

CAUSALITY BETWEEN TOTAL GOVERNMENT EXPENDITURE,
TOTAL TAX REVENUE, AND REGIONAL INCOME IN THE CASE
OF MUNICIPALITIES' / REGENCY' LOCAL GOVERNMENT IN
INDONESIA

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Abstract

Causality is an important concept in applied econometrics. It helps us to identify the direction which variable is a cause (policy) and which one is an impact. This paper applied the technique of Granger causality to determine the causal relationship between total government expenditures, total tax revenues, and regional income in the case of regencies'/ municipalities' local government in Indonesia over the period of 1988-2003.

Unlike other researchers, this study breaks down the total local government expenditures into operating and capital expenditures. Similarly, the total local government revenues are specified further into local own revenues and intergovernmental transfers (tax & non tax revenue sharing and grant). Using annual panel data, the analysis discovers a firm bidirectional effect from expenditure to revenue. Meanwhile, we found a unidirectional between regional income and grant. It suggests that the preference of controlling either the spending or revenue decisions is conducted both central and local governments to synchronize fiscal performance. Policy implication that could be drawn is that local governments may increase regional economic performance without depending on grants from central government.

INTRODUCTION

Budget is one of the instruments of government fiscal policy to influence the economy. Fiscal policy works to influence the economy through the budget as a function of allocation, distribution, and stabilization (Musgrave and Musgrave, 1989). Basically, fiscal policy will transfer the

Purchasing power of community (in the form of taxes, benefits, duties, and / or loans) to the government and then will transfer back to the community either directly or indirectly, and distributed according to certain considerations (Santoso, 1992).

In the regional scope, the three function of the budget will be transferred to the regions. Fisher (1996) provide that the transfer is a general phenomenon that occurs in all countries in the world irrespective of the system of government and even has become the most prominent characteristic of financial relations between central and local governments. In developed countries, approximately 5 percent of national income is distributed back to the regions through the transfer. In the countries of Eastern Europe that are experiencing economic transition, the volume of transfers reaches 25-80 percent of total regional revenue (Wright and Nemeč, 1997).

This fact indicates that the transfer is very strategic role in influencing the regional economy. The influence strategic of the transfer can not be separated from the interaction between the revenues with the expenditure allocation. Basically, the impact of the transfer is influenced by many factors, of which the first is how transfer proportion is allocated to finance for different types of expenditure. Second, how big the various types of expenditure can stimulate the regional economic activity that can further re-absorbed in the form of revenues from their own regions.

The above phenomena show that transfer, expenditure, revenues from the region itself, and a regional income has a very close relationship. This paper attempts examine the relevance of the fourth, especially in the relationship causality. Various studies have been done on the same topic. Even so, this study has at least two significant differences. First, this studies more about the relationship in the fourth more detail explanation. Second, this study tested endogen transfer as pre-condition examine in the relationship with other variables. This paper will be organized as follows. First examine a glance chronology of the financial system in Indonesia. Explain the next section reviews the theory and empirical findings relevant to this study. And data analysis method used is described in the fourth. Empirical results are presented in the next section. Finally, the paper is closed with some final notes.

Regional Financial Condition

Since the beginning of independence, the government has implemented a transfer policy. In general, many kinds of subsidies and aids are distributed to the regions to close the gap between expenditure and revenue. Therefore, the criteria of the various aids and subsidies are not very clear and depend on the policy unilaterally center government. It just so difficult for local government in preparation for APBD (the local district budget) does not have any certainty about the amount of subsidy that will be received.

During the New Order, the transfer mechanism to go through the *SDO*, *non-DIP Inpres program*, and *DIP*. Autonomous Region subsidies are intended to support the routine budget of local governments in order to overcome the financial imbalance inter-level government. Most of the SDO is used to finance for government employee salaries. While DIP (list of field project) is allocated to finance the development expenditure as embodiment deconcentration mechanism.

Transfer in the form Inpres (Regional Development Assistance) is given to a regional for finance development activities in the region. The Basis of this transfer is part of the handover to local affairs and the limited capability of region to finance. The main objective of *Inpres* is to achieve equity employment opportunities, participation in development and equity. At the beginning of the implementation in the year 1969, *Inpres* provided as general aid to municipalities and districts

In realization, the transfer problems in Indonesia focused on the efficiency of using. The implementation of transfer is controlled by the central government. The Allocation is marked also by the size of aid in the form of projects that contain a lot of stiffness (Ahmad, 1990). The small local discretion over the use of funds in accordance with its needs cause of inefficiency of the project that was conducted (Heller, 1979; Devarajan, Swaroop, and Zou, 1996).

Transfer is not the only source of financing for local government spending. Local governments spending should be financed from the *PAD*

(Regional own Income). However, norms can not be maintained. The Data show that the rate of growth of the local government spending tends to grow faster than the rate of *PAD* growth. The proportion of funds *PAD* only able to finance the highest of 20 percent. The Dependence of local financing from transfer brought the consequences on the effectiveness of the mission of transfer.

Transfer should be efforts to encourage the collection of *PAD* (Naganathan and Sivagnanam, 1999; Sidik, 2001) and meet the needs of local fiscal (Musgrave and Musgrave, 1989). The fact that transfer from center government has negative correlation with the local tax collection and the region fiscal needs (Suparmoko and Uppal, 1986). Almost no local initiatives to improve their own resources in financing the expenditure (Booth, 1988). As a result, the local financial system is a disincentive to apply for local governments to encourage development and to improve *PAD* (Basri, 1999).

The important role of transfer and the low of *PAD* on the other hand shows that the low of fiscal decentralization degree. This factor has been considered by the technocrats and academics become one of the factors that a barricade in the region development. Many economists who argued that to facilitate development in the region, local government should be larger authorities to increase the local income.

The Ideas of fiscal decentralization has actually appeared in the Law 5 / 1974 on Mains Regional Government. In fact, the system is going fiscal centralization. This is supported by the strength of political polarization that occurred at that time (Ardani, 1992). Fiscal centralization is caused by the increase in state revenues from oil and gas sector in the 1970s decade. The high Budget Capability allows central government control budget even in the local level (Sondakh, 1999). On the other hand there is such reluctance to submit to the central government's fiscal management in local government by reason of political stability in that time become a point of national development (Kuncoro, 1995).

The realization of fiscal decentralization began in April 1995 through 25 trials of regional autonomy in the 26 districts in all provinces (except the province of DKI Jakarta). the determination of this program is not only

associated with the collapse centralized planning and popular strategy of growth with equity (growth with equity), but also an awareness that development is a complex process full of uncertainty and that can not easily be controlled and planned from the center (Kuncoro, 1995) . The realization of fiscal decentralization began in April 1995 through 25 trials of regional autonomy in the 26 districts in all provinces (except the province of DKI Jakarta). the determination of this program is not only associated with the failure of centralized planning and strategy of growth with equity, but also an awareness that development is a complex process and full of uncertainty that can not easily be controlled and planned from the center (Kuncoro, 1995)

Efforts to achieve region financial independence was still enough to meet the constraints. The Indonesia economic crisis since the year 1997 bring the impact of the unstable sector revenues in *APBD* (the regional budget). This condition is more concern in the region with a low level of *PAD*. Local government with low *PAD* would have high financial dependence to the central government and the provincial government. In fact, at the same time, the central government and provincial governments face financial pressures that are not much different, so the number of transfers that can be channeled to the region declined sharply.

Financial condition of the region is not conducive and worsened again by the Law. 18/1997 on Local Taxation and Local Retribution. This Law determine that the city government and the district may only collect the six types of taxes. The Instability of revenue sector is a consequence of low levels of certainty the size of the budget that can be spending . The low Level of revenue certainty cause of the possibility of shifting on the component of income and the expenditure will be greater (Halim, 2002).

Recognizing that structural changes occurred in the performance of region financial , the government change the regulations on local taxation and local retribution through the Law. 34/2000. On the basis of this new Act, the provincial government, cities, and districts have expanded the scope of the local taxation and the local retribution . Although the scope has expanded revenue sources, in fact *PAD* in the city and district level are still not able to increase local fiscal capacity, especially for cities and districts outside Java that does not have any relative basis the receipt of *PAD* is high.

Structural issues in the regional budget are responded by the central government with issue the Law. 32 and 33/2004 on the revision of Law 22/1999 on Regional Autonomy and Law 25/1999 on Fiscal and Regional Center. Those two laws formally give greater authority to local governments to dig up the potential revenue from the region with its own use. With those two laws, local governments are expected to manage the local financial independently based on the regions potential.

REVIEW OF PRIOR RESEARCH

Empirically, causality testing between revenues and spending in various countries show the diversity of results. Initially, the empirical studies on this matter are not explicitly made. Generally, researchers directed attention to the relation between the amounts of government fiscal activities with the stages of economic development (Cheng, 1999). Blackley (1986), for example, supports the view that the increase in tax revenues means that the government are facing budget deficits as a result of the high level of expenditure. For Blackley, the direction of causality is starting from the receipt of the tax then goes to expenditure.

Manage and Marlow (1986) find empirical facts that one way causality in the United States that flows from the revenue of central government (federal) lead to the expenditure. They criticize the administration of President Reagan policy package of budget deficit reduction is more emphasis on tax increases. For Manage and Marlow, budget deficit reduction will be more effective by creating a policy package that the combination of various sources of revenue, rather than solely concentrate only on the level of aggregate.

Furthermore, Manage and Marlow (1987) examine the relationship between the central government finances and local government (state) is also in the United States. They use the Granger test in detecting tax revenues and spending for coverage across the state. They face the reality that there is no significant relationship between both these variables. Dahlberg and Johansson (1998) obtained the same results for the case of Sweden.

The econometric methodology, research on the same topic is also growing. Anderson, et. al. (1986) examined hypothetical causality in the context of United States economy during the period 1946-83 using a Multivariate analysis. Furstenberg, Green, and Jeong (1986) examined the inter temporal relationship using VAR model. Coincidence, the results of their research supports the proposition "spend now and tax later." Joulfaian and Mookerjee (1990) support the reciprocal causality. Cheng (1999) also identify the feedback mechanisms in Chile, Panama, Brazil, and Peru. Bhat et. al. (1993) supports similar findings in the case of inter-state India.

In its development, the application of the causality test spread to the unit in the analysis of data across countries. Owoye (1995) do the same with Marlow and Manage (1987) data for cross-country G7 member country. He obtained the fact that causality has on tax revenues to spend on the cases of Japan and Italy. Studying Cheng (1999) for eight Latin American countries found with the same Owoye (1995) for the case of Colombia, Dominican Republic, Honduras, and Paraguay.

THEORY PLATFORM

From the theory of fiscal decentralization, the test of causality direction get a conceptual justification. In the country financial analysis, the traditional models say that both government expenditures and revenues is determined simultaneously as a benevolent government in the government's efforts to maximize the welfare of communities (social welfare function) (see eg Cullis and Jones, 1992: Chapter 14). The flow of theory is different about interdependence between the two variables is started from the hypothetical debate between taxes and spending (tax-and-spend) with spending and taxes (spend-and-tax). Debate is not only limited to the theoretical level but also extends to the empirical area.

The causality of spending to the revenues (spend-and-tax) means that the change of spending occurred before the change revenue. This is valid when the increase in expenditure was created by special events that caused the government raise taxes so that people still get public services. Hypothetical above was first proposed by Peacock and Wiseman (1979). They have reason to believe that increased government spending (as a result of shock) will be ongoing (persistent) even after the shock has been done.

Furthermore, Barro (1974) support this hypothesis whit revealed that the household see that the publishing of government obligation for finance the increase in expenditure at the time is now signaling a tax increase in the future. In this case the government did tax-smoothing (Barro, 1979). An implication of this proposition on the local financial system is that the budget is going decentralization.

The causality of revenues to expenditure (tax-and-spend) indicates that the change of revenues before the change expenditure. This case can occur when the level of expenditure is adjusted to the changes in revenues. This hypothetical was originally proposed by Friedman (1978). According to Friedman, the increase in revenue will lead to tax increases so that spending can be increased or down to the any level. It can also be supported by revenues. A direction causality implication of this system is that local financial management which is going very centralized.

The reverse causality (bi-direction) occurs when the expenditures change simultaneously with the change of revenues. This means that the government's fiscal synchronize. Hypothetical fiscal synchronization is valid when the decision changes the revenues and expenditures in compliance with community demands. This proposition was first proposed by Musgrave (1966). With this model, Meltzer and Richard (1981) show the magnitude (size) in government revenues and expenditures changed proportionally . The implication of two direction causality about local financial management is decided together between the control of central government and demands from the local region.

Independence between the two is the amount of change implies that government expenditure and revenues are dominated more by macroeconomic fluctuations than the changes in one aspect. In this case, the budgeting process is seriously affected by divergence various interests and certain agenda. Buchanan and Wagner (1977, 1978) propose hypothetical for the first time in the context of the state budget. The implications of causality independence in the local budget is that there is no coordination between the central and local governments in local financial management.

RESEARCH METHODOLOGY

Causality Test

The direction of causality test will be done with the approach adopted Granger (1969) (see eg Maddala, 1992). Granger test method has been applied in many different areas of research both in the developed countries and in developing countries. In areas of local public finance, most of the way causality between government revenues and expenditures applied to more time series data (see for example: Furstenberg, Green, and Jeong, 1986; Hoover and Sheffrin, 1992; and Hondroyannis and Papapetrou, 1996), while test for panel data are still rarely performed.

Testing direction causality for panel data analysis, due to the relationship between revenues, expenditures, and the transfer are began by Holtz-Eakin, Newey, and Rosen (1988, 1989). Following Holtz-Eakin, Newey, and Rosen, the direction of causality be formed with the model vectors autoregressive. Suppose that for two variables will be tested is X and Y. The general form of the model vectors autoregressive associated with the two variables are as follows:

$$Y_{it} = a_0 + \sum_{k=1 \rightarrow m} a_k Y_{it-k} + \sum_{l=1 \rightarrow n} b_l X_{it-l} + u_{1it} \quad (1a)$$

$$X_{it} = \alpha_0 + \sum_{k=1 \rightarrow m} \alpha_k X_{it-k} + \sum_{l=1 \rightarrow n} \beta_l Y_{it-l} + u_{2it} \quad (1b)$$

Next, they perform the first level difference to eliminate individual effects,

which always appear in the panel data:

$$\Delta Y_{it} = a_0 + \sum_{k=1 \rightarrow m} a_k \Delta Y_{it-k} + \sum_{l=1 \rightarrow n} b_l \Delta X_{it-l} + \Delta u_{1it} \quad (2a)$$

$$\Delta X_{it} = \alpha_0 + \sum_{k=1 \rightarrow m} \alpha_k \Delta X_{it-k} + \sum_{l=1 \rightarrow n} \beta_l \Delta Y_{it-l} + \Delta u_{2it} \quad (2b)$$

Based on the second last equation, The significance of coefficients variables a_k and α_k help to predict the changes in a variable on the basis of information that have occurred in the past. While the significance of coefficient variables b_1 and β_1 provide the information of causality direction. Statistics evaluation on the coefficient of b_1 and β_1 will give four possibility results:

1. The causality is going from X to Y when the coefficients of b_1 are significant. While the coefficients of β_1 are not statistically significant.

2. The causality is going from Y to X when the coefficients of b_1 are statistically significant. While the coefficients of β_1 are not statistically significant.
3. The causality is going from X to Y and feedback if the coefficients of b_1 and β_1 are statistically significant.
4. The causality is not going from X to Y if the coefficients of b_1 and β_1 are not statistically significant.

The tests of statistical significance on the coefficients of b_1 and β_1 will be overall to compare the results valuation equation (2) with the results of the valuation of the following:

$$\Delta Y_{it} = a_0 + \sum_{k=1 \rightarrow m} a_k \Delta Y_{it-k} + \Delta u_{3t} \dots \quad (3a)$$

$$\Delta X_{it} = \alpha_0 + \sum_{k=1 \rightarrow m} \alpha_k \Delta X_{it-k} + \Delta u_{4it} \quad (3b)$$

Equality (2) is a form of unrestricted equality and equality (3) is the form of restricted equality. Causality test applied to compare the residual sum of square values obtained on two different model estimations. Formula for the test on the pairs of equality are as follows (Maddala, 1992):

$$F(df_1, df_2) = \frac{(RRSS - URSS) / df_1}{URSS / df_2} \dots \dots (4)$$

with RRSS (restricted residual sum of squares) and the URSS (unrestricted residual sum of squares) of each square is the residual from the estimation (3) and (2).

The Tests of Endogenous

Specifically in the case of transfer, the test of transfer causality direction will provide the change of estimation transfer variables estimates on the basis of the variable transfer information that has occurred in the past. Causality test results for the variable transfer will be complementary with the results of the analysis endogenous transfer. Endogenous transfer implies that local governments can affect the amount of the transfer so that it can predict the amount of transfer that will be received from the central government.

Transfer distribution in Indonesia follows the principles of fulfilling fiscal gap. Transfer (BH and DA) per capita received by the local government

is influenced by the rate of population density (Dens), total expenditure (TB) of local governments per capita (as a reflection of fiscal needs), income per capita (as a reflection of fiscal capacity), regional characteristics, and institutional factors, and disturbance factor (ε). General form of functional relationship inter variables can be arranged as follow:

$$\begin{aligned} BH_{it} = & \alpha_0 + \alpha_1 \text{Dens}_{it} + \alpha_2 \text{TB}_{it} + \alpha_3 Y_{it} \\ & + \alpha_4 BH_{it-1} + \alpha_5 \text{Dkota} + \alpha_6 \text{Dkrisis} \\ & + \alpha_7 \text{Dodf} + \alpha_8 [\text{Dodf} \times \text{TB}_{it}] \\ & + \varepsilon_{1it} \dots\dots\dots (5) \end{aligned}$$

$$\begin{aligned} DA_{it} = & \beta_0 + \beta_1 \text{Dens}_{it} + \beta_2 \text{TB}_{it} + \beta_3 Y_{it} \\ & + \beta_4 DA_{it-1} + \beta_5 \text{Dkota} + \beta_6 \text{Dkrisis} \\ & + \beta_7 \text{Dodf} + \beta_8 [\text{Dodf} \times \text{TB}_{it}] \\ & + \varepsilon_{2it} \dots\dots\dots (6) \end{aligned}$$

subskrip i and t indicate the regions and time respectively.

Dkota is dummy variable to show the differences between the municipalities (1) and regency (0), Dkrisis is dummy variable for the economic crisis since 1997. Dodf also included as a variable in the equation for the dummy variable of the autonomy and fiscal decentralization since 2001 with a variable interaction with its variable TB (Dodf xTB) order to observe changes in behavior (slope) spending. The Variables of transfer gap (BH_{it-1} and DA_{it-1}) are also included in the model to feel the bureaucratic inertia and incremental (Doessel and Valadkhani, 2002).

For the central government, the transfer factor is expected to be incentive for local government efforts to improve the reception of the collection area (Sidik, 2001). Refer to the Naganathan and Sivagnanam (1999), collecting local revenues (PAD) is assumed to influence by other variables such as local tax rates and local retribution (Tr, tax rate), price (P), level of development of the regional economy (Y), regional characteristics, and institutional factors as control variables. Its mathematical formulation can be stated as follows:

$$\begin{aligned} PAD_{it} = & \gamma_0 + \gamma_1 BH_{it} + \gamma_2 DA_{it} + \gamma_3 Tr_{it} + \gamma_4 P_{it} \\ & + \gamma_5 Y_{it} + \gamma_6 PAD_{it-1} + \gamma_7 DABH \\ & + \gamma_8 DADA + \gamma_9 \text{Dkota} + \gamma_{10} \text{Dkrisis} \\ & + \gamma_{11} \text{Dodf} + \gamma_{12} [\text{Dodf} \times BH_{it}] \\ & + \gamma_{13} [\text{Dodf} \times DA_{it}] + \varepsilon_{3it} \dots\dots\dots (7) \end{aligned}$$

The form of DABH and DADA are dummy variables to show the influence of change asymmetry for each type of transfer for 1 (no symmetry) when revenues decrease and 0 (symmetry) when the reverse. Dodf also included as a variable in the equation as dummy variable to show the period of autonomy and fiscal decentralization since 2001 and applied the Law 34/2000 (as substitution Law. 18/1997). Related to the period of autonomy and fiscal decentralization, the variables interaction with the fiscal variables BH and DA (Dodf x BH and Dodf x DA) entered into the equation.

The revenue of transfer is allocated to fund local government. For this purpose, estimates the influence of transfer on the activities of the local fiscal expenditure to be connecting between transfer and local government expenditure. Total local government expenditure (TB) consists of two major categories, namely operational expenditure (BO) and capital expenditure (BM):

$$TB = BO + BM \dots \dots \dots (8)$$

Each category is assumed to be influenced by economic factors, such as demographic factors (ie population, Pop), the rate of real per capita income, regional characteristics, and institutional factors as control variables. Mathematical formulation can be written as:

$$BO_{it} = \delta_0 + \delta_1 BH_{it} + \delta_2 DA_{it} + \delta_3 Pop_{it} + \delta_4 Y_{it} + \delta_5 BO_{it-1} + \delta_6 DABH + \delta_7 DADA + \delta_8 Dkota + \delta_9 Dkrisis + \delta_{10} Dodf + \delta_{11} [Dodf \times BH_{it}] + \delta_{12} [Dodf \times DA_{it}] + \varepsilon_{4it} . (9)$$

$$BM_{it} = \zeta_0 + \zeta_1 BH_{it} + \zeta_2 DA_{it} + \zeta_3 Pop_{it} + \zeta_4 Y_{it} + \zeta_5 BM_{it-1} + \zeta_6 DABH + \zeta_7 DADA + \zeta_8 Dkota + \zeta_9 Dkrisis + \zeta_{10} Dodf + \zeta_{11} [Dodf \times BH_{it}] + \zeta_{12} [Dodf \times DA_{it}] + \varepsilon_{5it} (10)$$

Spending local governments will contribute to the formation of the GDP. According to the theory of regional economic development, government policy can stimulate the form of transfer is expected in the long term into one of the factors that will affect the region that was originally developed to be less able to grow more quickly than other regions that have

been originally the condition of more advanced so that the regions that can be called the first can catch-up the region which is called the second (Barro and Sala-i-Martin, 1992; 1995)

Following Barro and Sala-i-Martin (1992, 1995), the variables suspected of causing the occurrence of convergence mechanisms include economic factors, demography, regional differences in characteristics, and institutional factors:

$$\begin{aligned}
 Y_{it} = & \theta_0 + \theta_1 BH_{it} + \theta_2 DA_{it} + \theta_3 P_{it} \\
 & + \theta_4 Pop_{it} + \theta_5 Y_{it-1} + \theta_6 DK_{it} + \theta_7 Inv_{it} \\
 & + \theta_8 DABH + \theta_9 DADA + \theta_{10} Dkota + \theta_{11} Dkrisis + \theta_{12} Dodf \\
 & + \theta_{13} [Dodf \times BH_{it}] + \theta_{14} [Dodf \times DA_{it}] + \varepsilon_{7it} \quad (11)
 \end{aligned}$$

To get the test of endogenous transfer is more valid, the value of estimation BH and DA (equation 5 and 6) above, eg BHFit and DAFit, will be entered into the equation in a system that contains these variables, namely (7), (9), (10), and (11). Testing is done individually to ensure the value of estimation result (5 and 6) above which have been included in each equation is estimated and, together with the value of actual variable BH_{it} and DA_{it} generate coefficients that are statistically significant. Anova test endogenous as equality (4) is also applied to compare the sum of square residual values obtained for each pair of model estimation will be tested.

Data and Variable Specification

This study utilized secondary data obtained from BPS (Central Bureau of statistics) and the Directorate General of the Ministry of Finance PKPD. Data that examined the data panel, the combination of time series data and across regions. The time series data are covering period 1988 to 2003. Scope of the study is a spatial city and district. For regions that splitting of the region, the data still refers to the main so that obtained series of sustainable data. On the basis of this consideration is collected 280 cities and districts. The Sample reaches 75 percent over the number of population in 2003. Operational definitions of these variables which will be used in this research are presented in Table 1.

Before Estimated , the data will be adjusted. As known before 2000, fiscal year begins April 1 and ends on 31 March next year. After the 2000

budget year is changed following the calendar year. These changes require adjustment so that the data is consistent with the fiscal economic data and other demographic. Conversion of budget data into the year of calendar is done following realization quarterly budget of each city and district. For city and district that does not exist a record quarterly data, the weight of the quarterly data using the realization of quarterly budget province

Table 1: Operational Definition of research variables

Notation	meaning	Variable definition	unit
PAD	Original Regional Income	Revenue of tax and retribution regions, Profit of owned regional corporate (BUMD), offices, and other revenues	Real per capita (million rupiahs)
BH	Sharing Funds Transfer Tax and Non Tax	Sharing funds of tan and non tax revenue	Real per capita (million rupiahs)
DA	Transfer Allocation Fund	- Before 2001: SDO, Regional Development Assistance (Inpres). - After 2001: DAU, and DAK.	Real per capita (million rupiahs)
DP	Balance fund (total transfer)	BH + DA	Real per capita (million rupiahs)
PP	Revenue of Financing	Over the rest of the calculation of the regional budget and loans	Real per capita (million rupiahs)
TP	Total Revenue	PAD + BH + DA + PP	Real per capita (million rupiahs)
BO	Operational expenditure (without UKP)	Realization of Operational Expenditure	Real per capita (million rupiahs)
BM	Capital Expenditure (without UKP)	Realization of Capital Expenditure	Real per capita (million rupiahs)
TB	Total Expenditure (without UKP)	BO + BM	Real per capita (million rupiahs)
Tr	Local tax rate	The ratio between regional tax revenues and retribution with regional income	percent
Y	Income	Gross Regional Domestic product without oil and gas	Real per capita (million rupiahs)
P	Deflator Gross Regional Domestic Product as a proxy of price level	The ratio between the Current Price of Gross Regional Domestic product with constant price Of Gross Regional Domestic Product	1993 = 100
Pop	Population	Population	Million people
Dens	Population density	population per area	People per km ²

THE RESULTS

Table 2 reports a summary of causality test results among several key variables are selected. The variables selected are the components of each budget revenue, expenditure, and income. In general, the pair of key variables will be examined further in the causal relationship has two directions. This is indicated by the significance F-test calculated on a one-way causality and also calculated the value of the F-test on the model specification with the direction of vice versa.

In the budget component revenues, PAD, BH, and DA have a relationship because the result of reciprocity. PAD affects quantity BH and DA, the quantity of the second type of transfer is also influenced PAD. As expressed earlier, the transfer is part of the funding source (in addition to PAD). The direction of this relationship seems close to reality that is happening to the acquisition of PAD is limited, increase in government transfers to cover the expenditure. On the other hand, the transfer also theoretically affect the quantity of PAD through a decrease in the price of goods and public services. For the case of regency and municipalities' government in Indonesia, the theoretical proposition seems to have started developing.

Table 2: The causality test of intergovernmental transfer with selected variables

Direction of causality	URSS	RRSS	F-test	Conclusion
BH → PAD	320,7814	319,7946	2,8728	BH that causes PAD
PAD → BH	345,2575	341,0118	11,5912	PAD that causes BH
DA → PAD	320,7814	319,4875	3,7705	DA that causes PAD
PAD → DA	239,8307	225,8168	57,7767	PAD that causes DA
BH → BO	223,9519	209,1786	65,7522	BH that causes BO
BO → BH	345,2575	339,7558	15,0758	BO that causes BH
DA → BO	223,9519	222,2931	6,9473	DA that causes BO
BO → DA	239,8307	231,2984	34,3434	BO that causes i DA
BH → BM	501,5688	488,2200	25,4552	BH that causes BM
BM → BH	345,2575	340,1939	13,8574	BM that causes BH
DA → BM	501,5688	457,8211	88,9629	DA that causes BM
BM → DA	239,8307	218,9998	88,5552	BM that causes DA
Y → BH	425,9981	427,3495	3,5454	Y that causes BH
DA → Y	85,7222	85,8124	1,1763	DA does not cause Y
Y → DA	260,4431	269,9082	40,6184	Y that causes DA

Note: Degree of significant 95%

Causality between fiscal variables, such as BH and DA with the second category of local government also showed two channel. The Channel of causality to and from the expenses of local governments is already visible in accordance with the model analysis that has been specified previously. In general, the results are consistent with previous studies for both time series data, such as Furstenberg, Green, and Jeong (1986), Hoover and Sheffrin (1992), and Hondroyannis and Papapetrou (1996) in various countries, as well as data panel, as Holtz-Ekin, Newey, and Rosen (1989) in the United States.

An exception occurred in the bilateral causality between variables Y and DA and variable Y and BH with the vice versa. Special for BH occurs bilateral causality

from BH to Y but not vice versa, as applicable in the model estimates of the transfer revenue r. Statistically, the proposition may still be accepted but with degree of significant that smaller than 85 percent with an error 15 percent. Almost the same thing also happened on the DA. The Y variable affect the quantity of revenue DA, but DA does not affect Y.

This intuition is still acceptable because the two types of transfers are distributed to local governments to fund the expenditure, not directly on the individual members of the community in the region. According to Hines and Thaler (1995), the transfer can be regarded as additional income and therefore the transfer should be spent for the purposes directly related to the community. Therefore, the theoretical interpretation that allows the top of the eruption is the result of this problem free-riding between central and local government. Local governments have many advantages over the increase in expenditure which is funded by the transfer. However, local government financing does not entirely bear. The Cost is dependent on the national level assigned in the form of tax center. Thus, because-due to the relationship between each type of transfer to the Y at the regional level is only going in one direction.

No causality from DA to Y and from Y to BH do not mean they can not be formed into a functional equation that connects between the two. Likely that the problem occurs not on the causality direction but on the aspects of endogenous. These two aspects are very closely related. According to Granger and Sims (Maddala, 1992), no causality direction is a necessary condition for the exogenous variable, however, the test is not sufficient in exogenous test.

The Results of endogenous test for the two types of transfer shown in Table 3. The table shows that the test statistics individually through t-test showed only type of transfer of DA is exogenous, especially through the test model of PAD. With the financial situation and the conditions that have forced local governments to use these funds to pay employee salaries. Salary and number of employees paid through the DA is already certain. Therefore, this DA variable is seen as exogenous variables. This means that local government is less able to affect the amount to be received.

Overall test through the F-test statistics indicate the two types of transfers tested that are not exogenous variable. The results is proved by calculating the value of F-stat is more than the value on the F-table degree of significant 95 percent. Therefore, null hypothesis that the second type of transfer is endogen variables can be received. Endogenous transfer in accordance with this conceptual proposition and results of research that has been raised by many previous researchers, such as Schneider and Ji Moon (1990), and Knight (2002).

Table 3: The causality test of Endogenous Transfer

Model Test	Transfer test	t-test	conclusion	F-test	conclusion
PAD	BHF	-19,05766	BH endogenous	208,6150	BH and DA endogenous
	DAF	0,14865	DA exogenous		
BO	BHF	-15,36238	BH endogenous	136,0142	BH and DA endogenous

	DAF	-2,13192	DA endogenous		
BM	BHF	-10,63079	BH endogenous	216,2617	BH and DA endogenous
	DAF	19,89776	DA endogenous		
Y	BHF	-1.55774	BH exogenous	27,2842	BH and DA endogenous
	DAF	-6.21283	DA endogenous		

Note: Degree of Significance 95%

Intuitively, This result can still be received. Under a very urgent condition , the district and the city government are permitted to do a budget adjustment in the middle of the year is running with submitting additional transfers to the center or the provincial government. The ability of local governments to make budget adjustments, especially the possibility of additional budget transfer, indicates that the local government in any certain conditions have the ability participate in determining the size of the transfer that will be received from the central

Endogenous transfer give early understanding that the local government transfer recipient can predict the amount of transfer that will be accepted on the basis of certain variables. As specified earlier, some variables that can be used as a basic transfer revenues estimation to the city and district government are population density , the level of economic development of the local community, the volume of total local government expenditure, and the amount of transfer received in the previous period. The four variables are significantly influencing the amount of the two types of transfer are received. With the ability of local governments estimate the amount of transfer that will be received, the local government will be able to anticipate the various implications that arise when the number of transfers received is not the same as that estimated.

With the evidence of endogenous transfer, in the consequences of equality simultaneous, transfer must be treated as endogen variable whose value is determined in the model and then estimated as one equation that is integrated with the other equalities . Transfer as a endogen variable is very important to reduce the influence of bias estimation results in the transfer of the regional economy (Bailey and Connoly, 1998).

Apart from the issue, the test results in Table 2 and 3 on the theoretical perspective of fiscal decentralization have implications that even though decentralization has been implemented in fiscal year 2001, the local and city government still have a little space in the region to manage their own finances. The availability only on a limited on the quantity aspects but not on allocation aspects.

Local governments allowed to adjust the budget when the running budget year occurs a mismatch between the target and realization. In such conditions, the local government in mid-year budget to make changes at both the b the expenditure and the revenue . In the case of revenue budget adjustment is still not able to close the budget expenditure, local governments will submit additional transfer on the central or provincial government.

CONCLUSION

This paper examine the interaction between expenditure, government revenues, and the regional economy in the case of cities and districts in Indonesia during the period 1988-2003. By using econometric analysis , especially Granger causality test for panel data. This study found feedback, bilateral causality between revenues and expenditures of local governments. It shows that the control of the central government in the regions on decision-making is still very strong. In this context, the division of authority between the central government, the provincial government, regency and municipalities government to be crucial in order not to overlap occurs between the three. The negative list, that is all that matters not within the scope of both the central government and provincial government and regency / municipalities government rightly described.

Other interesting findings is the one- way causality between transfer revenues from central and regional income. The regional income Affect transfer revenue, but does not apply vice versa. This shows that the region still have an opportunity to increase economic growth acceleration without depends on the transfer from the central government. In line with regional autonomy and fiscal decentralization, these results further open opportunities for reformulation about the role and function of inter-governmental transfers in the future.

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