

# Flypaper Effect on Regional Expenditure and the Imp on Regencies/Municipalities Financial Performance in Indonesia

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## ABSTRACT

The aim of this study was to empirically evidence the phenomenon of the flypaper effect on regional revenue, general allocation funds, special allocation funds, and profit-sharing funds on regional expenditures and the impact of the flypaper effect on financial performance in regencies/cities in Indonesia. This study used panel data regression with secondary data taken from all regencies/municipalities in Indonesia registered under the DJPK RI for the 2017-2020 period. The sample in this study consisted of 1968 regencies/cities selected by the purposive sampling method. The result of this study showed that regional revenue, general allocation funds, special allocation funds, and profit-sharing funds had a positive effect on regional expenditures and there was a flypaper effect phenomenon due to the transfers of general allocation funds and profit-sharing funds. Furthermore, the result of the research indicated that there was flypaper effect to decrease the financial performance of local government. This implies that regencies/municipalities in Indonesia are still dependent on transfer funds (flypaper effect) and have a negative effect on financial performance, making regencies/ municipalities in Indonesia are subsidiary to manage their finances and extensive supervision of local governments and policies are needed to support sectors in the regions that need require them while maintaining rational budget management in order to optimize the potential of regional revenues.

**Keywords :** *flypaper effect, financial performance, local revenue, general allocation funds, special allocation funds, profit sharing funds*

## 1. INTRODUCTION

Indonesia has implemented a decentralized government system. The decentralized system allows the central government to provide certain powers to local governments to regulate and manage their financial affairs. The authority received by the regional government, which is assigned by the central government, is referred to as regional autonomy. The implementation of regional autonomy is a form of decentralization by the Constitution of the Republic of Indonesia (UU) Number 23 of 2014 on the Local Government [53]. Under this law, the source of government funding can derive from independent funding sources such as local own-source revenue, regional taxes, regional levies, regionally owned company revenue and management, other legitimate local own-source revenue (PAD), and balancing funds, comprising transfer funds from the government. The center encompasses the General Allocation Fund (DAU), the Special Allocation Fund (DAK), and the Revenue Sharing Fund (DBH) incorporating taxes and natural resources.

Currently, the real financial capacity of a region is mostly manifested in local own-source revenue (PAD), which can obtain less than 15% of the regional budget (APBD). As a result, the central government should address its shortcomings of the central Government through a balancing fund system consisting of DAU, DAK, and DBH, which are integrated [22]. Balance fund finance is based on the existence of funds originating from state budget (APBN) revenues or funds transferred

by the central government and allocated to local governments to subsidize their necessities under the pretext of implementing regional development and management.

In transfer funds, there is a propensity issue of relying on transfer funds or balance funds rather than independent funds. This transfer problem is also known as the flypaper effect. This denotes that there is a likelihood of expending transfer funds from the central government (DAU, DAK, and DBH) compared to funds from local own-source revenue (PAD). The phenomenon of the flypaper effect implies that it will increase local government spending compared to the transfer of funds from the central government.

The Problems in the allocation of balancing or transfer funds in many developing countries generally target on expenditures rather than on the ability to collect local taxes. Consequently, local governments require a greater transfer of funds from the central government. This situation corresponds to the research conducted by Kuncoro [29], which is related to the flypaper effect phenomenon in the local governments of regencies/municipalities in Indonesia.

A Flypaper effect has been found in Brazil, and a very high percentage of transfers for expenditure, or the flypaper effect phenomenon, was found in cities with low tax autonomy [15]. There was a flypaper effect phenomenon that was a direct result of the fiscal illusion, thus local government expenditures often allocated central government transfer funds rather than local revenues [38]. Research conducted by Fisher in the United States also discovered that the percentage of

A transfers of all revenues reached 50% for the federal government and 60% for local governments [17]. Deller in their research revealed that in several countries of South Africa, Nigeria, and Mexico, there was a flypaper effect situation. The percentage of transfers of local government spending in South Africa was 85%, in Nigeria 67% -95%, and in Mexico. -90% [11].

However, other studies documented contradictory results, wherein their research did not prove the existence of a flypaper effect in regencies/municipalities in Indonesia such as in the research of Fitri Amalia [5], Shita Unjaswati and Ekawarna [14], and Rianti [44]. This would occur when regional revenue has greater influence than transfer funds. With the differences in the research above,

## 2. LITERATURE STUDY AND HYPOTHESES

### 2.1. Agency Theory

Agency theory concerns the contractual relationship between the agent and principal. An agency relationship occurs when one or more people (the principal) hire another person (the agent) to provide a service and delegate a decision-making authority.

In the context of public budgeting, the central government serves as the principal and local governments act as agents in the distribution of balancing funds. The central government provides authority to the local governments to regulate their regions [18]. As a result, the central government provides balancing funds to local governments to assist them in their operations. This balancing fund is accounted for by the local government's (agent) journal for this balancing fund to the central government (principal).

The Agency problems arise when the relationship between the principal and agent may can lead to asymmetrical information conditions or information imbalance because the agent has more information about the company than the principal [36]. Assuming that individuals act to maximize their interests, the information asymmetry encourages agents to obscure information that the principal does not know. From the government's perspective, agency problems ensue when executives tend to maximize their personal interests, from the budgeting process, making decisions, and presenting reasonable financial reports to display their proper performance, as well as securing a position in the government and before the eyes of the legislature and people.

### 2.2. Regional Autonomy

The concept of regional autonomy is the authority to carry out functions or manage the region; it does not come by itself but is a political decision to increase the effectiveness of governance, public services, and development [30].

researchers are interested in conducting further research on the phenomenon of flypaper effect.

Furthermore, the researchers attempted to analyze the effect of the flypaper effect on PAD, DAU, DAK, and DBH on regional expenditures and appended the influence of the flypaper effect on the financial performance of regencies/municipalities in Indonesia using panel data (2017-2020) in the hope that the researchers can provide more comprehensive analysis results. Therefore, the researchers proposes the title "Flypaper Effect on Regional Expenditure and the Imp on Regencies/Municipalities Financial Performance in Indonesia".

In Law No. 23 of 2014, the purpose of granting regional autonomy is to enable the region to regulate and manage its households in order to increase the efficiency and effectiveness of the government's administration for public services and the implementation of development. To achieve this goal, regions are granted authority to conduct government affairs [52].

Along with regional autonomy, regional independence will be achieved because the objectives of regional autonomy are aimed at promoting equitable distribution of development and its results, increasing people's welfare, and improving the utilization of regional potential in a real, optimal, integrated, dynamic, and responsible manner so as to strengthen unity and national unity, reduce the burden on central government, interfere with the regions, and provide opportunities for coordination at the local or regional level. Regional autonomy is expected to spur regional independence towards full autonomy. Land and building taxes in local governance are the factors that increase regional independence [28].

### 2.3. Fiscal Decentralization

The main purpose of fiscal decentralization is to approach the community so that the distribution of public services can effortlessly fulfill the needs of local communities [21].

A Fiscal decentralization can be interpreted as the process of distributing the budget from a higher level of government to a lower level to support the functions or tasks of the government and public servants performed by various delegated authorities in the government sector [30].

Together with the existence of regional autonomy, regional governments are required to be independent in taking care of their own government and in practice, the government must exercise it according to the regulations that have been determined to obtain good performance so that the accountability of financial statements can be undertaken without exception [42].

### 2.4. Financial performance

A local government financial performance is the level of achievement in the field of regional finance, which

includes regional revenues and expenditures using a through policy or statutory provisions for one specific budget period [46].

The financial performance can be measured financially and non-financially. Non-financial performance is calculated by performance evaluation of government administration per annum. Financial performance is based on the financial report in the regional government report. In financial performance, the ratio can be observed from the revenue in the regional government [26].

The one of the tools to analyze the financial performance of local governments is financial ratio. Independent financial ratios were also used in this study. The results of the financial ratio analysis were used as benchmarks for;

1. Growth or development of income and expenditure acquisitions over a certain period.
2. Measuring effectiveness and efficiency in realizing regional income.
3. Measure the extent to which local government activities spend regional revenues.
4. Measuring the contribution of each source of income to the formation of regional income.
5. Growth or development of income and expenditure acquisitions over a certain period [33].

## 2.5. Flypaper effect

The flypaper effect is referred to as a condition that occurs when local governments respond (spending) more (extravagantly) using the ability of transfer funds (grants) which are proxied by the General Allocation Fund (DAU), the Special Allocation Fund (DAK) and Revenue Sharing Funds (DBH) instead of their capabilities proxied by Local own-source revenue (PAD). The propensity is seen from fund expenditure of the central government compared to local revenues or known as local own-source revenue (PAD). The phenomenon of the flypaper effect implies that it will increase local government spending compared with the transfer of funds from the central government. The assumption of determining the occurrence of the flypaper effect in this study focuses on comparing the influence of PAD and DAU on regional expenditures [6].

The flypaper effect occurs when:

1. The effect/value of the coefficient of transfer funds proxied by DAU, DAK, and DBH on regional spending is greater than the effect of PAD on regional expenditures, and the four values are significant.
2. The results of the analysis show that the influence/response of PAD to regional expenditures is insignificant; therefore, it can be inferred that there is a flypaper effect [51].

There are several imps of the flypaper effect on districts/cities expenditures, such as:

1. Causes a fiscal gap to persist.
2. Non-maximization of the utilization of PAD growth sources.

- financial system determined
3. Causes Regional dependence on the central government.
  4. Excessive responses to the use of transfer funds.
  5. Results in a lack of regional financial independence among relevant regencies/municipalities [55].

## 2.6. Regional Expenditures

Government Regulation (UU) No. 12 of 2019 defines regional expenditures as obligations of the regional government, which are recognized as a deduction from the value of net assets in the period of the relevant fiscal year [39].

Regional expenditure is an obligation of the regional government and is recognized as a reduction in the value of net assets. In its use, regional expenditures are prioritized to carry out government affairs under the authority of the province or regency/city based on expenditure groups, including indirect expenditures, such as personnel expenditures, interest expenditures, subsidies expenditures, grant expenditures, social assistance expenditures, profit sharing expenditures, financial assistance and unexpected shopping. Direct expenditures comprise personnel expenditures, goods and services expenditures, and capital expenditures. Indirect expenditures is not directly affected by the presence or absence of SKPD programs and activities, whereas direct expenditures are directly influenced by the existence of SKPD programs and activities, whose contribution to the achievement of work performance is measured as well.

A Regional spending is a function of revenue. Expenditure is the dependent variable, the amount of which depends on local sources of financing, both from local revenues and central government transfers. Therefore, in the measurement, if a negative relationship between income and expenditure variables is detected, a fiscal illusion exists [24].

The regional expenditures are the total budget expenditures, either directly or indirectly related to programs or activities. Regional expenditure, according to local government expenditures, plays a role in meeting public demand with the supplying of facilities and infrastructure that are not attained by the private sector. Meanwhile, government expenditure is not simply carried out by the local government but should be planned [32].

## 2.7. Local own-source Revenue

According to Act No. 23 of 2014 on local own-source revenue (PAD), the income obtained by a region is collected based on regional regulations and legislation on local own-source revenue in form of regional taxes and levies, the results of separated regional wealth management, and other legitimate local incomes [53].

A local own-source revenue (PAD) is all regional revenues from original regional economic sources. In general, it can be concluded that local revenue is derived

from the management of local potential through applicable laws and regulations [2].

Local governments are authorized to manage their regional finances independently. One area providing the biggest contribution in Local Revenue is local tax. Local tax is one of the sources of income from local revenue. Local taxes are used to finance regional development and administration of the regional government. Therefore, taxes should be properly managed in order to increase Local own Revenue (PAD); the higher the PAD of a region, the more independent a region is in managing its finances [9].

## 2.8. General Allocation Fund

In Government Regulation Number 12 of 2019 (Article 1 No. 11), general allocation funds (DAU) are funds sourced from state budget (APBN) revenues allocated for the equitable distribution of inter-regional financial capacity to fund regional needs in the context of decentralization [39].

The purpose of establishing general allocation funds (DAU) is to reduce inequality in regional financing needs, in which general allocation funds provide certainty for regions to finance expenditure needs as the responsibilities of each region, with at least 26% of the net domestic income allocated determined in the budget. Fiscal capacity is reflected in factors of Regional Original Income, such as local own-source revenue (PAD), tax revenue-sharing funds, and natural sources of funds. The General Allocation Fund (DAU) for regions with large fiscal potential yet small fiscal should receive a small allocation fund. However, regions with low fiscal potential and high fiscal should be portioned relatively large general allocation funds [4].

Based on the concept of the fiscal gap, the distribution of general allocation fund (DAU) to local governance with a relatively large capacity will be smaller, and regions with relatively small financial capacity will receive relatively large general allocation fund (DAU) [49].

## 2.9. Special Allocation Fund

According to Act No. 23 of 2014, special allocation funds are transfer funds from the central government sourced from the state budget (APBN), which aims to fund activities and assist regional needs that are specific to regional needs and are prioritized by the central government [53].

Special allocation funds are covers and meets the needs of capital expenditure allocation because it is more likely to increase the fixed assets of DAK owned by the government to improve public services and fulfil community service needs [3].

## 2.10. Revenue-Sharing Fund

According to Act No. 23 of 2014, revenue-sharing funds (DBH) are endowed from state budget (APBN) revenues for each region based on certain figures in order

to support needs under the pretext of decentralization. Revenue-sharing funds (DBH) are distributed to enhance the vertical balance between the center and regions by considering the potential of producing regions. Revenue-sharing funds is distributed to producing regions according to the portion regulated in Act no. 23 of 2014 and divided by the proportion of producing regions to obtain a larger share and other regions (within the province) to obtain an equal share with certain portions regulated in the law [53].

According to Act No. 23 of 2014, the principle of revenue-sharing funds submission is based on the realization of divided revenues (based on annual income) in the current budget year.

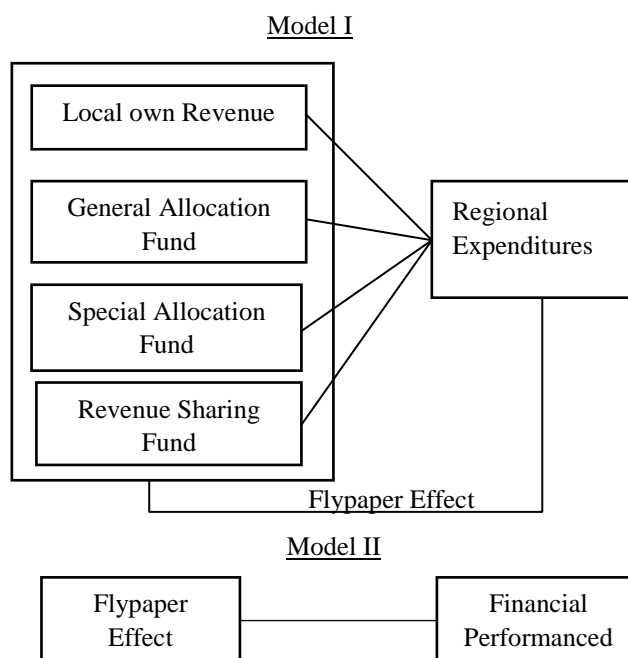
Revenue-sharing funds, according to Act Number 33 of 2004, are funds provided by the central government taken from the state budget (APBN), and are allocated to regions based on proportions to meet regional needs in the context of implementing decentralization.

Revenue-sharing for tax revenue comes from:

1. Land and building taxes (PBB).
2. Fees for Acquisition of Rights on Land and Buildings (BPHTB).
3. Income tax Articles 25 and 29 are domestic individual taxpayers (PPh WOPDN) and income tax Article 21 (pph21) [52].

## 2.11. Framework

The framework used in this study used 2 models as shown in the following:



**Figure 1 Framework**

Model I is based on the flypaper effect of the local own-source revenue, the general allocation funds, the special allocation funds, the revenue-sharing funds, and their effect on regional expenditures regencies/municipalities in Indonesia. (H1, H2, H3, H4, and H5)

Model II provides a framework for the influence of the flypaper effect on the financial performance of regencies and municipalities in Indonesia. (H6)

## 2.12. Hypothesis

### 2.12.1. The Effect of Local Own-Source Revenue on Regional Expenditures

Local own-source revenue is a primary source of regional income. In budgeting regional expenditures, it is adjusted to the regional income received; the higher the income obtained from local revenue, the greater the funds that must be channeled through regional expenditures to support the regional government.

The results of Oktavia research indicates that local own-source revenue (PAD) had a significant effect on regional spending [37]. Subsequently, research by Amalia reveals that the local own-source revenue coefficient had a significantly positive influence on regional expenditures [7]. Another research conducted shows similar results to those reported by Rahmawati [43].

Based on this, the following hypothesis was developed:

H<sub>1</sub>: *Local own revenue has a significant positive effect on regional expenditure in regencies/municipalities in Indonesia.*

### 2.12.2. The Effect of General Allocation Fund on Regional Expenditures

The General Allocation Fund (DAU) is used to finance general expenses. The use of the General Allocation Fund (DAU) is not only transferred to the regions but is also used for personnel expenditure posts and infrastructure development. Thus, the greater the general allocation funds received, the greater the regional expenditure will be.

A study conducted by Fitri Amalia discovers that General Allocation Fund (DAU) had a positive and significant effect on regional expenditure [7]. Another study by Syahrina and Ermawati concludes that the general allocation funds had a significant positive effect on regional expenditure [49]. Research in line with Dul Muid that the general allocation funds had a positive effect on regional expenditure [46].

Based on those previous studies, the following hypothesis was developed:

H<sub>2</sub>: *General Allocation Fund has a significant positive effect on regional expenditures in regencies/municipalities in Indonesia.*

### 2.12.3. The Effect of Special Allocation Fund on Regional Expenditures

The special allocation fund is a transfer funds given by the central government to local governments to fund special activities which are national priorities, such as infrastructure development and other public services.

With the increase in transfer funds due to the special allocation funds, it is possible to increase financing in such a way that the more special allocation funds, the higher regional expenditures are.

This is in line with research conducted by Syahrina and Ermawati using a sample of governments in East Java regencies/cities in 2015-2016 [50]. The results indicate that the general allocation funds affected capital expenditures. Special allocation funds (DAK) were prioritized to achieve the objectives of certain programs and activities in regions that received special allocation funds. Furthermore, Melda and Syofyan also reveal that special allocation funds modified regional expenditure in regencies/municipalities in West Sumatra [34].

This corresponds to the research of Nahlia that special allocation funds had a positive effect on regional spending [35].

Therefore, the following hypothesis was developed:

H<sub>3</sub>: *The Special Allocation Fund has a significant positive effect on regional expenditure in regencies/municipalities in Indonesia.*

### 2.12.4. The Effect of Revenue Sharing Fund on Regional Expenditures

The revenue-sharing funds (DBH) partake the transfer funds provided by the central government which are aimed at equitable distribution of regional financial capacity. However, the amount given to these regions depends on tax conditions and natural resources.

With the increase in transfer funds due to the revenue-sharing funds, it will be possible to increase financing, such that the higher revenue-sharing funds, the greater regional expenditures are.

This result is similar to the research by Armawaddin that DBH had a significant effect on regional spending in regencies and cities in Sulawesi [10]. In addition, Sari and Asyik also explain that revenue-sharing funds (DBH) had a significant effect on regional expenditure [47]. Further, Iskandar concludes that unconditional grants had a significant positive effect on regional expenditure [25].

Thus, the following hypothesis was developed:

H<sub>4</sub>: *Revenue-sharing funds have a significantly positive effect on regional expenditure in regencies/municipalities /city in Indonesia.*

### 2.12.5. Flypaper Effect.

A comparison of transfer funds and local revenue determines of whether an area experiences a flypaper effect. A flypaper effect occurs when the coefficient of influence of the general allocation fund is higher than the PAD coefficient in the test results.

Several studies on this topic have been conducted. Research conducted by Ferreira in Brazil obtained a flypaper effect in cities with low taxes. This denotes that the effect of transfer funds (general allocation fund, special allocation fund, and revenue sharing fund) on regional expenditures had a higher coefficient than that of local revenue (PAD) on regional expenditures [15].

Tasri also found that the effect of the general allocation fund (DAU) on regional expenditures was more intense than the influence of local revenue (PAD) on regional expenditures, which means that there was a flypaper effect in the provinces of Indonesia [52]. Additionally, the research results of Zulfan and Maulana describe the phenomenon of the flypaper effect that also occurred in Aceh Province [56]. Kusuma suggests that there was a flypaper effect in the East Java Province [31].

Based on this, the following hypothesis was developed:

$H_5$ : *There is a flypaper effect phenomenon in regencies/municipalities in Indonesia.*

### 2.12.6. Flypaper Effect on Financial performance

The regional financial performance can be used to determine a region's ability to achieve regional autonomy. The better the regional financial performance, the better the ability is to perform its duties. The more regions rely on transfer funds provided by the central government rather than the regional capacity itself or the phenomenon of the flypaper effect, the lower the financial performance is.

Fintari in her research shows that the flypaper effect variable had a negative and significant influence of the flypaper effect variable on financial performance variables in West Nusa Tenggara Province. This means that the higher the flypaper effect, the lower the government's financial performance was in the NTB. The flypaper effect caused low regional independence, therefore depending on the central government. The central government was deemed "the power of donors", making the Bima City government splurged in financing, in other words, the government did not concern hot to optimize local revenue [15].

The imp of the flypaper effect on regional financial performance is acceptable. They proved that the flypaper effect affected the decline in regional financial performance. With the occurrence of the flypaper effect on the General Allocation Fund and PAD on regional expenditures, the regional financial performance of local governments in the West Java Province decreased. This can be seen in the lower degree of fiscal decentralization [1].

Similarly, research conducted by Basuki found that financial flypapers had a negative effect on financial performance in Indonesia's regencies/municipalities during the 2001-2015 period [40].

Based on this, the following hypothesis was developed:

$H_6$ : *The flypaper effect has a negative effect on the local government financial ratios.*

## 3. RESEARCH METHODS

### 3.1. Data Types and Sources

The data used in this study were quantitative. The data used in this study are secondary data with panel data for 2017–2020. Secondary data were sourced from the financial institution of the directorate general of fiscal balance of the ministry of finance (DJPK) which can be accessed at <http://www.djpk.kemenkeu.go.id/> [13].

#### 3.1.1. Population and sampling method

The study population consisted of regencies/municipalities throughout Indonesia. The purposive sampling method was employed with the following criteria.

1. Regency/municipality data were recorded using Directorate General of Fiscal Balance of the Ministry of Finance (DJPK) which is available at <http://www.djpk.kemenkeu.go.id/> [13].
2. The data required for the research variables were available.

**Table 1.** The Sampling Criteria

No.	Description	Number
1	Regencies/municipalities registered under the DJPK 2017-2020	2032
2	Regencies/municipalities with incomplete data.	(64)
Sample Total		1968

Source: <http://www.djpk.kemenkeu.go.id/>. 2021

### 3.2. Definition of Operational Variable

#### 3.2.1. Regional Expenditures

Regional expenditures is all regional treasury disbursements in a certain fiscal year period, which is a burden of the region [39].

$$\text{Regional Expenditures} = \text{Direct Expenditures} + \text{Indirect Expenditures}$$

#### 3.2.2. Local own-source revenue (PAD)

Local Governments, it is defined as the revenue obtained from sources in the region, which is collected based on regional regulations in accordance with prevailing laws and regulations. Local own-source revenue comprises regional taxes, levies, separated regional wealth, and legitimate incomes. The local own-source revenue in this study was calculated as the ratio of local own-source revenue to total income, which reflects the proportion of local own-source revenue to regional income [53].

Local own-source revenue = Regional tax + regional levies + separated regional management results + other legitimate incomes.

### 3.2.3. General allocation fund (DAU)

Local Government explains that funds originate from state budget (APBN), which is allocated to equalize the financial capacity of regions to finance the needs to implement decentralization [53].

General allocation fund = Fiscal gap + Basic allocation.

### 3.2.4. Special allocation fund (DAK)

Regional government, special allocation funds are from state budget (APBN) revenues allocated to certain regions, with the aim of assisting special activities in regional affairs based on the national priorities. Special allocation funds (DAK) for each provincial government can be seen in the balance fund post in the local budget (APBD) realization report [53].

Special allocation fund = local budget (APBD) revenue – Regional personnel expenditure.

### 3.2.5. Revenue sharing fund (DBH)

Local Government are a reflection of a regional capacity in addition to local revenue. In managing regional wealth and regional taxes, it will certainly reflect an increase in fiscal for the region as well as high revenue sharing [53].

Revenue sharing fund = Tax revenue-sharing fund + Non-tax revenue-sharing fund.

### 3.2.6. Flypaper effect

The value of the flypaper effect is calculated based on regional financial ratios. The ratio of regional financial centers determines the level of dependence of the regional government on the central government and/or provincial governments. Regional financial ratios are calculated by comparing the transfer of income received by local governments (proxied by the general allocation fund, the special allocation fund, and the revenue sharing fund) with total regional revenues. The higher the ratio, the greater the level of dependence of the local government will be on central and/or provincial governments [33].

Flypaper effect = Transfer income / Total regional revenue.

### 3.2.7. Financial performance

Financial performance can be obtained using the independence ratio as an assessment of regional financial performance. The ratio of regional financial independence is the ability of a regional government to finance its own government plans, both development and services, to the community that pays taxes and levies as a source of income for the region. The following financial ratio was used [33].

Independence Ratio = Local own-source revenue / total transfer income.

## 3.3. Panel Data Modeling

This study used panel data. Panel data are a combination of time-series and cross-sectional data; therefore, the method used is specifically for panel data. Gujarati (2012) states that panel data (pooled data), also known as longitudinal data, are a combination of cross-sectional and time series data. Cross-sectional data were collected for several individuals. Time-series data were collected from time to time for each participant.

The regression model estimation method using panel data can be performed using three approaches [14]:

### 3.3.1. The Common-Constant Method (Pooled Ordinary Least Square/PLS)

The PLS method, also called the common effect model (CEM), is an ordinary least squares method applied to data in form of a pool and is the simplest approach for processing panel data.

#### Model I

$$BDit = \alpha_{it} + \beta_1 PADit + \beta_2 DAUit + \beta_3 DAKit + \beta_4 DBHit + \mu_{it}$$

#### Model II

$$KKit = \alpha_{it} + \beta_1 FPit + \mu_{it}$$

Where,

BDit: Regency/municipality Regional Expenditure i year t;

PADit: Regency/municipality Local own-source revenue i year t;

DAUit: Regency/municipality General Allocation Fund i year t;

DAKit: Regency/municipality Special Allocation Fund i year t;

DBHit: Regency/municipality Revenue Sharing Fund i year t;

FPit: Regency/municipality Flypaper effect with dependency ratio i year t;

KKit: Regency/municipality Financial performance with independence ratio i year t;

i: Regencies/cities in Indonesia that are sampled in the data;

it: Error term or error i year t.

The PLS model assumes that the intercept and slope of the regression equation are considered constant, both between individuals and between times.

### 3.3.2. Fixed Effect Method (FEM)

The fixed effect is an object that has a constant that remains consistent in magnitude for various periods. Similarly, the regression coefficient has a fixed magnitude from time to time. Dummy variables can be used to differentiate the intercept; therefore, this method is also known as the least-squares dummy variable (LSDV) model.

This study applied the second possibility using unbalanced pooled data; the slope coefficient is constant, but the intersection point varies between panel members or the least squares dummy variable (LSDV). Although the intersection point differs between the panel members, it does not change over time. The LSDV regression model is formulated as follows.



Model I:

$$BDit = \beta_0 + \alpha itD + \beta_1 PADit + \beta_2 DAUit + \beta_3 DAKit + \beta_4 DBHit + \mu it$$

Model II:

$$KKit = \beta_0 + \alpha itD + \beta_1 FPit + \mu it$$

Where, D [d1, d2, . . . , di] is a dummy variable

This equation model is also known as the district and city covariance model.

### 3.3.3. The Random Effect Method (REM)

To analyze panel data regression, in addition to using the FEM, regression analysis can also employ the REM method. This method was used to overcome the weakness of the FEM method, which only uses dummy variables that the model experiences uncertainty.

The basic concept of this model is as follows:

Model I:

$$BDit = \beta_0 i + \beta_1 PADit + \beta_2 DAUit + \beta_3 DAKit + \beta_4 DBHit + \mu it$$

Model II:

$$KKit = \beta_0 i + \beta_1 FPit + \mu it$$

Where,  $\beta_0 i = \beta_0 + \mu i$ ,  $i = 1, 2, 3, \dots, N$ , substitution  $\beta_0 i = \beta_0 + \mu i$

### 3.4. Panel Data Regression Method Selection

When choosing a panel data regression model estimation technique, we must initially understand which model is preferable. This selection is based on a significance test as follows [14].

#### 3.4.1. Chow test

The Chow test is used to determine whether the fixed effects model is more preferable than the common effects model. This test is performed using an F-test.

The hypotheses are.

H0: The model follows a common effect

H1: The model follows a fixed effect

The principle for using the model is the F-statistics. This test follows an F-statistic distribution, i.e. if the p-value is  $< 5\%$ , H0 is rejected and H1 is accepted, therefore the model is the fixed effect model. On the other hand, if p-value  $> 5\%$ , H0 is accepted and H1 is rejected, thus the model is the common effect model.

#### 3.4.2. Lagrange Multiplier Test

The Lagrange Multiplier test is performed if the Chow test H0 is accepted or the common effect model is selected. This test is used to determine whether the common effects model is superior to the random effect model. The test is performed using the LM test. The hypothesis is.

H0: The model follows a random effect

H1: The model follows the common effect

The LM was used as the basis for this model. This test follows an F-statistical distribution; that is, if the LM value  $>$  the critical value of the chi-squares, H0 is rejected, and H1 is accepted, the model to be used is the common effect model. On the other hand, if LM  $<$  the critical value of chi-squares, H0 is accepted, and H1 is rejected, the model to be used is a random effect model.

#### 3.4.3. Hausman test

The Hausman test was performed if the Chow test H1 was accepted and the fixed effect model was selected. This test was used to determine whether the common effects model was better than the random effect model. This test was performed using Chi-Square statistics. The hypotheses are.

H0: The model follows a random effect

H1: The model follows a fixed effect

The foundation for using the model is the F-statistics. This test follows the F-statistical distribution; if the p-value is  $< 5\%$ , H0 is rejected and H1 is accepted, therefore the fixed effect model is used. On the other hand, if the p-value  $> 5\%$ , H0 is accepted and H1 is rejected, thus the model used is a random-effects model.

### 3.5. $R^2$ test

The coefficient of determination ( $R^2$  test) is divided into two types by examining the R-squared and adjusted R-squared values. The R-squared coefficient value is used to determine the level of the independent variable that can explain the dependent variable and coefficient value [19].

#### 3.6. T test

The t-test shows the extent to which the influence of one independent variable explains that of a dependent variable. A t-test is used to test the significance of the effect of each independent variable on that of the dependent variable. The criterion is that if t count is greater than the t table, or if the significance value is less than 0.05, meaning that the independent variable has a significant effect on the dependent variable [19].

## 4. RESULTS AND ANALYSIS

### 4.1. Selection of Panel Data Estimation Method

In choosing the correct estimation method in this study, several testing steps had been carried out: the first was to perform the Chow test and the second was the Hausman test, or the Lagrange multiplier test.



#### 4.1.1. Chow Test

The Chow test was used to determine whether the fixed effects model was better than the common effects model. This test was performed using an F test. The hypotheses are.

H0: The following model is a common effect

H1: The following model is a fixed effect

##### Model I

**Tabel 2.** Chow Test

Effects Test	Prob
Cross-section F	0.0000

Source: data processed with Eviews 10

Based on the results of the Chow test above, it can be seen that the value of Prob. The cross cross-section F was 0.0000, meaning that the alpha value was less than 0.05. This implies that the H1 is accepted or fixed-effects model is better than the common effects model. The next test was the Hausman test.

##### Model II

**Tabel 3.** Chow Test

Effects Test	Prob
Cross-section F	0.0000

Source: data processed with Eviews 10

Based on the results of the Chow test above, it can be seen that the value of Prob. The cross-section F was 0.0000, indicating that the alpha value was less than 0.05. This shows that H1 is accepted, or the fixed effects model is better than the common effects model. The next test was the Hausman s test.

#### 4.1.2. Hausman Test

The Hausman test is performed if the Chow H1 test is accepted and the fixed-effect model us selected. This test is used to determine whether the common effects model is superior to the random effect model. This test was performed using Chi-Square statistics. The hypotheses are.

H0: The following model is a random effect

H1: The following model is a fixed effect

##### Model I

**Tabel 4.** Hausman Test

Test Summary	Prob
Cross-section Random	0.0000

Source: data processed with Eviews 10

Based on the results of the Hausman test above, it can be seen that the value of Prob. cross-section random was 0.0000, which means that the alpha value was less than

0.05. This shows that H1 is accepted, and that the fixed effects model is more suitable than the random effects model.

##### Model II

**Tabel 5.** Hausman Test

Test Summary	Prob
Cross-section Random	0.0000

Source: data processed with Eviews 10

Based on the results of the Hausman test above, it can be seen that the value of Prob. The random cross-section was 0.0000, which means that the alpha value was less than 0.05. This shows that H1 is accepted and that the fixed effects model is more suitable than the random effects model.

#### 4.2. Panel Data Multiple Regression Analysis

The following is the output results of the panel data regression with estimation using Fixed Effect.

##### Model I

**Table 6.** Hypothesis test

Variable	Coefficient	t-Statistic	Prob.
(Constant)	4.06E+11	7.202717	0.0000
Local own Revenue (PAD)	0.508810	8.765560	0.0000
General allocation fund (DAU)	1.303384	0.086551	0.0000
Special allocation fund (DAK)	0.265632	0.099248	0.0075
Revenue sharing fund (DBH)	0.643128	0.049074	0.0000
R-squared	0.969972		
Adjusted R Square	0.959874		
F statistic	96.05872		
Prob(F-statistic)	0.000000		

Source: data processed with Eviews 10

Based on the table above, the panel data regression equation with the Fixed Effect model is.

$$BD = 4.06E+11 + 0.508810PAD + 1.303384DAU + 0.265632DAK + 0.643128DBH + e$$

From the regression equation above, this can be explained as follows.

1. A constant value of 406,000,000,000 (rounded up) indicates that if local own-source revenue, general allocation fund, special allocation fund, and revenue sharing fund are zero, then the regional expenditure is equivalent to IDR 406,000,000,000.
2. The regression coefficient for the decent local own-source revenue (PAD) variable was 0.508810, meaning that if it increases local own-source revenue (PAD), it will add regional expenditure (BD), and vice versa.
3. The regression coefficient for the decent general allocation fund (DAU) variable was 1.303384, meaning that if it increases the general allocation fund (DAU), it will add regional expenditure (BD), and vice versa.

4. The regression coefficient for the decent special allocation fund (DAK) variable was 0.265632, meaning that if it increases special allocation fund (DAK), it will add regional expenditure (BD), and vice versa
5. The regression coefficient for the decent revenue sharing fund (DBH) variable was 0.643128, meaning that if it increases the revenue sharing fund (DBH), it will add regional expenditure (BD), and vice versa.

#### Model II

**Table 7.** Hypothesis test

Variable	Coefficient	t-Statistic	Prob.
(Constant)	0.464000	11.16603	0.0000
Flypaper effect (FP)	-0.366593	-6.093942	0.0000
R-squared	0.934987		
Adjusted R Square	0.913301		
F statistic	43.11532		
Prob(F-statistic)	0.000000		

Source: data processed with Eviews 10

Based on the table above, the panel data regression equation with the Fixed Effect model is.

$$KK = 0.464000 - 0.366593 + e$$

The regression equation above can be explained as follows.

1. A constant value of 0.464000 indicates that if the flypaper effect is zero, then financial performance is equivalent to 0.464000 or 46%.
2. The regression coefficient for the FP variable was -0.366593, indicating that the higher the flypaper effect (FP) ratio, the lower is the financial performance (KK), and vice versa.

### 4.3. Coefficient of Determination Test ( $R^2$ test)

The coefficient of determination ( $R^2$  test) was divided into two types by examining the R-squared and adjusted R-squared coefficient values.

#### Model I

Based on the R-squared results of the fixed-effect panel data regression test on eviews, it can be determined that the ability of the independent variables to explain the dependent variable was 0.969972 or 96.9972%.

Meanwhile, the value of the adjusted R-squared coefficient was 0.959874 or 95.9874%. This denotes that after correcting the standard error values of PAD, DAU, and DBH, they are able to explain regional expenditures of 95.9874%.

#### Model II

Based on the R-squared results of the fixed-effect panel data regression test on eviews, it can be determined that the ability of the independent variables to explain the dependent variable was 0.934987 or 93.4987%.

The value of the adjusted R-squared coefficient was 0.913301, or 91.3301%. This means that after correcting the standard error values for PAD, DAU, and DBH, they are able to explain regional expenditures of 79.4235%.

### 4.4. Hypothesis test (t test)

A t-test was used to test the hypotheses regarding the extent to which each independent variable explained the dependent variable. The criteria is set if the significance value is  $< 0.05\%$  or  $< 5\%$ . Based on the results of fixed-effect panel data regression testing, the following hypothesis is proposed:

#### Model I

##### 4.4.1. Local Own-Source Revenue

Based on the results of the panel data regression test of the fixed-effect view,  $H_0$  is rejected, and  $H_1$  is accepted. This happened because the significance value of the local own-source revenue variable was 0.000, which means that local own-source revenue affected regional spending expenditure because the significance value of local own-source revenue was 0.000, which is smaller than the specified criteria of significance value of 0.05. Thus, it can be concluded that  $H_1$  accepted.

##### 4.4.2. General Allocation Fund

Based on the results of the panel data regression test of fixed-effect views,  $H_0$  is rejected and  $H_2$  is accepted. This was resulted from the significance value of the general allocation fund variable which was 0.000, in other words, the general allocation fund affected regional expenditure because the significance value of the general allocation fund was 0.000, which is smaller than the specified criteria of a significance value of 0.05. Thus, it can be concluded that  $H_2$  is accepted.

##### 4.4.3. Special Allocation Fund

Based on the results of the panel data regression test of fixed-effect views,  $H_0$  is rejected and  $H_3$  is accepted. This happened because the significance value of the special allocation fund variable was 0.000, meaning that the special allocation fund affected regional expenditure because the significance value of the special allocation fund income was 0.000, smaller than the specified criteria of a significance value of 0.05. Therefore, it can be concluded that  $H_3$  is accepted.

##### 4.4.4. Revenue-Sharing Fund

Based on the results of the fixed-effect evaluation panel data regression test,  $H_0$  is rejected and  $H_4$  is accepted. This was a result of the significance value of the revenue-sharing variable, which was 0.000. This implies that the revenue-sharing fund influenced regional expenditure because the significance value of the revenue-sharing fund was 0.000, smaller than the specified criteria if a significance value of 0.05. Thus, it can be concluded that  $H_4$  is accepted.

## Model II

### 4.4.5. Flypaper Effect

Based on the results of the panel data regression test of fixed-effect views, H0 is rejected and H6 is accepted. This is because the significance value of the flypaper effect variable was 0.000, which means that the flypaper effect affected financial performance since the significance value of the flypaper effect was 0.000, smaller than the specified criteria of the significance value of 0.05. Thus, it can be concluded that H6 is accepted.

## 5. DISCUSSION

### 5.1. The effect of local own-source revenue on regional spending.

The results show that the local own-source revenue variable had a value of 8.765560 with a significance level of 0.000. The level of significance was lower than  $(0.000 < 0.05)$ . Therefore, local revenue affected regional expenditure; thus, H1 is accepted.

This is consistent with the results of Zulfan [55], Salawali [45], Purbarini [41], Tasri [52], Ahmad Solikin [50], Fitri Amalia [7], and Rahmawati [43]. This result indicates that local revenues had a positive effect on regional spending. Shortly, the level of local revenues received affects regional expenditure decisions because local revenue can be used to meet local government spending needs. Therefore, the greater local own-source revenue generated by the regional government, the greater the value of regional expenditures is. Conversely, lower the local own-source revenue, lower the value of regional expenditures is.

### 5.2. The effect of general allocation funds on regional expenditures.

The results show that the general allocation fund variable had a value of 15.05914, with a significance level of 0.000. The level of significance is lower than 5%  $(0.000 < 0.05)$ . Therefore, the general allocation fund affected regional expenditure, thus H2 is accepted.

This is similar to the results of Zulfan [56], Fitri Amalia [7], Saputri [46], and Dina Syahrina [51]. This shows that the general allocation funds had a positive and significant effect on regional expenditure. This implies that general allocation funds can be used to meet local government expenditure needs since the general allocation funds are used to finance other expenditures, such as personnel expenditures, goods and services expenditures, infrastructure development expenditures, and other expenditures. Hence, the governments of regencies or municipalities in Indonesia makes the receipt of general allocation funds a reference in the preparation of local budget (APBD) in order to improve

the subsequent regional expenditure. Therefore, the greater the general allocation funds obtained by the government, the greater the value of regional expenditures is. In contrast, the lower the general allocation fund obtained, the more modest the value of regional expenditures is.

### 5.3. The effect of special allocation funds on regional spending.

The results show that the special allocation fund variable had a value of 2.676441 with a significance level of 0.0075. The significance level is lower than 5%  $(0.0075 < 0.05)$ . Therefore, the special allocation fund affected regional spending, and thus H3 is accepted.

This is consistent with the results of Dina Syarina [51], Helmi Melda [37], and Nahlia [35]. This displays that special fund allocations had a positive effect on regional spending. In other narration, the special allocation funds can be used to meet local government spending needs as the special allocation funds include transfer funds or balancing funds provided by the central government to improve public services and meet community service needs. Furthermore, regardless of special allocation funds transfer or balance funds whose value is relatively small, these funds are very important for subsidizing special and prioritized activities for the central government, so that local governments in Indonesia make the receipt of special allocation funds as a reference in the preparation of the local budget (APBD) in order to multiply the amount of the following regional expenditure. Therefore, the greater the special allocation funds obtained by the regional government, the higher the value of regional expenditures is. Meanwhile, the lower the general allocation fund obtained, the smaller the value of regional expenditures is.

### 5.4. The effect of revenue-sharing funds on regional spending.

The results show that the revenue-sharing variable had a value of 13.10519 with a significance level of 0.000. The level of significance is lower than 5%  $(0.000 < 0.05)$ . Then, revenue-sharing funds affected regional spending; thus, H4 is accepted.

This is consistent with the results of Armawaddin [10], Sari [48], and Iskandar [25]. This results indicate that revenue-sharing funds positively affected regional spending. Therefore, revenue-sharing funds can be used to meet local government spending needs because revenue-sharing funds are part of transfer funds or balanced funds provided by the central government aimed at equitable distribution of regional financial capabilities, which the size given to regions depends on the tax conditions and the natural resources in each region. Thus, the local governments in Indonesia can make revenue-sharing funds a reference for the preparation of the local budget (APBD) in order to escalate the amount of the next regional expenditure. Therefore, the greater the revenue-sharing funds obtained by the regional government, the higher the value of

regional expenditures is. However, the lower the revenue-sharing funds obtained, the smaller the value of regional spending is.

### 5.5. The Flypaper effects.

There are two conditions for the flypaper effect: (1) the effect (coefficient value) of the transfer funds (general allocation funds, special allocation funds, and revenue-sharing funds) on regional expenditures is greater than the effect of local own-source revenue (PAD), and all of them are equally significant. (2) if the PAD is insignificant, it can be concluded that there is a flypaper effect. The coefficient values of DAU, DAK, and DBH on regional expenditures should be greater than the coefficient value of the influence of PAD [8].

Based on the statement above, it can be inferred that the first requirement for the flypaper effect occurred or was fulfilled in this study, because the coefficient value of local revenue was 0.508810. Meanwhile, the coefficient value of the general allocation fund was 1.303384 and the revenue-sharing fund was 0.643128. This denotes that there was a flypaper effect on local governments in Indonesia in the 2017-2020 period, thus H5 is accepted. The propensity of the flypaper effect to occur was due to DAU and DBH receipts.

This is in line with the results of Ferreira et al. [15], Ardanareswari [8], Tasri [52], Zulfan [56], Inayati [23], Bracco [11], Gennari [18], and Hendra Kusuma [31]. This implies the phenomenon of flypaper effect. Shortly, regencies/cities in Indonesia are dependent on transfer funds; thus, there is an increase in transfer funds annually, which also causes a greater increase in regional expenditure compared with the increase in regional expenditure using local own-source revenue. Thus, every policy for increasing regional expenditures in an area is usually prompted by the transfer of funds. Central government transfers should stimulate the regional economy through spending, thereby creating a fiscal potential for the economy. By contrast, central transfer funds only move between the central and local governments without the imp and achievement of the supposed objectives of these funds.

### 5.6. The effect of the flypaper effect on financial performance.

The results showed that the flypaper effect variable had a value of -6.093942 with a significance level of 0.000. The level of significance is lower than 5% ( $0.000 < 0.05$ ). Thus, the flypaper effect affected financial performance; thus, H6 is accepted.

This is consistent with the results of Basuki [40], Fintari [16], and Syahriar [1] that there was a negative and significant effect of the flypaper effect on financial performance variables in regencies/municipalities in Indonesia. Thus, more regions rely on transfer funds provided by the central government rather than the ability of the regions independently, or the flypaper effect phenomenon occurs; the lower the financial performance, the lower the negative imp of transfer

funds is from the central government. Eventually, they do not encourage the independence of a region, which may serve as a motivation why local governments do not exploit local taxes. However, an increase in transfer allocation is accompanied by higher spending growth, indicating an increase in expenditure due to inefficient local government expenditure, especially operational one. Another reason is the emergence of competition in expenditures between regions, and, if left for a long term, this trend will increase horizontal fiscal inequality. Therefore, the greater the ratio of the flypaper effect phenomenon in local governments, the poorer financial performance of local governments is. Meanwhile, if the ratio of the flypaper effect to that of local governments is lower, then the government's financial performance will increase.

## 6. CONCLUSION

Based on the results of the testing and discussion in the previous section, the following conclusions can be obtained.

1. The purpose of the first hypothesis testing was to determine and analyze the effect of local revenue on regional expenditures in regencies/ municipalities in Indonesia. Local revenues were proven to have a positive effect on regional spending. So H1 is accepted.
2. The results of the second hypothesis testing aimed to determine and analyze the effect of general allocation funds on regional expenditures in regencies/municipalities in Indonesia. General fund allocation was shown to have positive effect on regional expenditure. Therefore, H2 is accepted.
3. The results of the third hypothesis test aimed to determine and analyze the effect of special allocation funds on regional expenditures in regencies/municipalities in Indonesia. Special fund allocations were proven to have a positive effect on regional spending. So, H3 is accepted.
4. The results of fourth hypothesis testing aimed to determine and analyze the effect of revenue-sharing funds on regional expenditures in regencies/municipalities in Indonesia. Revenue-sharing was proven to have a positive effect on regional spending. Thus, H4 is accepted.
5. The results of fifth hypothesis testing aimed to determine and analyze a flypaper effect on the influence of local own-source revenue, general allocation funds, special allocation funds, and revenue-sharing funds on regional expenditures in regencies/municipalities in Indonesia. It was proven that there was a flypaper effect in regencies/municipalities in Indonesia because of the receipt of transfer funds for general allocation and revenue-sharing funds. So, H5 is accepted.
6. The results of sixth hypothesis testing aimed to determine and analyze the effect of flypaper on regional financial performance in Indonesia. The flypaper effect was proven to have a negative effect on financial performance. So, H6 is accepted.

## AUTHOR'S CONTRIBUTION

This study aimed to determine the existence of a flypaper effect on local revenue, general allocation funds, special allocation funds and profit-sharing funds on regional expenditures and the effect of the flypaper effect on regional expenditures in regency/municipality government sampled in this study.

The results of this study are expected to be used as inputs for governments and can be used as samples to examine the function of each policy aspect in implementing decentralization. This positively affects government performance, particularly in terms of financial management.

This research is also expected to contribute to strengthening previous research related to the flypaper effect and be a reference material and additional data for other researchers who are interested in this field of study.

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