

Flypaper Effect Using SEM and PLS Models

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Abstract

This study aims to test and analyze the phenomenon of flypaper effect of local expenditure in Sulawesi province by using SEM and PLS model. Secondary data types use panel data from 81 regencies/municipalities in the period 2016-2017. The specific target of this research is to re-test the symptoms of flypaper effect by using SEM and PLS model. The results showed that by using different analysis model, it still found the flypaper effect of local expenditure shown by the coefficient of influence of transfer fund which is bigger than the coefficient of the influence of Original Income and the influence of indigenous income which is not significant to the expenditure of regency/municipality in Sulawesi. Another local own-source revenue is the greatest factor affecting the local own-source revenue while the transfer fund is a general allocation fund.

Keywords: Flypaper Effect, SEM AND PLS Models

JEL Classification: H72; C33

INTRODUCTION

Flypaper Effect is a phenomenon when the Local Government responds to its local expenditures mostly derived from transfers/grants or specifically on unconditional transfers or unconditional grants rather than the original revenues from the region so that it will lead to waste in the Regional Expenditure. Unconditional grants are proxy by the General Allocation Fund are determined based on the fiscal gap of fiscal needs minus the fiscal capacity of the region and the lump sum allocation from the central government. (Strumpf, 1998) explains the effects of unconditional transfers: One of the more consistent findings in the empirical literature is that lump-sum aid boosts public expenditure more than an equivalent increase in private income. The explanation illustrates that any unconditional transfers granted to the Regional Government are a consequence of the prevailing regional autonomy in order not to cause disparities in the implementation of regional development although in some empirical studies it is found that unconditional transfers lead to an increase in public expenditure in excess of the increase in incomes of the people.

Assessment of the financial management and financing of regional development has a very wide implication on both components and will certainly determine the position of a local government in order to implement regional autonomy (Mardiasmo, 2004). Furthermore, Mardiasmo (2004) also explained that the weakness of expenditure planning as described has finally led to the possibility of underfinancing or over financing, all of which affect the level of

efficiency and effectiveness of local government development programs. The problems faced by local governments relating to regional expenditure planning are the low capability of the program to meet the needs and demands of the public and the low efficiency of regional expenditure. Important steps that should be taken by the local government related to the implementation of regional autonomy and fiscal decentralization, is to calculate the potential of regional own revenue and increase fiscal capacity of the region. Therefore, in order to optimize the development budget, it is expected that local governments act as facilitators and motivators in driving development in their regions (Osborne, 1993).

The results of a study that detect the occurrence of flypaper effect phenomena by Kusuma (2017); Iskandar (2012); Armawaddin, Rumbia, & Afiat (2018), Asriati & Wahidahwati (2017); Inayati & Setiawan (2017); Hidayah & Setiyawati (2014); Yulina et al. (2017); Armawaddin et al. (2018); Solikin (2016); Marbun, Purbariani, & Bisai (2016); Armawaddin (2015); Hidayani & Riduwan (2014); Kang & Setyawan (2012), Murniasih & Mulyadi (2011); Ndadari & Adi (2008); Kusumadewi & Rahman (2014); Maimunah (2006); Kuncoro (2004); Sagbas & Saruc (2004); Gamkhar (2000); Aragon (2008); Sour (2013). In contrast some previous researchers who did not find the flypaper effect phenomenon area by (Rahmawati & Suryono, 2015; Iskandar, 2012; Pramuka, 2010; Putra & Dwirandra, 2015).

Referring to the results of this study, researchers motivated to test flypaper effect back by focusing on regency and municipal in Sulawesi, by reconstructing the model of previous studies. The measurement model of latent variable local own-source revenue, transfer fund and local expenditure based built in this study are a formative model with using SEM analysis and PLS models. The measurement model of latent variable local own-source revenue and local expenditure based built-in law number 23 of 2014. The measurement model of local own-source revenue in the proxy is tax, retribution and legitimate other local own-source revenue. The measurement model of local own-source revenue in the proxy is local expenditure in proxy by direct and indirect expenditure. Moreover, the measurement model of transfer fund based on measurement Armawaddin et al. (2018); Iskandar (2012); Kusuma (2017); Kuncoro (2004); Ndadari & Adi (2008); Murniasih & Mulyadi (2011); Maimunah (2006); Kusumadewi & Rahman (2014).

Given the fact that there is still an empirical gap about the phenomenon of flypaper effect and the importance of flypaper effect analysis for regency government fiscal equity in relation to regional self-reliance in the future, the formulation of the right model predicting local expenditure in terms of efficient use of local expenditure is urgently needed. Based on this, the purpose of this study is to formulate the appropriate model to predict local expenditure based on the source of local expenditure and to re-examine whether flypaper effect is still detected at local expenditure by using SEM and PLS model.

METHOD

Based on research objectives, namely to test whether there is a flypaper effect on the regency/municipality expenditure in Sulawesi. This study uses panel data with 81 regencies/municipalities (70 regencies and 11 municipalities) and time series 2016-2017. The research data is in the form of data of Local government budget of regency/municipality publication that comes from

publications of Ministry of Finance Indonesia (www.djpk.kemenkeu.go.id) The steps of SEM and PLS analysis to test flypaper effect are as follows:

Structural Model Design

The design of the structural model of the relationship between latent variables is based on hypothetical formula of research. In this study, the proposed hypothesis is the local own-source revenue transfer fund funds have a significant effect on local expenditure.

Measurement Model Design

This research uses three latent variables, local own-source revenue, transfer fund, and local expenditure. Variable latent local own-source revenue is measured by three formative indicators, is tax, retribution, you are legitimate other local own source revenue. The latent variables of transfer funds are measured by the formative funds, the general allocation fund, the special allocation fund, and the profit-sharing fund. Variable local expenditure is measured by two formative indicators, namely direct expenditure and indirect expenditure. Based on operational latent variables, it can be described as the complete path diagram:

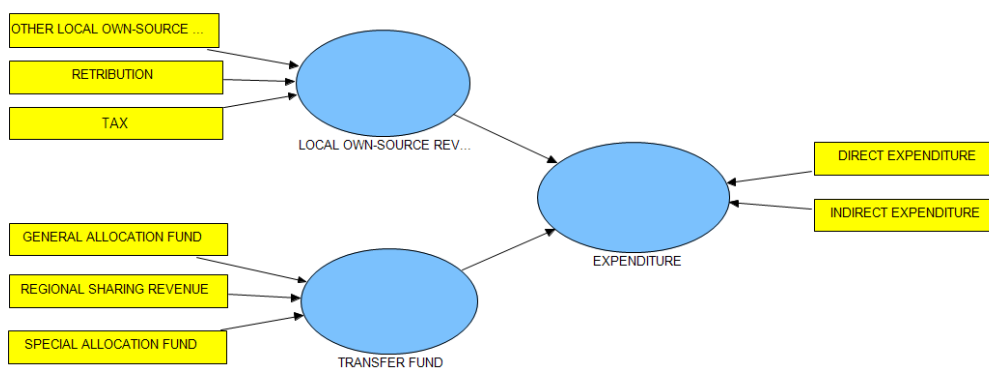


Figure 1. Complete Path Model
Source: Authors (2018)

Converting Path Diagram to Equation System

Based on Figure 1, the equation of the structure of the research model is:

a. Inner Model Equation

Local Own Source Revenue

$$= \lambda_1 \text{Other Local Own Source Revenue}_1 + \lambda_2 \text{Tax}_2 + \lambda_3 \text{Retribution}_3 + \delta_1$$

Transfer Fund = $\lambda_4 \text{Special Allocation Fund}_4 + \lambda_5 \text{General Allocation Fund}_5 + \lambda_6 \text{Revenue Sharing Fund}_6 + \delta_2$

Expenditure = $\lambda_7 \text{Indirect Expenditure}_7 + \lambda_8 \text{Direct Expenditure}_8 + \delta_3$

b. Outer Model Equation

Local Expenditure = $\gamma_1 \text{Local Own Source Revenue} + \gamma_2 \text{Transfer Fund}$

Weight, Path Coefficient and Loading Estimation

The calculation process uses iteration, where iteration will stop when convergent conditions have been reached. The parameter estimation is Weight estimate to calculate data of latent variable; Path estimate analyzes influence

between latent variable and loading estimation to analyze indicator influence to latent variable; Mean and location parameters to analyze the indicator and its latent variables.

The goodness of Fit Evaluation

The model of measurement of latent variable of local own-source revenue, transfer fund, and local expenditure is tested by using test, that is: significance of weights test. The weight value of the formative indicator with its construct should be significant (t-statistic > t-Table (1.96)). *The Goodness of Fit Model*, using Q-square predictive relevance, measures how well the parameter estimation value of its formative indicator is. If the value of Q-square > 0 indicates the model has predictive relevance; otherwise if the value of Q-Square shows the model lacking predictive relevance. The Q-Square formula is:

$$Q^2 = 1 - (1 - R_1^2) (1 - R_2^2) \dots (1 - R_p^2)$$

Where: $R_1^2, R_2^2 \dots R_p^2$ is the R-square of the endogenous variable in the equation model. Hypothesis testing ($\beta, \gamma,$ and λ) performed by the method of resampling bootstrapping developed by (Chin, 1998).

Hypothesis Testing

Hypothesis Testing ($\beta, \gamma,$ and λ) using Bootstrap re-sampling method. The test statistic used is t-statistic or t-test. The test statistic used is t-statistic or t-test. If obtained p-value % ≤ 0.05 (alpha 5%), then concluded significant, and if obtained p-value % ≥ 0.05 (alpha 5%), then concluded significant

Flypaper Effect Test

In order to detect the occurrence of flypaper effect, the comparison analysis of the parameters of the component of local own-source revenue with transfer fund component parameter. The condition of the occurrence is (a) if the effect (value coefficient) of the transfer fund component of the local expenditure is greater than the effect of the component of the local own-source revenue and both are equally significant, or (b) local own-source revenue is not significant, it can be concluded to occur. The effect of the transfer fund component on the local expenditure is greater the effect of the components of the local own-source revenue (Maimunah, 2006).

RESULTS AND DISCUSSION

Descriptive Analysis

Descriptive analysis of research variables is intended to describe the value of local own-source revenue and transfer fund variables as a predictor variable and how much its contribution to local expenditure in the observation period of research seen in Figure 2. The figure shows that development financing in Sulawesi regencies/municipalities in the period 2016-2017 is dominantly sourced from transfer funds of 73.86% and the component of general allocation fund contributes 52.44% to transfer funds. This result means that regencies/municipalities governments have a high dependence on the central government in financing development in their regions. Regencies/municipalities governments still have not been able to explore and optimize regional own revenue potential as seen from the small percentage of local own-source revenue (5.3%), which

consists of taxes (1.28%), retribution (1.27%) and other local own-source revenue (2.4%) to local expenditure. Based on this phenomenon, then the chances of the occurrence of asymmetric behavior of the bureaucracy which further allows the inefficiency in local expenditure or known as phenomenon flypaper effect.

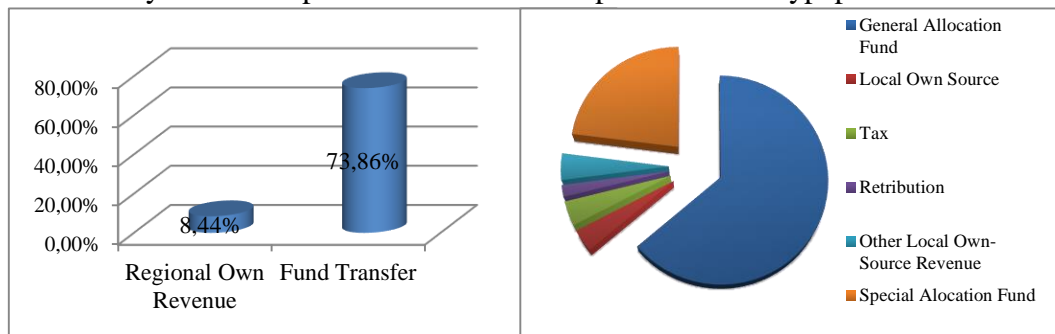


Figure 2. Contribution of Regional Own Revenue and Transfer Fund Toward Local expenditure
Source: Authors (2018)

SEM AND PLS Analysis

The results of the full path model testing using Smart PLS with the bootstrap resampling method are:

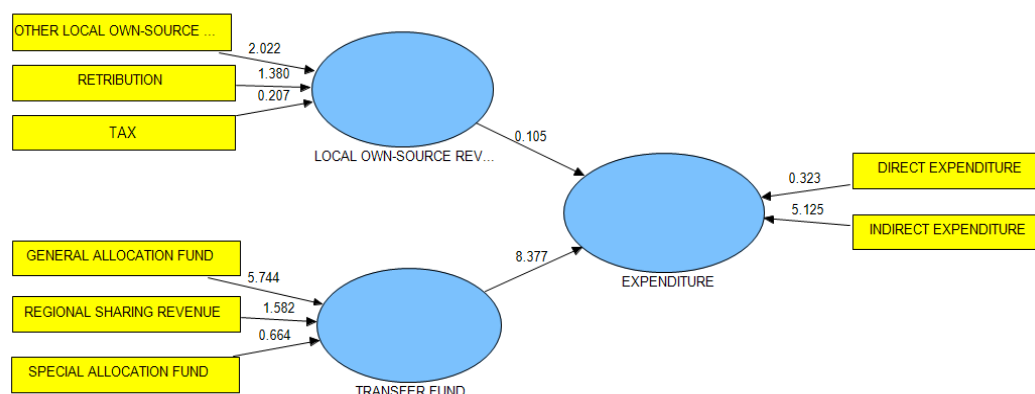


Figure 3. Model Path Test Results Complete with Bootstrapping Resampling
Source: Authors (2018)

Outer Model Test Results

The result of the latent variable indicator test to be used as the latent variable measuring instrument is performed by the bootstrapping method with the estimate of increasing the sample size to 400 samples.

Result of outer test of latent variable (Table 1), indicator of latent variable of local own-source revenue, transfer fund and local expenditure indicate that all statistical indicators are bigger than t-Table value at 5% alpha, so it can be concluded that all indicators of latent variables are considered to be used as a latent variable measuring instrument. From the test results, it is known that the most powerful indicator to measure the latent variable of regional own revenue is the indicator of other local own-source revenue. Next to the latent variable of transfer funds, the most powerful indicator is the general allocation fund and the

strongest indicator affecting the latent variables and local expenditure is indirect expenditure indicator.

Table 1. Outer Model Test Results

Outer Weight	Original Sample	Standard Error	T Statistic	T Table	Decision
Other Local Own Source Revenue -> Local Own Source Revenue	0.8827	0.4108	2.1488	1.96	Significant
Retribution -> Local Own Source Revenue	-0.7814	0.5888	1.327		Not Significant
Tax -> Local Own Source Revenue	-0.1124	0.5641	0.1993		Not Significant
Regional Sharing Revenue -> Transfer Fund	0.3288	0.2151	1.5285		Not Significant
Special Allocation Fund -> Transfer Fund	0.0843	0.1263	0.6672		Not Significant
General Allocation Fund -> Transfer Fund	0.7508	0.1522	4.9332		Significant
Direct Expenditure -> Local expenditure	0.0786	0.2288	0.3436		Not Significant
Indirect Expenditure -> Local expenditure	0.9774	0.1788	5.4661		Significant

Source: Authors (2018)

The implications of these findings are to increase the financial independence of regencies/municipalities in Sulawesi, so the local government continues to explore the potential of local own-source revenue by focusing on other indicators of other local own-source revenue and on the side of transfer funds, general allocation fund management more optimized because the most powerful indicators affect the latent variable transfer funds. Similarly, the latent variables of local expenditure, indirect expenditure indicators most strongly affect local expenditure so that the expenditure management should receive attention from local governments.

The model feasibility results show that the Q-Square value is 0.1462 and greater than zero and this means that the value of observations is generated by the model and also the parameter estimation is remarked to be good (the model has predictive relevance).

Table 2. Path Coefficients

Path Coefficients	Original Sample	Standard Error	T Statistic	T Table	Decision
Local Own Source Revenue -> Local expenditure	0.005	0.0545	0.0921	1.96	Not Significant
Transfer Fund -> Local expenditure	0.6873	0.0776	8.8614		Significant

Source: Authors (2018)

The result test of correlation between latent variable (Table 2) shows that the value of fund transfer parameter after bootstrapping process is greater than the value of local own-source revenue parameter or hypothesis test result (t-test) it is found that latent variable of influence of local own-source revenue to local expenditure is not significant. The results of this test in accordance with

(Maimunah, 2006), it is concluded that found in the expenditure of regencies/municipalities in Sulawesi in the period 2016-2017.

The results of this study strengthen the four research results Iskandar (2012); Kusuma (2017); Armawaddin (2015); and Armawaddin et al. (2018). Because by using the same object but different analytical methods, it still yields a consistent conclusion, namely the discovery of phenomena in the regency/municipality expenditure in Sulawesi.

Associated with the finding of flypaper effect symptoms, these results are consistent with testing Murniasih & Mulyadi (2011); Maimunah (2006), and support the results of research Asriati & Wahidahwati (2017); Inayati & Setiawan, (2017); Yulina et al. (2017); Kusuma (2017), Armawaddin et al. (2018); Solikin, (2016); Marbun et al. (2016); Armawaddin (2015); Hidayani & Riduwan (2014); Kang & Setyawan (2012); Murniasih & Mulyadi (2011); Ndadari & Adi (2008); Kusumadewi & Rahman (2014); Maimunah (2006); Sagbas & Saruc (2004); Kuncoro (2004); Lee & Vuletin (2012); Aragon (2008); Sour (2013); Bae & Feiock (2004), Hines & Thaler (1995); Bae & Feiock (2004).

The insignificant effect of local indigenous gains on local expenditures is reflected in the contribution of indigenous revenues to local expenditures as shown in Figure 4.

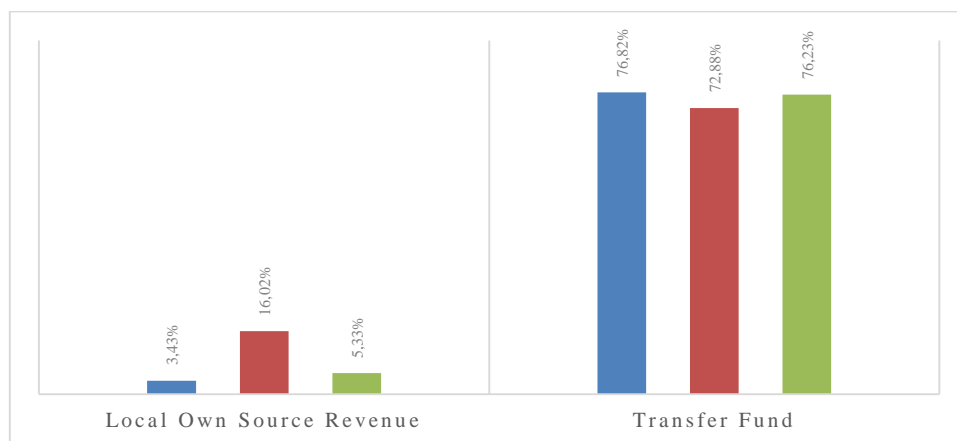


Figure 4. The proportion of Original Revenue and Transfer Funds to Local Expenditures
Source: Authors (2018)

Figure 4 shows that regency and municipality expenditure in Southeast Sulawesi in the period 2016-2017 is dominantly sourced from transfer funds (76.23%) and local own-source revenue (5.33%). This indicates that the regency and municipal governments in Southeast Sulawesi still rely on regional development financing from transfer funds so that this result is the cause of the insignificant effect of local own-source revenue on local expenditures and the components that provide the highest contribution to local revenues are other local own-source revenue legitimate, while the tax component gives the lowest contribution. The high level of local government dependency on transfer funds can have an asymmetric bureaucratic behavior that responds to higher transfer funds and low response if transfer fund transfer occurs, this condition causes the flypaper effect symptom in regency and municipal expenditure in Southeast Sulawesi. This statement is in line with the results of empirical studies (Gamkhar, 2000; Hamilton, 1983; Ndadari & Adi, 2008; Bae & Feiock, 2004).

CONCLUSION

This research proves that by using different model of analysis, the SEM and PLS model result can be concluded that the finding of flypaper effect phenomenon at regency/municipality expenditure in Sulawesi year 2016-2017. By using bootstrapping method, it is concluded that other local own-source revenues are the most powerful factors affecting the variable of local own-source revenue, general allocation fund is the most powerful factor influencing variable of transfer fund and variable of local expenditure is an indirect expenditure. Another result is the influence of variable transfer funds to local expenditure is positive and significant, while the regional own revenue is positive and not significant. The limitation of this research is not to include indigenous revenue indicators all because of the unavailability of data from several regencies/municipalities so that in the future it is expected to include the indicators so that the results of the analysis is more accurate

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