

Fiscal Decentralization and Local Government Size: Evidence from Indonesia

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Abstract

The aim of this study is to examine the association of fiscal decentralization in relation to government size in Indonesia. Literature theory of leviathan model argued that government behavior tends to maximize their revenue and expand their spending (government size). The constitutional way to hamper this behavior is limitation access of central government to revenue and giving revenue authorization to sub national government. Panel data of 33 provinces in Indonesia are deployed to examine the association of fiscal decentralization and government size. Proxies of fiscal decentralization are, local tax revenue, usher charge, decentralization revenue and government transfer. The empirical evidence in this study support previous study of leviathan hypothesis that fiscal decentralization tend to decrease government size.

Keywords: fiscal decentralization, government size, leviathan hypothesis.

1. Introduction

Fiscal decentralization is believed could increase quality and efficiency of public goods provision to the consumers-voters. Mechanism of fiscal decentralization gives an authority to different level of government where they are free to decide their revenue and expenditure policy. Local government given authorization to determine the prioritize list of public goods to be serve that appropriate match or close to their need. Instead of expenditure authorization, tax devolution is also given to local government. Under centralizing tax system argued that voters spread in several location will hide their obligation and central government tend to prioritize their interest, expand their spending and lead to increase government size. Limitation access of central government to tax and fiscal instrument believed could hamper government size. Tax authorization to each sub central government make each jurisdiction compete on tax rate and this access make them wise on using spending and finally this is will reduce government size.

Study related to fiscal decentralization and government or public sector size still relevant to explore today event there are vast and varies studies conducted to this concept. Several countries especially developing countries adopt fiscal decentralization that change and reform fiscal policy between central and sub central government. The pioneering and later become main reference studies is done by Brennan & Buchanan (1980). This study more known as Leviathan hypothesis, posit that government intervention in the economic should be less, *ceteris paribus*, the grater to extent to which taxes and expenditure are decentralize. The study also reveals that the main goal of decentralization is to create competition among jurisdiction, and resulting lower tax rate in order to attract investment in their area. Every citizen assume has easy access and free moving of their asset to other jurisdiction, tax rate will compete and tend to lower and finally restrain public sector size. Intergovernmental grant in fiscal decentralization transmission channel according to several studies, tend to increase government size or associated significantly positive to government expenditure, while tax income of local government associated significantly negative to public sector size. Fiscal decentralization in developed country given full responsibility to determine tax revenue and expenditure policy meanwhile in developing country authorization limited just to expenditure side, see Muller (2003) and Feld et al (2003). Tax assigning to local government in developing country like Indonesia is given limited to some type of tax object such as vehicle tax, hotel and restaurant tax, property tax, user charge etc. Main object tax like income tax, value added tax, and custom tax are not assigned to local government. In this study we try to explore whether fiscal decentralization in Indonesia, in term of local tax revenue supported the leviathan hypothesis. Instead of empirical studies supporting leviathan hypothesis, several studies have different result. Oates (1985) criticizing leviathan hypothesis and undertook study examine fiscal decentralization in relation to government size. The result shows that there is no systematic evidence between the degree of decentralization and government size. The similar result also shown in Nelson (1986), Forbes and Zampelli (1989), Feld, Kirchgässner and Schaltegger (2003), Prohl and Schneider (2009). In others side, some studies support leviathan hypothesis (Marlow, 1988), (Stein 1999), Rodden 2003 Jin and Zou (2002) Ashworth, J., Galli, E., & Padovano, F. (2013). The transmission channel to measure government size is different in each study. Oates (1985), Nelson (1986), Forbes and Zampelli (1989), Feld, Kirchgässner and Schaltegger (2003), and Prohl and Schneider (2009) using revenue based to measure government size while other studies in general using expenditure basis for dependent variable. Government level analyzed in the study varies from local government in intra national and cross country data. Oates study employ data both of intra national and cross country, Feld, Kirchgässner and Schaltegger (2003)

deploy data from local government in Switzerland, stein (1999) on America Latin cross country.

Revenue for local government might be acquired from internal and external fund such as local taxing, user charge, project of income generating, loan and intergovernmental grants. In many countries local tax revenue is one of the main sourcing fund instead of intergovernmental grant in fiscal decentralization mechanism. Indonesia that began decentralization early of 2000, funds from local tax revenue and transfer balance fund become the main of government fund. Table 1, describe local government revenue structure Indonesia, that mainly source from local taxing, balancing transfer fund, and others legal fund. Local taxing revenue is the biggest fund for local government followed by general allocation Fund (DAU), Tax sharing fund, others sourcing fund, natural resources, user charge and special allocation fund (DAK). Local taxes is comprises of vehicle tax, title transfer tax, restaurant and hotel tax, etc. this fund on average contribute more less 40% of total source fund. Tax sharing fund is tax that administered and levied by central government and retransfer again to each region. This sharing tax comprises of income tax (domestic and foreigner taxpayer), land and property tax, Land and Building Title Transfer Duty. Other Legal Revenue is other income that coming from the central government and or from other local government. Other revenue comprises; grants; emergency fund, which is fund of the state budget allocated to areas get a national disaster, extraordinary experiencing a national disaster, extraordinary events and/or solvency crisis; tax share from provincial and other local governments; contingency funds/balancing/adjustment from government; financial assistance from provincial and other local governments, and other legal income.

Table 1. Structure of Local Government Revenue in Indonesia (percentage)

		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
1	Own Source Revenue	48.82	49	44.04	45.05	46.01	45.91	48.57	52.59	46.53	49.37	49.03
	Local Tax	42.61	42.54	37.07	38.48	39.34	38.09	40.5	44.83	39.24	42.27	42.15
	User Charge	2.5	2.36	2.31	2.5	1.96	1.59	1.25	1.01	1.42	0.62	1.11
	Rev from local gov enterprise	1.12	1.36	1.23	1.23	1.35	1.63	1.65	1.8	1.42	1.38	1.27
	Natural resources	2.59	2.74	3.43	2.85	3.36	4.61	5.17	4.95	4.44	5.11	4.5
2	Transfer balance Fund	43.62	43.54	48.51	47.93	44.46	43.07	40.68	37.7	33.33	31.51	31.56
	Tax sharing rev	15.94	15.59	14.82	15.37	15.33	15.58	15.03	11.75	11.46	8.64	10.74
	Non tax Sharing rev	8.98	11.7	12.66	9.17	9.84	7.26	8.47	8.93	6.43	6.95	6.17
	General Allocation Fund	18.66	16.21	21	22.35	18.56	18.86	16.48	16.11	14.72	15.05	13.89
	Special Allocation Fund	0.04	0.05	0.03	1.05	0.73	1.38	0.7	0.91	0.72	0.86	0.76
3	Other source Rev	7.56	7.46	7.45	7.01	9.53	11.02	10.75	9.71	20.14	19.12	19.41
	Total 1+2+3	100	100	100	100	100	100	100	100	100	100	100

Source: Ministry of Finance of RI

The aim of this paper is to examine relationship between the fiscal decentralization proxy by local tax revenue, user charge, government grant, and decentralization revenue channel in conjunction to local government size in province level in Indonesia. We using variable of local tax revenue- property tax, user charge, and tax sharing in affecting local government size. Motivation of this research is the fact that local government Indonesia still depend on government grant besides others fund sourcing from local taxing. Most of the empirical study shows that local revenue in term of local taxing altered the public spending or government size. (Feld, Kirchgässner and Schaltegger (2003), Jin and Zou(2002), Fiva (2006).

The rest of this paper is structured as follow; section 2 review literature reviews, section 3, describe data, variable and specification empirical data. Section 4 present the result of regression model, and section 5 figure the main conclusion.

2. Literature Review

Public provision not always fully provided by central government instead local government could provide the public goods such as public school, hospitals, infrastructure, fire protection. According to Tiebout (1956) at central level the consumer voter of public are given while at local level, they have expenditure and revenues set pattern more or less. Consumer voter will move to the region in which their set preferences are satisfied. Local government offer public goods to attracting individual reside the palace and charge tax to financing it. Brunan and buchanan (1977,1978, 1979, 1980) proposed the leviathan model mention that the government behavior of budget maximizer tent to maximize their revenue, and the constitution way to constraint the spending behavior is to impose taxing. Government become the only institution that has right to do monopoly. The major problem appears is concerning how government is to be preventing from exploiting its monopoly power. They suggest method that inducing leviathan behavior; each of expenditure is allotted a particular tax base that is highly complementary with the public good itself. Another method is assigning spending and revenue powers to the lower government.

Oates (1985) found an insignificant relationship between the decentralization ratio and the size of government. The study used 48 cross state in United States and the second, deployed 43 countries, the regression result obtained that the study not found a statistically significant fiscal decentralization impact on government size. Jin and Zou (2001) examine the fiscal decentralization with government size using panel data regression of

32 industrial and developing countries. The result support leviathan hypothesis and reveal that expenditure decentralization leads to smaller national governments, larger sub national government. Revenue decentralization increases sub national government and reduces national government, vertical imbalances tend to increase sub national size and also aggregate government.

Rodden (2003) examine the effect of fiscal decentralization that it is funded by intergovernmental fund and local taxation, the result show that decentralization associated with smaller government expenditure and the growth faster when the expenditure sourcing from intergovernmental transfer. Soren (2014) examined tax under jurisdiction competition and reveal that fiscal federalism is negatively associated with lower government expenditure, but positive with the public investment. Cassette and Paty (2010) examine the fiscal decentralization and government size in European countries. The focus of the study was analyzing the effect fiscal decentralization on aggregate, national and sub national government size. They find that government spending changes very slowly over time, and there are some interactions in public expenditures among the EU-15. Vertical imbalance tends to increase the sizes of sub national, national and aggregate governments. However they are also find that revenues decentralization reduces national government but it is increase sub national government size and leading to larger aggregate government size.

Zhu, Z., & Krug, B. (2005) was testing leviathan hypothesis in China in term of vertical decentralization, horizontal fragmentation and intergovernmental collusion. The result demonstrate that fiscal decentralization curtail government size in China or supported leviathan hypothesis. Feld, L. P., Kirchgässner, G., & Schaltegger, C. A. (2010), analyze the effect of different federalist institutions on size and structure of government revenue. The results indicate that tax exporting has a revenue expanding effect whereas tax competition favors a smaller size of government. Fragmentation has essentially no effect on the size of government revenue for Swiss cantons. The overall effect of revenue decentralization leads to fewer tax revenue but higher user charges. Crowley, G. R., & Sobel, R. S. (2011) examine the Leviathan rate-setting behavior, and a measure of the degree of intergovernmental interdependence, for municipal governments, school districts, and county governments. The study found that fiscal decentralization causing the intense competition among the government and also lowering tax rates. Stein (1999), explores the relationship between fiscal decentralization and government size in Latin America. The result show that decentralization tend to have larger governments size in, particularly occurred in the region have high vertical imbalance fund, transfers are discretionary and the degree of borrowing autonomy of sub national governments is large. Liberati, P., & Sacchi, A. (2010) re-examine the relationship between fiscal federalism and the size of local governments. The study testing the Tax Separation Hypothesis to which tax decentralization organized on tax bases used only by local governments would favor most the containment of local public expenditures. The result reveals that income taxes and general taxes on goods and services do not have impact on the government size. They concluded that no all taxes have negative impact on government size. While intergovernmental funds have positive impact on government size.

3. Methodology and Data

We used the following strategy model to examine the relationship between fiscal decentralization to government size:

$$Z = \beta_0 + \beta_1 LIT_{it} + \beta_2 USCHA_{it} + \beta_3 GRANT_{it} + \beta_4 DEC_{it} + \beta_5 CONTV_{it} + \varepsilon_{it} \quad (1)$$

Where:

Zit= Government Size of i local government at time t, LIT= Local Tax Revenue, USCHA=user charge, GRANT= government grant, DEC= Decentralization revenue, and CONTV= control variable. Government Size measured both of revenue and spending side, with variable total revenue, expenditure, own source revenue and government grant variables as dependent variables. In this study we using transmission channel of local tax revenue, user charge, government grant and decentralization variables in examine of fiscal decentralization impact on government size. Appendix A and B explain the variables definition, the source of data and data statistical. Data period are used from 2004 to 2014, of 33 provinces.

4. Result

Table 2. explain the OLS regression method of decentralization fiscal and government size. The regression result shows that Local tax revenue (LTR) significant and positive sign to revenue, expenditure, owner resources and except for government Grant. Local tax revenue has positive correlation meaning that Local tax revenue will increase total local government revenue, and also government expenditure. USECHA is positive to OWNGDPR and GRANTGDPR. Government grant (GGRANT) statistically significant to all revenue categories and expenditures, but with negative sign indicating that government grant reduces local government revenue and all expenditure side.

Table 2. Estimation Result with OLS model

Variable	RVGDRP			EXPGRDP			OWNGDRP			GRANTGDRP		
LTR	0.276	(3.167)	***	0.266	(2.659)	***	0.049	(3.226)	***	0.015	(0.212)	
USECHA	0.031	(1.017)		0.026	(0.757)		0.012	(2.256)	**	0.056	(2.229)	**
GGRANT	-0.421	(-5.233)	***	-0.419	(-4.538)	***	-0.074	(-5.233)	***	-0.164	(-2.442)	**
DECREV	-0.129	(-15.085)	***	-0.141	(-14.332)	***	0.009	(6.071)	***	-0.086	(-12.010)	***
FRAG	-0.006	(-0.233)		-0.014	(-0.424)		-0.009	(-1.923)	***	-0.063	(-2.706)	***
POPDIS	0.038	(0.338)		-0.045	(-0.349)		-0.043	(-2.214)	**	0.242	(2.582)	**
EDUEXP	-0.533	(-2.624)	***	-0.457	(-1.955)	*	-0.064	(-1.805)	*	-0.256	(-1.510)	
HEAEXP	0.515	(2.873)	***	0.590	(2.867)	***	0.058	(1.847)	*	0.062	(0.416)	
GROGDRP	-0.030	(-2.092)	**	-0.042	(-2.541)	**	-0.006	(-2.323)	**	-0.020	(-1.709)	*
UNEMPLO	0.152	(4.260)	***	0.186	(4.524)	***	0.003	(0.534)		0.115	(3.841)	***
Obs	346			346			346			346		
R2	0.56			0.54			0.37			0.48		

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level

Revenue decentralization significant and negative sign to all revenues categories except for OWNGDRP. All transmission channel of fiscal decentralization associated significant to government size, this result supporting leviathan hypothesis that decentralization hamper government size. Fragmentation and population distribution were significant to OWNGDRP and GRANTGDRP, and no association with total revenue and total expenditure. Education expenditure and Health expenditure associated significant to revenue and expenditure categories, education spending is negative sign and reverses to health expenditure. Variable GDP growth and unemployment rate significant to government size proxies except to OWNGDRP.

Table 3. Random Effects (RE) and Fixed Effects (FE) Models

Variable	RVGDRP				EXPGRDP							
	FE		RE		FE		RE					
LTR	0.199	(1.373)	0.161	(1.536)	0.153	(0.863)	0.137	(1.120)				
USECHA	0.009	(0.362)	0.010	(0.409)	0.019	(0.613)	0.017	(0.590)				
GGRANT	-0.130	(-1.189)	-0.246	(-2.604)	***	-0.142	(-1.064)	-0.271	(-2.422)			
DECREV	-0.064	(-3.554)	***	-0.093	(-6.596)	***	-0.070	(-3.193)	**	-0.107	(-6.585)	***
FRAG	-0.108	(-1.735)	*	-0.041	(-0.929)		-0.124	(-1.644)		-0.044	(-0.874)	
POPDIS	-0.223	(-0.474)		-0.075	(-0.593)		-0.427	(-0.746)		-0.130	(-0.890)	
EDUEXP	-0.256	(-1.213)		-0.342	(-1.710)	*	-0.250	(-0.972)		-0.341	(-1.421)	
HEAEXP	0.380	(2.008)	*	0.465	(2.629)	***	0.505	(2.193)	**	0.593	(2.785)	**
GROGDRP	-0.023	(-2.126)	*	-0.020	(-1.884)	*	-0.029	(-2.257)	**	-0.026	(-2.053)	**
UNEMPLO	0.136	(3.239)	**	0.145	(3.764)	***	0.205	(4.012)	***	0.210	(4.560)	***
Obs	346		346		346		346					
R2	0.82		0.51		0.78		0.51					

* Significant at the 10% level.

** Significant at the 5% level.

*** Significant at the 1% level.

The OLS shortcoming model is ignore effect of individual and time dimension, where may be unobserved or omitted variable correlated with others variable. FE and RE model are presented to overcome the unobserved variable of individual and time dimension effect. Table.3 describe panel data regression result of FE and RE model. LTR significant to Own source revenue both of RE and FE but insignificant to total Revenue, expenditure and government grant. Local tax revenues cover the area of vehicle tax, title transfer tax, restaurant and hotel tax. The main tax income is vehicle tax , while the most potential tax selling tax, income tax were administer and levied by central government. Usher Charge insignificant to all revenue categories and expenditure, reflecting that user charge does not change government revenue and expenditure. The possibility reason of this can be explained that local governments do not rely on user charge instead of local tax revenue. Government grant significant at 1% significant level to revenue and own revenue with negative sign indicating that transfer balance from central balance decreasing local government grant. Decentralization revenue is significant to expenditure and all revenue categories, and have negative effect except own revenue variable with positive sign. In this case, decentralization revenue defines as revenue from local tax revenue, usher charge and others local revenue causing revenue and expenditure decrease. This result supporting leviathan hypothesis that fiscal decentralization reduce government size.

Others control variable that significant to government size is unemployment rate. The effect sign of this variables expected negative sign instead of positive effect. GDP growth variable has significant and negative effect, except for own source revenue and government grant FE model. Health expenditure has positive effect to revenue expenditure and own revenue but insignificant to government grant. Education expenditure is insignificant to expenditure and government grant.

Table 3 extended

Variable	OWNGDPR					GRANTGDRP						
	FE		RE			FE		RE				
LTR	0.077	(3.246)	***	0.043	(2.534)	**	0.013	(0.105)	-0.021	(-0.244)		
USECHA	0.003	(0.679)		0.004	(1.081)		0.004	(0.192)	0.006	(0.288)		
GGRANT	-0.017	(-0.929)		-0.040	(-2.588)	**	0.086	(0.946)	-0.027	(-0.350)		
DECREV	0.007	(2.371)	**	0.009	(3.713)	***	-0.042	(-2.805)	***	-0.062	(-5.360)	***
FRAG	-0.002	(-0.169)		-0.005	(-0.737)		-0.056	(-1.086)	-0.057	(-1.566)		
POPDIS	-0.015	(-0.196)		-0.057	(-2.737)	***	-0.291	(-0.746)	0.035	(0.332)		
EDUEXP	-0.070	(-2.053)	**	-0.079	(-2.437)	**	-0.021	(-0.120)	-0.093	(-0.565)		
HEAEXP	0.092	(2.995)	***	0.097	(3.375)	***	0.094	(0.598)	0.117	(0.797)		
GROGDPR	-0.002	(-1.214)		-0.002	(-1.275)		-0.015	(-1.684)	*	-0.013	(-1.539)	
UNEMPLO	0.019	(2.827)	***	0.017	(2.667)	***	0.181	(5.186)	***	0.164	(5.141)	***
Obs	346			346			346		346			
R2	0.77			0.29			0.78		0.42			

5. Conclusion

The objective of this paper is to examine the association between fiscal decentralization and government size with transmission channel; local tax revenue, user charge, government grant and decentralization revenue. Government size variable are measured using total government revenue, total government spending, own source revenue and government grant revenue variables. There are 3 regression model of panel data used in this study, OLS, RE and FE model. With OLS method, local tax revenue and decentralization revenue are significant and positive to government size. Government transfer and decentralization revenue are significant and negative sign to government size. Different result showed by FE and RE method, local tax revenue insignificant to government size in term of revenue and expenditure. Local tax revenue contributes significantly to government revenue in sub national government, but this revenue does not have association with government size. However decentralization revenue and transfer from central government significant to government size. Control variables such as education and health spending, and unemployment rate are significant. Education negative sign, while health expenditure and unemployment are positive sign. As overall can be concluded that fiscal decentralization in term of decentralization revenue are significant and have negative sign to government size of local government, imply that fiscal decentralization in Indonesia support Leviathan hypothesis.

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Appendix A

Variabel Definition		
Variables	Definition	Source
REVGDP	Ratio of Total Revenue to GDP per province	BPS and MoF
EXPGDP	Ratio of Total Expenditure to GDP per prov	BPS and MoF
OWNSRGDP	Ratio of Own Source Revenue to GDP per prov	BPS and MoF
GRANTGDP	Ratio of Grant Fund to GDP per prov	BPS and MoF
LTR	Local tax revenue on aggregate local revenue	BPS and MoF
USECHA	User charge on aggregate user charge	BPS and MoF
GGRANT	Government Grant on aggregate government grant	BPS and MoF
DECREV	Decentralization Revenue (Local tax revenue,	BPS and MoF
FRAG	Number of distric fragmentation	BPS and MoF
POPDIS	Population distribution rate	BPS and MoF
EDUEXP	Education expenditure	BPS and MoF
HEAEXP	Health expenditure	BPS and MoF
GROGDP	Growth of Gross Domestic Product Regional	BPS and MoF
UNEMPLO	Unemployment rate	BPS and MoF

Indonesian Central Bureau of Statistics (BPS), Ministry of Finance (MoF)

Appendix B

Statistic Description of Data				
Variable	Mean	Max	Min	Std. Dev.
REVGDP	3.473471	17.5436	0.8601	2.781434
EXPGDP	3.983931	18.224	0	3.124492
OWNSRGDP	1.015861	2.359	0.286	0.40786
GRANTGDP	1.903076	14.8121	0.2081	2.125283
DECREV	39.9117	77.4239	2.6082	19.41893
LTR	3.166408	31.4039	0.0757	5.191778
USECHA	3.178889	68.8079	0.0011	7.321182
GGRANT	3.120984	25.2766	0.8536	3.628311
FRAG	11.88728	29	1	7.115732
POPDIS	3.164971	18.25	0.31	4.413936
EDUEXP	3.143775	16.0416	0.3158	3.181947
HEAEXP	3.135053	14.374	0.4607	2.857398
GROGDP	14.02922	75.56	-21.12	7.163223
UNEMPLO	7.317865	17.6245	1.6374	3.262211

Source: own calculations