DECENTRALIZATION, FISCAL CAPABILITY, AND PUBLIC SPENDING EFFICIENCY*

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Abstract

Assigning autonomy to regency governments in Indonesia has failed to increase regency's economies. While it increases regency government role in planning and initiating policies, its impact on economic development has been insignificant. This stems from the lack of institution's capacity in organizing the bulk funds transfer from the central government which leads to inefficiency in resource allocation. This paper maps these regencies based on their fiscal dependency. This paper also applies Data Envelopment Analysis to identify the efficient and non efficient regencies in such a way that the non efficient regencies might use the efficient ones as the benchmark to increase their efficiency.

Keywords: Autonomy, regency government, efficiency
JEL classification numbers: H21, H53, H71, H72

INTRODUCTION

One of the most important aspects in Indonesian reformation started in 1997 has been the implementation of regency autonomy. The government, based on Act No. 32/2004 on Local Government and Act No. 33/2004 on Central and Local Fiscal Balance has brought about a significant change in the relationship between central and regency governments. The implementation of these acts is expected to strengthen the reformation process in regency government and provides more freedom in terms of politics, organization of regencies funding and the use of regency resources for the benefit of local people, and builds a new environment in regency development.

To support the scheme, the central government transfer more funds and gave some sources of funds that can be maintained by the regency government, including the right to impose tax and retribution. It also gave them the right to borrow funds from some sources of funding.

The role of local governments can be viewed from their budget. The budget can be viewed as an instrument to trigger regencies economic growth. The size of government spending influences on economic growth has been studied by Butkiewicz and Yanikkaya (2008). They suggest that the government should limit their consumption spending and increase their investment spending to speed up its economic growth.

Decentralization is a policy by which regency governments have some responsibilities to rule their territory. Regency governments are assumed to have more information about their own needs and conditions, compare to the central government. It is also expected that they can

*) The authors acknowledge the grant from Direktorat Jenderal Pendidikan Tinggi, Republik Indonesia, under the scheme of Hibah Kompetitif Penelitian sesuai Prioritas Nasional, 2009-2010.

spend their budget more appropriately to meet the need of their people.

The autonomy has motivated regency governments to optimize their fiscal capacity, in which the main goal is to fund their development. It some times occurred that such efforts negatively impact the other sectors. As an example, regency governments have added their income sources that led to the deterioration in the wealth of farmers and other small business units, the decrease in investment, and the degradation in environment. In addition, the regulation by regency governments to impose tax for inter-regency has reduced the economic activities between the two. This has reduced the benefit resulted from free trade across regencies.

As the consequences of regency autonomy, the central government has transferred funds to regency governments under the scheme of General Purpose Funds (*GPF*), Special Purpose Funds (*SPF*), and De-concentration Funds (*DF*). However, these transfers failed to increase regency performance. This can be viewed as the incapability of regency governments, both institutionally and non-institutionally, to manage the funds.

Based on the aforementioned description, the paper aims at finding a strategy to enhance the efficiency of regency's public spending based on their fiscal capacities. It will be done by finding relative efficiency in all regencies. Using the well-known Data Envelopment Analysis (DEA), it will be shown regencies which are not efficient. In addition, the results will provide the regencies which should be referred to as the benchmarks for the inefficient regencies in order to increase their efficiency.

The paper aims at constructing maps on regency's fiscal capacity and regency's relative efficiency in public spending. Pareto and Koopmans (1950), in Pertiwi (2007), define an organization as efficient if it can produce the highest output with a certain level of input, or produce a certain quantity of output using the least input. The concept is extended by Farrell (1957) and Koop and Diewert (1982), which analyze the response between production plan with input and output values in the market. There is a possibility that by using less input we can produce the same amount of output, but the price of the output is more expensive compare to the competitor's price. This might be influenced by the increase in the price of inputs (Rustam, 2005). It can also be measured by the ratio of value added to the output. The higher the ratio, the higher the efficiency is.

There are two types of efficiency in the literature. The first one is technical efficiency which measures the rate of the use of economic infrastructure to produce a certain amount of output. The second one is spending efficiency which measures the optimal combination of inputs used in the process of production at the relative price.

Efficiency of regencies government spending can be defined as a condition in which there is no other resources allocation that can increase people's wealth. In other words, any dollar spent by the government provides the maximum wealth (Kurnia, 2006). With respect to regencies government spending efficiency can be divided in three types, namely production, allocation, and fiscal efficiencies.

Production efficiency concerns with the budget spent to provide a certain amount of output. Regarding the fiscal decentralisation, production efficiency can be obtained if resources allocated to various spending resulted in the maximum output. The measure and relative comperation of this production efficiency is done by considering variables such as education and health condition.

Allocation efficiency concerns with the fit of spending and people's preferences. However, this type of efficiency is not easy to measure, as it is not easy to measure the marginal preferences of the people.

Fiscal allocation concerns with government income resources to fund their spending. In general, the income comes from two main sources, namely regency initial income (RII) and transfer from the central government. The issues concerning the connection between regency government income sources on fiscal efficiency are (1) the appropriateness of regencies tax and retribution to fund their funds, (2) the role of central government transfer's fund as the additional sources to adjust external shocks, and (3) RBIS ideally does not lead to negative impact on regional macroeconomic stability.

Some papers have investigated the efficiency using various methods, in which some have already discussed the importance of DEA. Worthington and Dollery (2001) demonstrate that local government in Australia exhibits a large degree of diversity both within and between states and territories. They show that inexorable demographic, employment and infrastructural trends are underway which will ensure that the diversity will not only continue, but also increase. Although the imposition of uniform national standards may seem attractive at first sight, the actual implementation of these standards seems to be neither feasible nor desirable.

Woodbury et al. (2002) seek to review municipal efficiency measurement in Australia. They summarise progress made in efficiency measurement on a state by state basis, discuss Data Envelopment Analysis, and consider service quality measures. They argue there is an urgent need to develop methodologies for assessing overall efficiencies, which include service quality measures.

Woodbury et al. (2003) review municipal efficiency measurement in Australia and argue that the present reliance on partial measures of performance is inadequate and should be heavily augmented by data envelopment analysis (DEA). They summarize progress made in efficiency measurement on a state-by state basis and then examine performance measurement in water and wastewater as a more detailed case study. As the results, they argue that DEA provides the best means of providing public policymakers with the necessary information on municipal performance.

Constantin et al. (2009) apply a Cobb-Douglas, Translog Stochastic Production Function and Data Envelopment Analysis to estimate inefficiencies over time as well as respective Total Factor Productivity sources for main Brazilian grain crops throughout the most recent data available. They find that, although positive changes exist in Total Factor Productivity for the sample analyzed, a decline in the use of technology has been evidenced for all grain crops in which it is observed a historical downfall in the use of inputs in Brazilian agriculture.

Van der Westhuizen and Dollery (2009) investigate the efficiency of service provision in South Africa. They evaluate the productive efficiency using Data Envelopment Analysis techniques applied to cross-sectional data. They find considerable variation exists in the average efficiency scores between some provinces. This suggests that the financial and technical support for local government provided by the National Treasury to local government, which includes policy advice and the placement of international advisors in municipalities, should be more carefully targeted between the different provinces, and biased towards the worst-performing provinces.

Kalb (2009) investigates the determinants of local governments' technical efficiency in road maintenance for a panel of German counties using a broad variety of estimation approaches, namely non-parametric (DEA) and parametric (stochastic frontier analysis) methods. He shows that disposable income of the counties' citizens, intergovernmental grants, and the payments to the countries negatively affect efficiency. He also finds weak evidence that efficiency decreases with an increasing share of seats of left-wing parties in the county council; the hypothesis that effi-

ciency decreases with the degree of political concentration in the county council could not be confirmed. More on the measures of efficiency can be found in Holzer (2009).

METHODS

To maps the district dependency in terms of income and spending structures, the paper uses the following ratios:

$$FI = \frac{RII}{TS} \quad (1)$$

$$FD = \frac{GPF}{TS} \quad (2)$$

where *FI* is fiscal independency, *FD* is fiscal dependency, *RII* is regency initial income, *GPF* is general purpose funds, and *TS* is total spending. *FI* represents the source of funds available in the regency. It is used as the indicator for regency's income, which has an important role in the process of development. *FD* represents the proportion of funds needed to support the regency's economic development.

To find the relative efficiency in each regency, the paper applies DEA. DEA is commonly used to evaluate the efficiency of a number of producers. This analysis enables us to find the efficient regency which provides benchmark to the inefficient ones. It is an extreme point method and compares each producer with only the "best" producers. A producer is usually referred to as a decision making unit or DMU.

The fundamental assumption in this analysis is that if a given producer, *A*, is capable of producing *Y*(*A*) units of output with *X*(*A*) inputs, other producers should also capable of doing the same process if they were to operate efficiently. Similarly, if producer *B* is capable of producing *Y*(*B*) units of output with *X*(*B*) inputs, other producers should also capable of doing the same process. Producers *A*, *B*, and others can then be combined to form a composite producer with composite inputs and outputs. Since these composite producers do not necessarily exist, it is sometimes called a virtual producer.

The heart of the analysis lies in finding the best virtual producer for each real producer. If the virtual producer is better than the original producer by either making more output with the same input or making the same output with less input, then the original producer is inefficient. Some of the subtleties of DEA are introduced in the various ways that producers *A* and *B* can be scaled up or down and combined.

The procedure of finding the best virtual producer can be formulated as a linear program. Analyzing the efficiency of *n* producers is then a set of *n* linear programming problems. The following formulation is one of the standard forms for DEA. The formulation of DEA Input-Oriented Primal Function can be written as:

$$\begin{aligned} &\min \Theta \\ &\text{subject to } Y\lambda \geq Y_0 \\ &\qquad \Theta X_0 - X\lambda \geq 0 \\ &\qquad \Theta free, \lambda \geq 0, \end{aligned} \quad (3)$$

where Θ is the producer's efficiency, *X* and *Y* describe the virtual inputs and outputs, respectively, and λ is a vector describing the percentages of other producers used to construct the virtual producer.

It should be emphasized that a linear programming of this form must be solved for each DMU. The first constraint forces the virtual DMU to produce at least as many outputs as the DMU under consideration. The second constraint finds out how much less input the virtual DMU would be needed. Hence, it is called input-oriented. The factor used to scale out the inputs is *theta* and this value is the efficiency of the DMU.

DEA has some managerial importance as follows. First, DEA provides efficiency index for each DMU, relative to the other DMU in the sample. This index can be

used to recognize the DMUs that need consideration the most and set a plan to enhance their efficiency. Second, if a DMU is less efficient (efficiency<100%), DEA provides some DMUs efficiency of 100% and some multiplier index that can be used to enhance the efficiency. The information enables the analyst to create hypothetical DMUs which use less input and produce output at least the same as the inefficient DMU. Such hypothetical DMUs provide information to enhance an inefficient DMU by recognizing the overuse inputs in order to produce a certain amount of output. It enables to adjust the amount of input and output to attain the optimal efficient of a DMU.

Third, DEA provides a cross-efficient matrix. It can help a manager to recognize the efficient DMU using different combination of input and output than other efficient DMU. This phenomenon is called unique DMU or maverick.

RESULTS DISCUSSION

Mapping the Fiscal Dependency and Fiscal Independency

The data of *RII, TS, GPF, FI* and *FD* for all regencies in the five provinces are presented in Table 1 to 4. The regencies are sorted using the criteria of the lowest-to-highest *FD*. The tables list the regencies with *FD* which are very low (*FD*<40%), low (40%<*FD*<50%), high (50%<*FD*<75%), and very high (*FD*>75%), respectively. The analysis on all observations suggests that the regencies have the ratio of fiscal dependencies of 54.15% with the variance of 10.11%. This means that about 54% of the expenditure are funded by the funds from the central government.

Table 1: Cities and Regencieswith V ery Low Fiscal Dependency

Regency	*RII*	*TS*	*GPF*	*FI* (%)	*FD* (%)
Badung	362,123.27	639,925.84	165,685.00	56.59	25.89
City of Surabaya	538,369.94	1,386,340.97	359,520.00	38.83	25.93
City of Kediri	52,905.24	368,825.51	131,453.00	14.34	35.64
City of Semarang	224,822.68	927,224.31	332,098.00	24.25	35.82
City of Denpasar	126,148.26	512,994.26	187,085.00	24.59	36.47
Sidoarjo	178,026.17	972,719.99	365,661.00	18.3	37.59

Notes: (1) *FI* is Fiscal Independency, (2) *FD* is Fiscal Dependency.
Source: Data estimation.

Table 2: Cities and Regencies with Low Fiscal Dependency

Regency	*RII*	*TS*	*GPF*	*FI* (%)	*FD* (%)
City of Yogyakarta	96,551.93	498,044.56	201,231.00	19.39	40.4
Gresik	101,602.88	624,696.03	261,283.00	16.26	41.83
City of Probolinggo	28,705.37	276,351.12	117,368.00	10.39	42.47
City of Malang	62,953.42	511,284.96	221,130.00	12.31	43.25
City of Mojokerto	20,588.25	261,729.21	117,591.99	7.87	44.93
Karangasem	28,839.80	392,602.79	180,482.00	7.35	45.97
City of Surakarta	78,585.75	470,560.73	218,082.00	16.7	46.35
Tabanan	43,925.73	457,490.47	212,991.00	9.6	46.56
Klungkung	18,983.42	287,674.96	134,371.00	6.69	46.71
Bangli	9,317.68	278,899.66	130,689.49	4.13	46.86
Jembrana	12,771.01	329,935.10	156,827.00	3.87	47.53
Cilacap	78,895.46	825,875.11	392,866.00	8.09	47.57
Kudus	51,311.62	476,145.90	227,890.00	10.78	47.86
Buleleng	31,321.03	518,101.47	258,283.00	6.29	49.85
City of Blitar	27,453.24	242,950.48	121,252.00	11.3	49.91

Notes: (1) *FI* is Fiscal Independency, (2) *FD* is Fiscal Dependency.
Source: Data estimation.

Table 3: Cities and Regencies with High Fiscal Dependency

Regency	*RII*	*TS*	*GPF*	*FI* (%)	*FD* (%)
Kulon Progo	35,203.28	458,909.86	231,438.00	7.67	50.43
Jepara	54,110.38	539,720.21	276,946.00	10.03	51.31
Bangkalan	28,727.15	500,510.39	258,229.00	5.74	51.59
Sragen	52,019.76	592,406.43	306,460.00	8.78	51.73
Tuban	78,358.57	571,662.01	295,978.00	14.38	51.77
City of Magelang	36,954.06	242,473.47	125,606.00	15.24	51.8
Magelang	36,954.06	242,473.47	125,606.00	9.99	51.8
Lamongan	42,441.55	622,917.17	324,917.00	7.01	52.16
Sleman	90,422.84	609,762.86	318,139.00	14.83	52.17
City of Batu	11,050.38	199,815.93	104,489.00	5.53	52.29
Rembang	39,998.29	411,063.30	215,234.00	9.73	52.36
Magetan	31,396.28	499,067.18	261,901.00	6.41	52.48
Semarang	66,625.76	531,147.40	279,060.00	12.54	52.54
Bojonegoro	44,811.49	639,288.72	336,530.00	7.06	52.64
Tulungagung	36,262.01	607,549.32	320,158.00	6.05	52.7
Blitar	35,767.44	630,799.98	335,944.00	5.74	53.26
Gunung Kidul	29,801.04	503,624.61	268,325.00	5.95	53.28
Jember	68,624.34	937,548.46	500,843.00	7.32	53.42
Nganjuk	52,045.93	593,878.94	318,323.00	8.76	53.6
Ponorogo	35,639.05	532,878.81	288,950.00	6.81	54.22
Lumajang	45,999.08	521,396.34	283,848.00	8.82	54.44
Pamekasan	34,421.16	447,417.14	244,186.00	7.69	54.58
Wonogiri	47,864.48	604,211.11	330,104.00	7.92	54.63
Banjarnegara	43,886.24	506,621.23	276,999.00	8.66	54.68
City of Salatiga	32,444.85	225,666.72	124,117.00	14.38	55
Batang	31,030.15	404,498.71	222,826.00	7.67	55.09
Probolinggo	32,188.57	506,123.24	279,153.00	6.36	55.16
Klaten	33,920.00	729,415.77	404,869.00	5.39	55.51
Pacitan	16,806.46	400,539.26	222,922.00	4.65	55.66
Temanggung	31,187.56	418,443.73	233,303.00	7.45	55.75
Sukoharjo	44,008.08	486,775.93	272,531.00	9.04	55.99
Banyumas	84,391.27	719,985.01	404,114.00	11.72	56.13
Bantul	44,048.40	545,132.14	308,106.00	3.34	56.52
Malang	69,651.78	908,075.77	513,563.00	7.67	56.56
Pekalongan	30,803.32	446,989.52	253,342.00	6.89	56.68
Pemalang	58,450.07	582,362.25	330,899.89	10.04	56.82
Tegal	53,852.90	605,018.46	344,868.89	8.90	57.00
Mojokerto	44,633.68	474,040.86	270,558.00	9.42	57.07
Demak	33,811.86	491,235.76	280,831.00	6.88	57.17
Situbondo	23,029.42	387,323.65	221,834.00	5.97	57.27
Karanganyar	46,052.12	493,849.85	284,448.00	9.33	57.6
Kediri	53,470.81	661,107.00	380,907.00	8.08	57.62
Pasuruan	64,662.00	654,679.93	378,252.00	9.88	57.78
Pati	66,197.69	576,233.10	337,244.00	11.49	58.53
Banyuwangi	53,725.94	681,285.79	398,823.00	7.89	58.54
Kebumen	92,533.20	618,431.28	362,789.00	14.96	58.66
Ngawi	19,956.38	483,383.50	284,397.00	4.20	58.83
Purbalingga	47,694.61	478,543.64	282,267.98	9.97	58.98
Trenggalek	23,420.08	434,753.97	256,498.00	5.67	59.00
Boyolali	59,307.28	530,077.21	313,078.00	11.19	59.06
Grobogan	41,926.79	582,165.71	344,330.00	7.20	59.15
City of Pasuruan	20,757.93	211,195.27	125,070.00	9.83	59.22
Jombang	66,303.98	548,612.19	328,521.00	12.09	59.88

Notes: (1) *FI* is Fiscal Independency, (2) *FD* is Fiscal Dependency.
Source: Data estimation.

Table 4: Cities and Regencieswith very High Fiscal Dependency

Regency	*RII*	*TS*	*GPF*	*FI* (%)	*FD* (%)
Sampang	19,617.72	383,665.74	231,753.00	5.11	60.40
Purworejo	32,813.87	463,907.48	281,270.00	7.07	60.63
City of Tegal	63,725.64	291,812.16	178,273.00	21.84	61.09
Bondowoso	23,570.35	410,793.56	251,718.00	5.92	61.28
Gianyar	55,006.50	316,720.52	198,172.00	17.37	62.57
Brebes	47,995.35	633,700.30	402,905.00	7.57	63.58
Sumenep	38,991.46	538,826.11	363,407.00	7.24	67.44
City of Madiun	19,362.75	301,984.22	207,320.00	6.60	68.65
City of Pekalongan	15,192.71	179,445.70	132,335.00	8.47	73.75
Blora	29,432.59	370,991.82	285,250.00	7.93	76.89
Kendal	38,403.13	367,294.15	286,808.00	10.46	78.09
Madiun	22,096.19	244,945.39	246,292.00	9.02	100.55

Notes: (1) *FI* is Fiscal Independency, (2) *FD* is Fiscal Dependency.
Source: Data estimation.

The tables also imply that cities have lower *FD* than regencies, and that cities or regencies which are industry centres, either tourism or non-tourism industries, have lower fiscal dependency.

Analysis on Relative Efficiency

As mentioned, the paper applies DEA to find relative efficiency in each regency. The input variables are *GPF* (General Purpose Funds), *LOS* (Lag of Operational Spending), and *LPS* (Lag of Public Spending). The output variables are *TAX* (tax), *RET* (retribution), and *RII* (Regency Initial Income). The data of *GPS*, *LOS*, *LPS*, *TAX*, *RET*, and *RII* for chosen 15 regencies from the five provinces are presented in Table 5. The table shows chosen regencies represent those with the highest to the smallest fiscal independencies.

Table 5: Input and Output Variables for DEA Analysis (Rp 000)

	Input			Output		
Regencies	*GPF*	*LOS*	*LPS*	*TAX*	*RET*	*RII*
Kulon Progo	344035000	41001418	245527981	2780950	17410319	28891547
Gunung Kidul	432868000	242261211	109883221	2919140	16866338	25485903
City of Yogyakarta	316832000	64390925	334853679	47899850	24202491	91626503
Sidoarjo	524136000	120484019	589511980	74395000	69174100	156013933
City of Blitar	170379000	45287861	134254894	2666000	10019834	19052019
Nganjuk	492051000	63010071	354952985	6247230	28711661	39580803
City of Semarang	504046870	135276968	430439506	114162834	61720445	199397838
Rembang	342777220	182474632	95946948	7400445	17823757	31426067
Demak	408453000	75117297	285523254	6738000	10741993	22986858
Klaten	635488000	121254834	422511545	12955000	11014894	36271788
Badung	167471000	84568320	527741005	239810358	11196440	270656013
City of Denpasar	18850000	221135699	146992479	69770000	31729805	110430328
Karang Asem	286423000	39676568	215950480	14050025	6738700	27741725
Jembrana	255025000	162015025	83434539	3820000	2520200	11202090
Bangli	213228000	40043961	156876527	1760560	4380710	7577044

Source: Data estimation.

The paper uses the DEAOS (Data Envelopment Analysis Online Software) package, which is free software based on online usage. The software can be access from http://www.deaos.com/projects.aspx.

The result of the analysis is presented in Table 6. The table suggests that there are four regencies with 100% efficiency, namely Sidoarjo, City of Semarang, Badung, and City of Denpasar. This means that these regencies can be used as references for inefficient regencies.

Table 6: DEA Result, Relative Efficiency and Relative Weak Efficiency

Regencies	Efficiency	Graph	✓
Kulon Progo	74 %	74%	
Gunung Kidul	71.1 %	71%	
City of Yogyakarta	80.8 %	81%	
Sidoarjo	100 %	100%	✓
City of Blitar	51.5 %	52%	
Nganjuk	79.4 %	79%	
City of Semarang	100 % *	100%	✓
Rembang	86.1 %	86%	
Demak	28.7 %	29%	
Klaten	19.8 %	20%	
Badung	100 %	100%	✓
City of Denpasar	100 % *	100%	✓
Karang Asem	38 %	38%	
Jembrana	17.9 %	18%	
Bangli	21.6 %	22%	

Source: Data estimation.

Table 7: DEA Result: Regencies and Their References for Relative Efficiency

Regencies	Peer Group	Frequencies	✓
Kulon progo	Sidoarjo	0	
Gunung kidul	City of Denpasar	0	
City of Yogyakarta	Sidoarjo,City of Semarang,Badung	0	
Sidoarjo	Sidoarjo	8	✓
City of blitar	City of Semarang,City of Denpasar	0	
Nganjuk	Sidoarjo	0	
City of semarang	City of Semarang,City of Denpasar	6	✓
Rembang	City of Denpasar	0	
Demak	Sidoarjo,City of Semarang	0	
Klaten	Sidoarjo,City of Semarang,Badung	0	
Badung	Badung	4	✓
City of denpasar	City of Denpasar	6	✓
Karang asem	Sidoarjo,Badung	0	
Jembrana	City of Denpasar	0	
Bangli	Sidoarjo,City of Semarang	0	

Source: Data estimation.

Table 3 shows that Sidoarjo is referred by seven other regencies. By referring to Sidoarjo, these these regencies are expected to be efficient. These regencies are Kulon Progo, City of Yogyakarta, Nganjuk, Demak, Klaten, Karang Asem, and Bangli. City of Semarang is referred by five other regencies, namely City of Yogyakarta, City of Blitar, Demak, Klaten, and Bangli. City of Denpasar is referred by five other regencies, namely Gunung Kidul, City of Blitar, City of Semarang, Rembang, and Jembrana. Badung is referred by three other regencies, namely City of Yogyakarta, Klaten, and Karang Asem.

To achieve its efficiency, a regency might refer to more than one regency. DEA provides the changes in input and output which enable a regency to increase their efficiencies, provided in the following Table 8.

Table 8: DEA Result: Adjustment in Input and/or Output for Achieving Relative Efficiency

Regencies	*GPF*	*LOS*	*LPS*	*TAX*	*RET*	*RII*
Kulon Progo	344035000 to 131918954.629	41001418 to 30324430.751	245527981 to 148373330.858	2780950 to 18724359.001	17410319 to 17410319	28891547 to 39266898.188
Gunung Kidul	432868000 to 10019931.459	242261211 to 117547190.826	109883221 to 78135520.665	2919140 to 37087035.431	16866338 to 16866338	25485903 to 58700494.299
City of Yogyakarta	316832000 to 195931125.662	64390925 to 52030563.529	334853679 to 270575793.376	47899850 to 60370557.286	24202491 to 24202491	91626503 to 91626503
Sidoarjo	524136000 to 524136000	120484019 to 120484019	589511980 to 589511980	74395000 to 74395000	69174100 to 69174100	156013933 to 156013933
City of Blitar	170379000 to 79637175.56	45287861 to 23343425.909	134254894 to 69201086.159	2666000 to 18634480.39	10019834 to 10019834	19052019 to 32442923.826
Nganjuk	492051000 to 217549851.027	63010071 to 50008548.134	354952985 to 244685050.116	6247230 to 30878667.306	28711661 to 28711661	39580803 to 64755727.296
City of Semarang	504046870 to 504046870	135276968 to 135276968	430439506 to 430439506	114162834 to 114162834	61720445 to 61720445	199397838 to 199397838
Rembang	342777220 to 10588713.654	182474632 to 124219766.336	95946948 to 82570889.626	7400445 to 39192283.908	17823757 to 17823757	31426067 to 62032632.463
Demak	408453000 to 85088504.65	75117297 to 21530964.539	285523254 to 81839886.451	6738000 to 16406083.781	10741993 to 10741993	22986858 to 30341156.373
Klaten	635488000 to 89738663.432	121254834 to 23996562.059	422511545 to 83615837.62	12955000 to 21235190.87	11014894 to 11014894	36271788 to 36271788
Badung	167471000 to 167471000	84568320 to 84568320	527741005 to 527741005	239810358 to 239810358	11196440 to 11196440	270656013 to 270656013
City of Denpasar	18850000 to 18850000	221135699 to 221135699	146992479 to 146992479	69770000 to 69770000	31729805 to 31729805	110430328 to 110430328
Karang Asem	286423000 to 55283247.422	39676568 to 15062916.838	215950480 to 79525663.293	14050025 to 18889314.756	6738700 to 6738700	27741725 to 27741725
Jembrana	255025000 to 1912150.406	162015025 to 22432080.455	83434539 to 14910967.022	3820000 to 7077492.51	2520200 to 3218682.202	11202090 to 11202090
Bangli	213228000 to 34517829.347	40043961 to 8641459.749	156876527 to 33853848.613	1760560 to 6451255.901	4380710 to 4380710	7577044 to 12071979.504

Source: Data estimation.

Table 9: Regencies Rank based on Fiscal Independency

	DIY	*RII*	*TS*	*GPF*	*FI* (%)	*FD* (%)
1	Badung	362,123.27	639,925.84	165,685.00	56.59	25.89
2	City of denpasar	126,148.26	512,994.26	187,085.00	24.59	36.47
3	City of semarang	224,822.68	927,224.31	332,098.00	24.25	35.82
4	City of jogja	96,551.93	498,044.56	201,231.00	19.39	40.40
5	Sidoarjo	178,026.17	972,719.99	365,661.00	18.3	37.59
6	City of blitar	27,453.24	242,950.48	121,252.00	11.3	49.91
7	Rembang	39,998.29	411,063.30	215,234.00	9.73	52.36
8	Nganjuk	52,045.93	593,878.94	318,323.00	8.76	53.60
9	Kulon progo	35,203.28	458,909.86	231,438.00	7.67	50.43
10	Karangasem	28,839.80	392,602.79	180,482.00	7.35	45.97
11	Demak	33,811.86	491,235.76	280,831.00	6.88	57.17
12	Gunung kidul	29,801.04	503,624.61	268,325.00	5.92	53.28
13	Klaten	33,920.00	729,415.77	404,869.00	4.65	55.51
14	Jembrana	12,771.01	329,935.10	156,827.00	3.87	47.53
15	Bangli	9,317.68	278,899.66	130,689.49	3.34	46.86

Note: Entries in bold are regencies with high fiscal independencies.
Source: Data estimation.

It is interesting to investigate the characteristics of the four reference regencies, namely Sidoarjo, City of Semarang, City of Denpasar, and Badung. One of the most important characteristics is that these regencies have high level of fiscal independencies, which is measured as the ratio of *RII* to *TS*. Table 5 lists the regencies, ranked with their fiscal independency criteria.

It can be concluded that the government transfer does not effectively increase economic performance of the regencies. This might be caused by the lack of institutional capacity in the regencies. The other possibility is that the transfer needs time-lag to have a significance impact on the regency's economic performance. Therefore, the future research might consider lag of central government transfer as the input, instead of using current central government transfer.

CONCLUSSION

Assigning more autonomy to regencies in Indonesia during the past nine years did not significantly increase their economy. A key problem in the application of regency autonomy was the failure in the fiscal policy in most regency, namely the low efficiency of budget allocation and the low of productivity of government budget in regencies, especially in public spending. Such conditions might have led to the failure in the government spending policy along with the failure in meeting national development targets.

The fundamental problems in all regencies were institution capacity that could not organize the bulk transfer of funds from the central government. This will eventually lead to resources misallocation of government budget. This has motivated to analyse the causes of the low efficiency and productivity of government spending in those regencies.

This paper models the efficiency of public spending based on regency fiscal capacity and institutions. The analysis of DEA conducted in the paper suggested that the referred regencies are those with high fiscal independency level. This suggested

that the central government transfer did not significantly influence economic performance in most regency, which might be caused by either the lack of regency institutional capacity or the nature of the transfer that needs time-lag to have impact on regencies economic performance.

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