether there is any effect of fiscal decentralization on education inequality. The proof is done using panel analysis method. The result of data analysis of 38 cities/regencies in East Java Province is shown in Table 2.

Table 2: Results of the Data

Dependent Variable: EDUINE?					
Method: Pooled EGLS (Cross-section random effects)					
Sample: 2008 2014 observations: 7 Cross-sections: 38					
Total pool (balanced) observations: 266					
Swamy and Arora estimator of component variances					
White cross-section standard errors & covariance (d.f. corrected)					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	0.3299	0.0269	12.2498	0.0000	
FISCAL?	-2.850E-11	0.0000	-2.4927	0.0133	
Random Effects (Cross)					
_1--C	-0.0091	_14--C	0.0110	_27--C	0.1915
_2--C	0.0211	_15--C	-0.0862	_28--C	0.0776
_3--C	-0.0400	_16--C	-0.0347	_29--C	0.1326
_4--C	-0.0348	_17--C	-0.0285	_30--C	-0.0958
_5--C	-0.0145	_18--C	-0.0087	_31--C	-0.0895
_6--C	-0.0135	_19--C	0.0028	_32--C	-0.0840
_7--C	0.0222	_20--C	-0.0183	_33--C	-0.0309
_8--C	0.0288	_21--C	0.0389	_34--C	-0.0599
_9--C	0.0776	_22--C	0.0360	_35--C	-0.1019
_10--C	0.0250	_23--C	0.0258	_36--C	-0.1136
_11--C	0.0701	_24--C	0.0127	_37--C	-0.0717
_12--C	0.0884	_25--C	-0.0482	_38--C	-0.0617
_13--C	0.0555	_26--C	0.1279	_27--C	0.1915
Effects Specification					
			S.	Rho	
Cross-section random			0.068086	0.9491	
Idiosyncratic random			0.01577	0.0509	
Weighted Statistics					
R-squared		0.084705	Mean dependent var		0.0268
Adjusted R-squared		0.081238	S.D. dependent var		0.0165
S.E. of regression		0.015842	Sum squared resid		0.0663
F-statistic		24.43151	Durbin-Watson stat		1.4013

Table 2. Cont.

Prob(F-statistic)	0.000001			
Unweighted Statistics				
R-squared	-0.047166	Mean dependent var		0.3069
Sum squared resid	1.34395	Durbin-Watson stat		0.0691

Based on the results of the data in Table 2, the calculated p value (t statistics) of 0.0013 is less than the critical p value, the null hypothesis is rejected. It can be concluded that the hypothesis related to the effect of fiscal decentralization on education inequality raised in this study is acceptable. Fiscal decentralization negatively and significantly affecting education inequality.

The fiscal decentralization regression coefficient is negative and 0.0285. It can be interpreted that as fiscal decentralization increases by one billion, predicted education inequality will decrease by 0.0285, while other independent variables are assumed to be constant. Similarly, when fiscal decentralization decreases by one billion, it is predicted that educational inequality will increase by 0.0285, while other independent variables are assumed to be constant.

Table 3: Constants of Each City/Region

No.	City/Region	Constants	Category
1	Madiun City	0.2162	Low
2	Mojokerto City	0.2280	Low
3	Kediri City	0.2341	Low
4	Blitar City	0.2404	Low
5	Sidoarjo regency	0.2436	Low
6	Malang City	0.2459	Low
7	Surabaya City	0.2581	Low
8	Batu City	0.2682	Low
9	Pasuruan City	0.2699	Low
10	Gresik City	0.2817	Low
11	Trenggalek regency	0.2899	Low
12	Tulungagung regency	0.2950	Low
13	Mojokerto regency	0.2951	Low
14	Probolinggo City	0.2990	Low
15	Jombang regency	0.3014	Low
16	Magetan regency	0.3116	Low
17	Blitar regency	0.3154	Low
18	Kediri regency	0.3163	Low
19	Pacitan regency	0.3208	Low
20	Nganjuk regency	0.3212	Low
21	Madiun regency	0.3327	Low
22	Pasuruan regency	0.3409	Low
23	Lamongan regency	0.3425	Low
24	Ponorogo regency	0.3510	Low
25	Malang regency	0.3521	Low

Table 3. Cont.

26	Banyuwangi regency	0.3549	Medium
27	Tuban regency	0.3557	Medium
28	Lumajang regency	0.3586	Medium
29	Bojonegoro regency	0.3658	Medium
30	Ngawi regency	0.3687	Medium
31	Probolinggo regency	0.3854	Medium
32	Bondowoso regency	0.4000	Medium
33	Pamekasan regency	0.4075	Medium
34	Jember regency	0.4075	Medium
35	Situbondo regency	0.4183	Medium
36	Bangkalan regency	0.4578	Medium
37	Sumenep regency	0.4625	Medium
38	Sampang regency	0.5214	High

Table 3 describe the constants of each city/regency from the lowest to the highest. The constant value of each city/regency obtained from the data analysis using the panel analysis method can be used to determine which city/regency have the potential to create high educational inequality compared to other cities/regencies, if the fiscal decentralization variable is considered constant.

Data analysis on the effect of fiscal decentralization on education inequality was conducted in 38 cities/ regencies in East Java Province from 2008 to 2014. It was found that fiscal decentralization negatively and significantly affecting education inequality.

The negatively effect of fiscal decentralization on education inequality, suggesting that an increase in fiscal decentralization will decrease education inequality. An additional fiscal decentralization of 1 billion would reduce education inequality by 0.0285. This study is consistent with Doriza et.al (2012), Akai et.al. (2007) and Ahmad (2016) that fiscal decentralization has effect on education. Contrary to the study of Bakti and Kodoatie (2012).

The findings of the study, as well as revealing that the city/regency government in East Java Province still care about education. The negatively effect of fiscal decentralization on education inequality, also implies that there is a share of fiscal decentralization revenues used for expenditure of educational functions. The greater of fiscal decentralization received can create lower education inequality.

In addition to know the effect of fiscal decentralization on education inequality. Based on the results of data analysis can also be known which cities/regencies that have the potential to create a high education inequality than other cities/regencies, if the variable of fiscal decentralization is considered

constant. It is based on the constant value of each city or regency.

Based on the analysis of the constant value of each city/region, it was found that Sampang Regency has the highest potential to create education inequality with a constant value of 0.5214. While Madiun City has the lowest potential in creating educational inequality with a constant value of 0.2162.

The value of the constant can be used by the government to determine which regency should get more fiscal decentralization fund. Sampang Regency should get more attention, given its potential in creating education inequality. It also required assistance in the use of funds, not only related to the amount of fiscal decentralization. Assistance of the use of funds related to the allocation of funds, whether the actual funds for the expenditure of education functions used according to function and whether the amount of funds allocated for expenditure of education function already reflects the mandate of Article 31 Paragraph 4 of the 1945 Constitution of the 4th Amendment.

4 CONCLUSIONS

Fiscal decentralization negatively and significantly affecting education inequality. The findings of the study, as well as revealing that the city/regency government in East Java Province still care about education. The greater of fiscal decentralization received can create lower education inequality.

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