FLYPAPER EFFECT IN INDONESIAN MUNICIPAL GOVERNMENTS' EXPENDITURES

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ABSTRACT

This study seeks to test the flypaper effect in Indonesian municipal governments' expenditures from 2014 to 2008 by comparing municipalities (cities/ regencies) with increasing municipal own-source revenues with those of which municipal own-source revenues decline. Our dependent variable is an increase in municipal expenditures, while the independent variables are increases in municipal own-source revenues and unconditional grants. We analyze the panel/ pooled data by combining the 2014-2018 time-series data and cross-section data from several Indonesian municipalities. This study employs the panel data regression with the Fixed Effect Model. The results indicate the flypaper effect in Indonesian municipals' expenditures, no flypaper effect in the local expenditures of municipals with continuously increasing PAD, and the flypaper effect in the local expenditures of municipals with decreasing PAD.

KEYWORDS: flypaper effect, municipal expenditures, municipal own-source revenues, unconditional grants

1. INTRODUCTION

Indonesia has officially begun implementing fiscal decentralization since January 1, 2001 (Ansori & Muthmainah, 2019; Putri & Haryanto, 2019; Solikin, 2016). Act No. 23 of 2014 concerning Local Governments defines decentralization as delegating governmental matters by the central government to autonomous regions based on the autonomy principle. As the basis of local government administration, the autonomy principle implies that local governments have rights, authorities, and obligations to administer their local governmental and public matters within the unitary state of the Republic of Indonesia. Local autonomy and fiscal decentralization enable local governments to use funds from the central government and themselves according to local priorities and aspirations (Mardiasmo, 2018).

The central government expects that fiscal decentralization enables local governments to increase their roles in managing their local potentials to achieve local autonomy. Local autonomy is intended to motivate local governments to optimize their revenue sources and depend less on the central government's grants (Solikin, 2016). Fiscal decentralization also facilitates local governments to exploit and optimize their local own-source revenues according to their potentials. Local governments with higher

local own-source revenues (PAD – Pendapatan Asli Daerah) can fulfill more local needs.

Local governments expect that local autonomy helps them develop their regions based on their capacities and aspirations. However, it is arguably more difficult to achieve the expectation because they have a greater fiscal dependency, subsidies, and grants from the central government because their local own-source revenues cannot cover their expenditures (Mardiasmo, 2018). Many local governments have relatively insufficient local own-source revenues. Hence, they rely on the central government's fiscal balance transfers (Amalia, 2017; Amalia, Nor & Nordiansyah, 2015; Ansori & Muthmainah, 2019).

Act No. 33 of 2004 concerning Fiscal Balances between the central and local governments defines fiscal balance funds as funds from the state budget (APBN - Anggaran Pendapatan dan Belanja Negara) allocated to local governments to finance local needs as the decentralization implementation. Fiscal balance funds aim to reduce fiscal gaps between the central government and local governments and among local governments. Fiscal balance funds consist of revenue sharing fund (DBH – Dana Bagi Hasil), general allocation fund (DAU – Dana Alokasi Umum), and specific allocation fund (DAK – Dana Alokasi Khusus). Fiscal balance funds generally encourage local governments to focus more on expenditures and less on increasing their local own-source revenues. Thus, local governments depend more on the central government's grants (Ekawarna, 2017). In other countries, such grants mainly aim to reduce fiscal imbalances between various governmental levels, manage horizontal fiscal imbalances (between governments with the same levels), and ensure competitive equity between all governmental levels (Samal, 2020).

Amril & Safri (2015) reveal that increased expenditures follow increased grants. Worse, local governments rely more on the central government's grants to finance their expenditures and less on optimizing their revenue potentials, leading to the flypaper effect in local governments' expenditures (Ansori & Muthmainah, 2019; Armawaddin, Rumbia & Afiat, 2017).

Courant, Gramlich & Rubinfeld (1979) first introduce the flypaper effect term to illustrate a condition in which the central governments' grants (especially unconditional ones) to local governments stimulate public expenditures greater than the increase in public revenues. Hence, these grants only move from central governments to local governments without achieving their objectives. Ideally, grants should stimulate private investments and the local economy to develop fiscal potentials through local expenditures (Pudjihardjo & Sakti, 2020). The flypaper effect also refers to the simultaneous effects of inter-governments' unconditional grants on public expenditures. Local governments tend to spend public expenditures greater to respond to increased unconditional grants than increased local own-source revenues (Baekgaard & Kjaergaard, 2016; Yu et al., 2016).

In Indonesia, the flypaper effect represents a condition where local expenditures are affected more by increased unconditional grants than by local own-source revenues (Iskandar, 2015; Pudjihardjo &

Sakti, 2020). Local governments tend to rely more on the central government's grants to finance their expenditures instead of optimizing their local own-source revenues (Subadriyah, 2017). Thus, the flypaper effect illustrates a condition when local governments have greater responses to the central government's unconditional grants than their local own- source revenues (Solikin, 2016; Subadriyah, 2017).

Many studies have analyzed the flypaper effect in Indonesia. Most of them demonstrate the flypaper effect in local governments' expenditures. For example, Amalia et al. (2015) indicates the flypaper effect in municipal expenditures (cities and regencies) in South Kalimantan Province during the 2009-2013 period. Iskandar (2015) finds the flypaper effect in municipal expenditures in Aceh Province in 2008- 2012, and the institutional role as the moderating variable mitigates the use of unconditional grants from the central government. Amalia (2017) reveals the flypaper effect in municipal expenditures throughout Indonesia (2009-2013). A subsample analysis of Indonesia's western and eastern parts also indicates that the flypaper effect is evident in both parts of Indonesia. Further, Ansori & Muthmainah (2019) also show the flypaper effect in the 2012-2016 municipal expenditures in Bali and Nusa Tenggara that rely much on the tourism sector.

However, other studies indicate no flypaper effect in local governments' expenditures. For instance, Dayanti et al. (2018) find no flypaper effect in municipal expenditures in Jambi Province in 2011-2016. Similarly, Al Khoiri (2015) shows no flypaper effect in municipal expenditures of West Java Province (2012-2016) as the province with the largest provincial expenditures in Java Island after Jakarta Special Region. Ekawarna (2017) also reveals no flypaper effect for municipal expenditures in both proliferated and previously existing municipals in Jambi Province, 2010-2014.

Many scholars have also studied the flypaper effect in various other countries and mostly find the flypaper effect in local governments' expenditures. For instance, Dahlby & Ferede (2016) find the flypaper effect of inter-governmental stimulant grants on public expenditures in Canadian provinces. Baekgaard & Kjaergaard (2016) show the flypaper effect of unconditional grants on public expenditures in Denmark local governments'. Denmark's local politicians decide to increase public expenditures more in response to increased unconditional grants than to a similar increase in cities' revenues. Langer & Korzhenevych (2019) demonstrate the flypaper effect of governmental transfers on city governments' expenditures in North Rhine- Westphalia state, Germany, 2011-2012. Specifically, city governments use the transfers to increase expenditures and not reduce tax rates.

However, several studies conclude no flypaper effect on local governments' expenditures. For example, Sepulveda (2017) demonstrates no flypaper effect, as indicated by the simultaneous increase in incomes, representing an increase in public expenditures and private incomes. Yu et al. (2016) show no flypaper effect of unconditional grants in Chinese local governments in 2007, especially educational expenditures.

This study seeks to investigate the flypaper effect in municipal expenditures in Indonesia. This issue is important because local governments' expenditures behavior is arguably affected by whether they receive most of their revenues from the central government or their sources. The flypaper effect will affect local governments' dependency on central government's grants, especially unconditional ones. Each year, local governments expect more grants from the central government to finance their local expenditures instead of exploring their local resources or revenue sources more optimally (Dayanti et al., 2018). Eventually, decentralizations that mainly aim to create more autonomous local governments fail. Similarly, when local governments receive significant transfers from the local governments, they tend to preserve the transfer amounts in the subsequent periods. Consequently, local governments' expenditures are inefficient or asymmetric (Pudjihardjo & Sakti, 2020).

The 2014-2018 Budget Realization Reports of Indonesian Municipals suggest that the Indonesian municipals exhibit an average annual PAD increase of Rp 16,745,886,182.00, much lower than the average annual unconditional grant increase from the central government (Rp 6,306,916,833,609.00). The figures indicate that the Indonesian municipals still highly rely on the central government, leading to the flypaper effect in their local expenditures.

Each municipal has different PAD dynamics. Several municipals exhibit increasing, fluctuating, and even decreasing trends in their PAD. These differences motivate us to investigate the flypaper effect in Indonesian municipal governments' expenditures by comparing municipals with continuously increasing PAD and decreasing PAD that highlights the differences in their flypaper effect. Increased annual PAD illustrates improved municipal performance in exploiting their local potentials (Pradipta & Jatmiko, 2018), reducing their dependencies on the central government's grants to fulfill their budgeted expenditures, and mitigating the flypaper effect. Conversely, municipals with decreasing PAD perform worse in optimizing their local revenue sources, tend to rely more on the central government, and exhibit greater flypaper effect in their expenditures.

Prior studies use different variables, especially independent ones, and research approaches. Following Courant et al. (1979), Iskandar (2015), Masiero & Santarossa (2020) (Iskandar, 2015; Pudjihardjo & Sakti, 2020), and Yu et al. (2016), this study employs the increase in unconditional grants as the independent variable. Additionally, we also use the increase in PAD as another independent variable. This paper contributes to the literature by comparing the flypaper effect of municipals with continuously increasing PAD and those with decreasing PAD to investigate flypaper effect differences in both municipal types.

2. LITERATURE REVIEW

2.1 Theoretical Foundation

2.1.1. Wagner's Theory

This study uses theories on the development of governmental expenditures by Wagner and Peacock, and Wiseman. Wagner's theory explains that the economy, inter- industry relationships, and the relationships between industries and societies become more complicated and complex. Consequently, governments' roles increase, especially because governments have to regulate these relationships, law, education, recreation, culture, and many more (Mangkoesoebroto, 2016). Governments' greater roles increase their expenditures to the previously unattainable levels (Jeyhoon-Tabar & Maddah, 2016). When local governments cannot compensate increased expenditures with higher local own-source revenues, they increasingly rely on central governments, leading to the flypaper effect.

2.1.2. Regional Autonomy and Fiscal Decentralization

Act No. 23 of 2014 concerning Local Governments defines regional autonomy as the rights, authorities, and obligations of autonomous regions to self-regulate and manage their governmental matters and public needs. Decentralization refers to delegating governmental matters from the central government to autonomous regions based on the regional autonomy principle. Fiscal decentralization is intended to help local governments improve their roles in managing their local potentials to achieve local autonomy. Highly autonomous local governments can optimize their local revenue sources and rely less on the central government (Solikin, 2016).

Regional autonomy also affects local financial administration, especially those related to utilizing funds from regional government budgets, to manage their local matters (Armawaddin et al., 2017). Local governments generate these funds from their local sources or the central government's grants. The flypaper effect arises when an increase in local governments' expenditures is more responsive to the central government's unconditional grants than to their local own-source revenues.

2.1.3. Flypaper Effect

The flypaper effect is a condition where local governments' expenditures increase more than an increase in local own-source revenues as a response to increased unconditional grants (Iskandar, 2015; Pudjihardjo & Sakti, 2020). Local governments tend to rely on central governments' grants instead of optimizing local own-source revenues (Subadriyah, 2017). Local governments respond to central governments' grants by increasing their expenditures (Solikin, 2016). The flypaper effect in local governments' expenditures exists when an increase in local governments' expenditures is more affected by central governments' unconditional grants than by increased local own-source revenues.

2.1.4. Local Governments' Expenditures

Government Regulation No. 12 of 2019 concerning The Management of Local Finances defines local expenditures as all local governments' obligations to reduce their net assets in related fiscal years. Local governments use local expenditures to finance their governmental activities that consist of obligatory and optional governmental tasks. Local expenditures consist of operational expenditure, capital expenditure, unanticipated expenditure, and transfer expenditure.

2.1.5. Local Own-source Revenues (PAD – Pendapatan Asli Daerah)

Act No. 33 of 2004 concerning Local Own-source Revenues (PAD – Pendapatan Asli Daerah) defines PAD as revenues generated by local governments based on local regulations that comply with existing laws. PAD aims to give authority to local governments to finance the implementation of regional autonomy according to their local potentials as a realization of regional decentralization. PAD consists of local taxes, local retributions, the management of separated local assets, and other legal PAD sources. The implementation of regional autonomy and fiscal decentralization requires local governments to optimize their PAD potentials as local revenue sources (Armawaddin et al., 2017). According to the Directorate General of Fiscal Balance (2013) in Solikin (2016), annual increases in PAD are intended to motivate local governments to rely less on the central government's grants.

2.1.6. Unconditional Grants

According to Financial Education and Training Agency (BPPK - Badan Pendidikan dan Pelatihan Keuangan) (2006) in Iskandar (2012), grants can be classified into two categories: unconditional and conditional grants. Unconditional grants aim to equalize inter-regional fiscal capacity that local governments can perform their tasks effectively. Local governments are fully autonomous in using unconditional grants according to each region's priorities and considerations. Subadriyah (2017) mentions that unconditional grants include the general allocation fund (DAU – Dana Alokasi Umum) and the revenue sharing fund (DBH – Dana Bagi Hasil). Meanwhile. Conditional grants aim to support local fund availability to perform decentralized functions. These include specific allocation fund (DAK – Dana Alokasi Khusus). The flypaper effect exists when local governments rely more on unconditional grants than their local own-source funds.

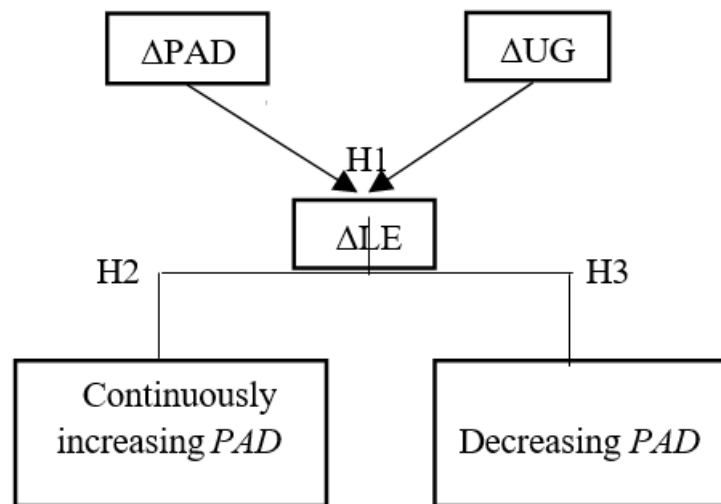## 2.2. Conceptual Framework and Hypothesis Development

Figure 1: Conceptual Framework

The flypaper effect is a condition when an increase in local expenditures is more affected by the increase in unconditional grants than by the increase in PAD (Iskandar, 2015; Yu et al., 2016). The Indonesian municipal governments still exhibit much lower PAD development than their unconditional grant increases, indicating that they still rely much on unconditional grants from the central government. Their high reliance on the central government's assistance likely leads to the flypaper effect. Thus, we propose the following first hypothesis:

H1: Indonesian municipals' expenditures exhibit the flypaper effect.

PAD is a crucial revenue source to cover local governments' expenditures. An annual increase in PAD illustrates local governments' improved performance in exploiting local potentials (Pradipta & Jatmiko, 2018). Such annual increases are intended to motivate local governments to rely less on the central government's grant. Further, increased PAD will reduce the flypaper effect potentials in local governments' expenditures (Subadriyah, 2017). Based on these arguments, the following is the second hypothesis:

H2: Local expenditures of municipals with continuously increasing PAD do not exhibit the flypaper effect.

An annual increase in PAD indicates municipal governments' improved performance in exploiting local potentials. Conversely, decreased PAD illustrates worsening performance that municipal governments rely more on the central government, and municipal governments' expenditures are more likely to exhibit the flypaper effect. Based on the discussions, we propose the third hypothesis:

H3: Local expenditures of municipals with decreasing PAD exhibit the flypaper effect.

3. RESEARCH METHODS

3.1 Research Design

This study is a quantitative research that tests the relationships between the independent variables (increases in PAD and unconditional grants) and the dependent variable (an increase in local governments' expenditures) to empirically investigate the presence of the flypaper effect in local governments' expenditures. We generate the secondary data of Indonesian municipal governments' budget realization reports (LRA – Laporan Realisasi Anggaran) published by State Audit Agency (BPK – Badan Pemeriksa Keuangan). This study employs panel or pooled data that combine time-series (2014-2018) and cross-section (several Indonesian municipals) data.

3.2 Research Variables

The following explains our research variables.

1. Independent Variable

The independent variables of this study are increases in *PAD* (ΔPAD) and unconditional grants (ΔUG) with the following measurement indicators:

a. The increase in *PAD* is measured with *PAD* in the current year subtracted with *PAD* in the previous year (PADt – PADt-1); and

b. The increase in unconditional grants is operationalized with unconditional grants in the current year subtracted with unconditional grants inthe previous year. (UGt – UGt-1).

2. Dependent Variable

Our dependent variable is the increase in municipal expenditures (ΔLE) measured with local expenditures inthe current year subtracted with local expenditures in the previous year (LEt – LEt-1).

3.3 Sample Selection Method

Our population is all Indonesian municipals (cities and regencies) for the 2014-2018 period. This study selects the sample using the purposive sampling method with the following criteria:

1. Municipals that published their LRA by BPK in 2014- 2018.
2. Municipals with continuously increasing PAD in 2014- 2018, or
3. Municipals that experience declining PAD for at least two consecutive years in 2014-2018.

The sample selection criteria produce the following sample numbers:

1. From 508 Indonesian municipals, six municipals have incomplete data, resulting in 502 observable municipals.
2. There are 84 municipals with continuously increasing PAD; and
3. There are 154 municipals with decreasing PAD.

3.4 Data Analysis Method

This study uses the panel data regression, F-statistic test, and t-statistic test to investigate the effects of increases in *PAD* and unconditional grants on the increase in local governments expenditures that indicate the flypaper effect in Indonesian municipals, both for municipals with decreasing and continuously increasing *PAD*. We analyze the data with the *Eviews* 9 software.

The panel data regression analysis tests the effects of increases in *PAD* and unconditional grants on the increase in local governments expenditures. It analyzes the flypaper effect by comparing the regression coefficients in both independent variables.

The following is our regression model in this study:

$\Delta LE_{it} = \beta_1 + \beta_2 \Delta PAD_{it} + \beta_3 \Delta UG_{it} + \mu_{it}$ where:

ΔLE : increase in local expenditures ΔPAD: increase in *PAD*

ΔUG : increase in unconditional grants i: cross-section identifier

t : time-series identifier

$\beta_1, \beta_2, \beta_3$: intercepts/ slope coefficients μ: errors

The panel data regression model generally has problems in the model specification because the residuals may take 3 (three) possibilities, namely residual time series, cross- section, or a combination of time-series dan cross-section. Hence, this study initially selects the appropriate model among the three approaches, namely Pooled Ordinary Least Square (Pooled OLS) or Common OLS Model, Fixed Effect Model (FEM), or Least Squares Dummy Variable (LSDV), and Random-Effect Model (REM) or Error Component Model (ECM). Before running the panel data regression, we perform the classical assumption test consisting of normality, multicollinearity, heteroskedasticity, and autocorrelation tests. This study also performs F-statistic and t-statistic tests. The F-statistic test analyzes whether both independent variables simultaneously affect increases in local governments' expenditures. Meanwhile, the t-statistic test examines the partial effect of each independent variable on increases in local expenditures.

Our analysis suggests that the Fixed Effect Model is the most appropriate to estimate the regression model. The regression model also meets the classical assumption tests' requirements (normality, multicollinearity, heteroskedasticity, and autocorrelation test). Therefore, further analysis is reliably justified.

4. RESULTS AND DISCUSSIONS

Our sample is 502 Indonesian municipals, with 84 ofthem have continuously increasing *PAD,* and 154 of them exhibit decreasing *PAD.*

4.1 Panel Data Regression Analysis

The results of the panel data regression analysis with the Fixed Effect Model are as follow:
(1) All-sample Analysis

Table 1 below presents the regression results:

Table 1: Fixed Effect Model Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ΔPAD	0.196188	0.029935	6.553877	0.0000
ΔUG	0.329882	0.028672	11.50530	0.0000
C	8.6910	2.0109	43.16504	0.0000

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.465350	Mean dependent var	7.05E+11
Adjusted R-squared	0.286422	S.D. dependent var	1.14E+12
S.E. of regression	8.69E+11	Sum squared resid	1.13E+27
F-statistic	3.600764	Durbin-Watson stat	2.320889
Prob (F-statistic)	0.000000		

The above results produce the following regressionequation:

$$\Delta LE_{it} = 8.6910 + 0.1961\ \Delta PAD_{it} + 0.3298\ \Delta UG_{it} + \mu_{it}$$

The regression coefficients of these two independent variables are positive, suggesting that these independent variables are positively related to the dependent variable. Specifically, increases (decreases) in theindependent variables (*PAD* and unconditional grants) will increase (decrease) the dependent variable, i.e., local expenditures. Further, the equation also indicates that $\beta_1 = 0.196$. Hence, one base-point increase in *PAD* will increase local expenditures by 0.1961 basis point, assuming other variables constant. Meanwhile, $\beta_2 = 0.3298$, implying that one base-point increase in unconditional grants will increase local expenditures by 0.3298 basis point, assuming other variables constant. Next, the coefficient of determination score of this regression equation (adjusted R-squared score) is 0.2864. Thus, 28.64% of the increases in local expenditures are determined by increases in *PAD* and unconditional grants, while the rest (71.36%) by other variables not investigated in this study.

(2) Analysis in Municipals with Continuously Increasing PAD

Table 2 displays the regression results:

Table 2: Fixed Effect Model Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ΔPAD	0.5904	0.311032	2.8981	0.0488
ΔUG	0.2574	0.084913	3.0321	0.0027
C	1.3611	1.1510	11.7681	0.0000

Effects Specification				

Cross-section fixed (dummy variables)

Weighted Statistics				
R-squared	0.408202	Mean dependent var		1.65E+12
Adjusted R-squared	0.206991	S.D. dependent var		2.18E+12
S.E. of regression	1.81E+12	Sum squared resid		8.15E+26
F-statistic	4.028723	Durbin-Watson stat		2.374975
Prob (F-statistic)	0.000013			

The above results produce the following regression equation:

$$\Delta LE_{it} = 1{,}3611 + 0{,}5904\ \Delta PAD_{it} + 0{,}2574\ \Delta UG_{it} + \mu_{it}$$

The specification suggests that a one basis point increase in PAD will increase local expenditures by 0.5904 basis point, assuming other variables constant.

Meanwhile, a one basis point increase in unconditional grants will lead to a 0.2574 basis point increase in local expenditures assuming other variables. The adjusted R- squared score is 0.2069, implying that 20.69% of the increases in local expenditures are affected by increases in PAD and unconditional grants, while the rest (79.31%) is affected by other factors.

(3) Analysis in Municipals with Decreasing PAD

Table 3 below demonstrates the regression results:

Table 3: Fixed Effect Model Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ΔPAD	-0.1181	0.0895	-1.3201	0.1874
ΔUG	0.1430	0.0432	3.3080	0.0010
C	5.7010	3.9209	14.5433	0.0000

Effects Specification				

Cross-section fixed (dummy variables)

Weighted Statistics				

R-squared	0.2747	Mean dependent var		2.53E+11
Adjusted R-squared	0.2303	S.D. dependent var		5.04E+11
S.E. of regression	4.6811	Sum squared resid		1.01E+26
F-statistic	1.1240	Durbin-Watson stat		2.390185
Prob (F-statistic)	0.1789			0.1789

The above results produce the following regression equation:

$$\Delta LE_{it} = 5{,}7010 - 0{,}1181 \Delta PAD_{it} + 0{,}1430 \Delta UG_{it} + \mu_{it}$$

Thus, one base point increase in PAD will reduce local expenditures by a 0.1181 basis point, assuming other variables constant. Meanwhile, a one basis point increase in unconditional grants will increase local expenditures by a 0.1430 basis point, assuming other variables constant. The adjusted R-squared value of this model is 0.2303, implying that 23.03% of the increases in local expenditures are affected by increases in PAD and unconditional grants, while the rest (76.97%) is affected by other variables.

4.2 F-Statistic Test

The results of the F-statistic test can be seen from the F- statistic probabilistic value. F-statistic values $< \alpha = 0.05$ indicate that the independent variables simultaneously have significant effects on the dependent variable. For the entire sample and municipals with continuously increasing PAD, the F-statistic value is $0.0000 < \alpha = 0.05$. Hence, increases in PAD and unconditional grants simultaneously have significant effects on increases in local expenditures. However, for municipals with decreasing PAD, the probabilistic (F-statistic) value is $0.1789 > \alpha = 0.05$, implying that increases in PAD and unconditional grants simultaneously do not affect increases in local expenditures.

4.3 t-Statistic Test

The t-statistic probabilistic value represents the results of the t-statistic test. Independent variables with probabilistic values $< \alpha = 0.05$ partially have a significant impact on the dependent variable. For the all-sample analysis, both independent variables have the probabilistic value of $0.0000 < \alpha = 0.05$. Thus, increases in PAD and unconditional grants partially have significant effects on increases in local

expenditures. Similarly, for the analysis in municipals with continuously increasing PAD, increases in PAD and unconditional grants have probabilistic values $< \alpha = 0.05$ (0.0488 and 0.0027, respectively). Therefore, increases in both variables partially have significant effects on increases in local expenditures. However, for municipals with decreasing PAD, ΔPAD has a probabilistic value of $0.1874 > \alpha = 0.05$. Consequently, increases in PAD partially do not have a significant impact on increases in municipal expenditures. Meanwhile, the probabilistic value of ΔUG is $0.0010 < \alpha = 0.05$. Thus, increases in unconditional grants partially affect increases in municipal expenditures.

4.4 Flypaper Effect Analysis

The regression coefficients of the independent variables indicate the flypaper effect in Indonesian municipals' local expenditures. A greater regression coefficient of ΔPAD or ΔUG shows that increases in PAD or unconditional grants have a greater effect on increases in local expenditures.

1. In all Indonesian municipals, the ΔUG regression coefficient is greater than that of ΔPAD (0.3298 > 0.1961). Thus, the effect of increases in unconditional grants on increases in local expenditures is greater than that of increases in PAD, implying the flypaper effect in Indonesian municipals' local expenditures. The findings are in line with Courant et al. (1979), Iskandar (2015), and Masiero & Santarossa (2020).

2. For municipals with continuously increasing PAD, the regression coefficient of ΔPAD is higher than that of ΔUG (0.5904 > 0.2574). Therefore, the impact of increases in PAD on increases in municipal expenditures is greater than that of increases in unconditional grants, suggesting no flypaper effect in local expenditures of Indonesian municipals with continuously increasing PAD. The results support Yu et al. (2016).

3. For municipals with decreasing PAD, the regression coefficient of ΔUG is greater than that of ΔPAD (0.1430 > -0.1181). Hence, the effect of increases in unconditional grants on increases in municipal expenditures is higher than that of increases in PAD, indicating the flypaper effect in local expenditures of Indonesian municipals with decreasing PAD.

5. CONCLUSIONS

Our results lead to the following conclusions:

1. In general, the Indonesian municipals exhibit the flypaper effect in 2014-2018, thus supporting the first hypothesis. Lower PAD growth relative to increases in unconditional grants from the central government indicates that municipal governments still highly rely on the central governments' aids, leading to the flypaper effect in those municipals.

2. The Indonesian municipals with continuously increasing PAD do not exhibit the flypaper effect in 2014-2018. Thus, the second hypothesis is supported. Continuously increasing PAD likely reduces municipal governments' dependency on the central government's unconditional grants that mitigate the flypaper effect.

3. The Indonesian municipals with decreasing PAD exhibit the flypaper effect in 2014-2018. Thus, the third hypothesis is supported. Decreasing PAD increases municipal governments' dependency on the central government's unconditional grants, resulting in the flypaper effect.

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