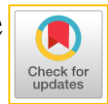


# Flypaper effect phenomenon on regional spending: Evidence from Lampung province



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## ABSTRACT

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The existence of constitutional changes due to regional autonomy and changes in financial authority as a result of decentralization are expected to make provinces in Indonesia more flexible in using regional financial budgets. However, the use of regional budgets exceeds central government transfers towards more consumptive regions, which impacts the flypaper effect phenomenon. This study aims to identify the government's fiscal influence on regional spending and the influence of flypaper on the effectiveness of regional spending. The aim of this research is also to analyze the possibility of a flypaper effect on regional spending in districts/cities in Lampung province and to see the influence of own sources revenue (PAD), general allocation funds (DAU), special allocation funds (DAK), profit sharing funds (DBH) on regional spending. Research location in Lampung Province (district/city) for the 2016-2020. The number of samples used was 15 districts/cities. The data source from the Central Statistics Agency (BPS) website is secondary data from the annual Regional Financial Statistics report for Lampung Province. The analytical tool used is panel data regression. The research results show that PAD and DAU are significant to regional spending, while DAK and DBH are not significant to regional expenditures. This indicates that with five years of regional spending, Lampung Province has a flypaper effect phenomenon.

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## 1. Introduction

Politics have decided on regional autonomy since January 1, 2011. This regional autonomy has had severe and broad impacts ([Rahmawati & Suryono, 2015](#)). Law No.32 of 2004, containing regional government and Law No. 33 of 2004, discusses the balance and emphasizes the implementation of the authority of regional governments with central government regarding the transfer of DAU, DAK, and DBH to regional governments. These two laws are revisions of Law No. 22 and Law No. 25 of 1999, which contains the balance between the central government and the regions and regional governments ([Brodjonegoro & Asanuma, 2000](#)). Lampung Province is an area that is experiencing expansion. It has 13 districts and two cities, and several parent expansion areas produce expansion areas. Suppose the regional government has PAD and does not depend on central transfer funds ([Akita et al., 2021](#)). In that case, the region does not have a flypaper effect, and the region has implemented autonomy, decentralization, and APBD policies well, where there are specific steps to create an advanced and prosperous province by focusing on development. Infrastructure, industry, tourism, agriculture, public services, education, health, and bureaucratic reform in the Lampung province area. The reason for choosing Lampung Province as the province studied was because Lampung Province

has regional diversity, which includes various economic, social, and demographic conditions. From the coast to the mountains, each district and city has unique characteristics in terms of infrastructure and per capita income; this allows research to identify various patterns in regional spending behavior and the impact of the allocation of public funds. The second reason is that Lampung Province has experienced good economic growth in the last five years. Rapid economic growth often accompanies increased public spending, and research on the flypaper effect can help in understanding how the allocation of public funds affects economic growth and regional spending in Lampung. The third reason is the role of the DAU in Lampung Province as one of the primary sources of income for local governments in Indonesia. DAU can be the focus of research in the Lampung context. Identifying how DAU allocations influence regional spending patterns in various districts and cities in Lampung can provide valuable insight into the flypaper effect in the context of fiscal policy at the local level.

The importance of research on the flypaper effect phenomenon related to the effect of own sources revenue (PAD), general allocation funds (DAU), special allocation funds (DAK), and profit sharing funds (DBH) is paramount in the context of fiscal policy and the allocation of transfer funds to regional governments. The urgency of research on the flypaper effect phenomenon is related to the effect of own sources revenue (PAD), general allocation funds (DAU), special allocation funds (DAK), and profit sharing funds (DBH). It is necessary to study the efficiency of using transfer funds. Research on the flypaper effect phenomenon is fundamental to understanding the efficiency of using transfer funds by local governments. If there is a robust flypaper effect, transfer funds tend to dominate and are used effectively by local governments for development and community welfare purposes (Brodjonegoro & Asanuma, 2000). However, if there is no flypaper effect or the effect is low, the transfer of funds from the center will not be used effectively (Hill & Vidyattama, 2016).

This research can guide better fiscal policies in the allocation of transfer funds to local governments. They are having an impact on the transparency and accountability of APBD. According to Rahmawati & Suryono (2015) if the government uses more regional spending from grants/transfers with an unconditional nature (unconditional grants) than from PAD, it could waste regional spending. The term Flypaper Effect was first introduced by Courant et al (1979) that regional original expenditure that exceeded the region's original income was the result of central government grants, which are usually referred to by the abbreviation "money." stick where it hits". Nurosidah et al (2023) states the flypaper effect is where a local government uses more significant regional expenditure from DAU than using its capabilities, namely PAD. The Flypaper Effect implies that an increase in regional spending greater than transfer revenues will lead to a tendency to wait for help from the central government for calls to improve regional resources and regional income inequality due to low PAD. The flypaper effect symptom occurs when an increase in certain public revenues or funds (such as general allocation funds or balancing funds) tends to increase public spending in the mandated area or sector rather than being used for other purposes or saved. This phenomenon implies that specifically allocated public funds depend more on the region or sector than the general public (Hazarika & Nayak, 2022; Rios et al., 2022).

The flypaper effect is often debated in the public economics literature, especially about the efficiency and fairness of public resource allocation. Some studies suggest that phenomenon occurs because fiscal policies designed to distribute public funds specifically can create incentives for recipients to spend more of those funds, while others suggest that the flypaper effect may be primarily due to institutional or political (Cruz & Silva, 2020; Yacoub & Lestari, 2019). Canare (2019) stated that the flypaper effect occurs when local governments use transfer funds to expand public spending compared to their local income, either directly or indirectly. This phenomenon occurs when a regional regulation balances regional expenditure more using funds provided by the central government, which originate from the distribution of APBN funds rather than from its own independent PAD funds. DAU that is transferred without reason will result in a region experiencing waste in using these funds as regional expenditure by not increasing the region's original income capacity by using the transfer funds (Tanjung et al., 2021). If a region is too dependent on transfer funds compared to PAD or income from regional independence, it can be said that the region has a flypaper effect phenomenon (Hazarika & Nayak, 2022).

Vegh & Vuletin (2015) emphasise the flypaper effect arises due to the differential response of precautionary savings to private income or fiscal transfers shocks in an uncertain world with incomplete markets in Argentinean provinces. Research on the flypaper effect attracts attention and produces inconclusive conclusions. Masdjojo & Sukartono (2009) and Salawali et al (2012) states there is no flypaper effect phenomenon on regional spending, contrast to Rahmawati & Suryono

(2015) and Tanjung et al (2021) states that flypaper effect phenomenon have affect on regional spending. Hamilton (1986) argued that flypaper effect do not therefore require models of strategic bureaucratic behavior or voter misperceptions. Kusumadewi (2007) found that all regions although have high own sources revenue, experienced the flypaper effect. Again, this result support the indication that the decentralization has not been successfully implemented in Indonesia.

This research is also essential to increase transparency and accountability in transferring funds. By understanding how PAD, DAU, DAK, and DBH affect local government spending, we can identify whether local governments are using transfer funds appropriately and by the objectives set by the central government. The results of this research provide input for efforts to increase transparency and accountability in the management of transfer funds, which will increase the effectiveness of fiscal policy. If the flypaper effect occurs, local governments can use transfer funds more effectively to implement development programs that positively impact society (Fadilah & Helmayunita, 2020). Through this research, we can understand how the influence of PAD, DAU, DAK, and DBH can improve people's quality of life through increasing access to public services, infrastructure, education, and health.

## 2. Method

The research sample is regencies/cities in Lampung province, with 13 regencies and two cities located in Indonesia, providing complete information regarding the variables used in the research. The data uses time series and cross-sections, both of which are panel data, where the time series is a time series in this study, the annual time series 2016-2020, while the cross-section is with several objects, for example, 15 districts/cities of Lampung province on several independent variables. The data collection method comes from the official website of the Central Statistics Agency (BPS) (<https://lampung.bps.go.id/>) in Lampung Province in the Lampung Financial Report Statistics book. Data analysis using panel data regression is a combination of cross-section data and time series that aims to see the magnitude of the relationship between the variables PAD, DAU, DAK, and DBH in influencing regional spending. By using the equation in the linear regression model as follows:

$$Y_{i,t} = \alpha_0 + \beta_1 PAD_{i,t} + \beta_2 DAU_{i,t} + \beta_3 DAK_{i,t} + \beta_4 DBH_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where  $Y$  is regional spending;  $PAD$  is own sources revenue;  $DAU$  is the general allocation funds;  $DAK$  is the special allocation funds;  $DBH$  is the profit sharing funds;  $\alpha_0$  is constanta;  $\beta_1$ - $\beta_8$  is the coefficient of independent variables and  $\varepsilon$  is the error term;  $i$  notation for cross-section and  $t$  notation for time-series. The panel data regression method uses a seemingly unrelated regression (SUR) estimation method because it can overcome the problem of correlation between cross-section units and between time series (Zellner, 1962). The parameters of the seemingly unrelated regression approach are estimated using generalized least squares (GLS) in the model by calculating the residual variance-covariance per unit of time and cryosection. This SUR regression model refers to the model Xu et al (2018) and Hayat et al (2023) where the model produces efficient residuals in estimating panel data regression. The SUR model is a spatial econometric model of the generalization of simple linear regression modeling with various regression equations where the variables are different sets of independents estimated through the system equation panel of the SUR model into a data set of  $K$  cross-section units and with  $T$  observation periods at time in each unit. The equation as follows:

$$y_{gi} = X_i \beta_i + \varepsilon_i; i = 1, 2 \dots, n, g = 1, 2 \dots, G \quad (2)$$

where  $G$  is the number of equations,  $n$  explains the number of observations,  $y$  explains the factors from observing the dependent variable with measurements ( $Gn \times 1$ ), and  $x$  explains the matrix of the independent variables with measurements ( $Gn \times k$ ).  $\beta$  explains the factor of the coefficient of the independent variable with measurement ( $k \times 1$ ),  $\varepsilon_i$  explains the error vector with measurement.

## 3. Results and Discussion

Table 1 shows the Z-stat from panel SUR; these independent variables include PAD with a Z-statistic of 2.77\* and DAU with a Z value of 10.96\*. Meanwhile, the independent variable with a Z value less than the Z table (1.65), which is insignificant, is the DAK with a Z value of 1.40. Finally, the Z value for the independent variable DBH is 0.72. Among these four variables, regional spending

is relatively more affected by DAU (0.797) than other independent variables. The independent variables that significantly affect regional spending are only PAD and DAU, while DAK and DBH do not considerably affect regional spending in Lampung province. To see whether there is a flypaper effect, by comparing the coefficient value and Z (partial) between the PAD and DAU variables, the results show that the coefficient of PAD is (0.059). Z value (2.77) while the coefficient for DAU is (0.797) with Z value (10.96). From this comparison, the coefficient value and Z calculated for DAU are greater than PAD. It can be used, namely  $0.7979 > 0.0590$ , meaning  $0.7979/0.0590 = 13 > 1$ , meaning there is a flypaper effect (Salawali et al., 2012).

**Table 1.** Panel Seemingly Unrelated Regression Result

Variables	Coefficient
PAD	0.059 (2.77)**
DAU	0.797 (10.96)***
DAK	0.089 (1.40)
DBH	0.040 (0.72)
C	1.270 (2.02)
Diagnostic Tools	
R-Square	0.9088
F-stat	3073.03***

Source: data processed

PAD has a positive coefficient for regional spending of around 0.059, which means that if PAD increases by 1 percent, regional spending will increase by 0.059. Based on the results of the calculated Z value, PAD has a significant effect on regional spending. The results are in line with previous research by Fadilah & Helmayunita (2020) and Masdjojo & Sukartono (2009). If PAD increases in a region, regional spending will also increase. The increase in PAD is directly proportional to the level of regional spending. Akita et al (2021) stated that PAD positively affects regional spending, which means that the regional government can increase the level of PAD realization, and the amount of regional spending will also increase. This PAD is obtained from independent funding from community collections based on compliance with applicable laws and regulations. The regional government also has the attitude of increasing regional spending through increasing tax rates. DAU has a positive coefficient for regional spending with a value of 0.797. This means that if the general allocation fund increases by 1 percent, regional spending will increase by 0.797. DAU is a tool for equalizing regional development for the central government, which aims to reduce the amount of inequality in financing as well as tax monopolies between the center and the regions. This means that DAU is positive for regional spending to equalize development. Rahmawati & Suryono (2015) states that DAU has a very significant role because it dominates regional expenditure funds, one of which is for capital expenditure to improve infrastructure and infrastructure development, which will have an impact on regional economic growth and increase local original income. Fadilah & Helmayunita (2020) argued that DAU is positive for regional spending because the amount of DAU allocation will be determined by the basic accumulation formula and the fiscal gap, if DAU increases by 1 million rupiahs, regional spending will also increase.

DAK is insignificant for regional spending because the Z-stat (1.40) is less than the Z table (1.65). DAK is not significant for regional spending because it is a balancing tools fund, which, in absolute terms, has a relatively minor value. DAK is only used to fund special program activities based on national priorities and those matters for local government. Based on the regulations of Law No. 33 of 2004, the amount of DAK transfers will be determined in the APBN. This special allocation fund is residual because it does not have provisions stating the amount, proportion, and presentation of DAK in the APBN. Regional governments cannot ensure early certainty regarding the amount of DAK that will later be allocated, which is the reason for the flexibility of DAK. This results in the efficiency and effectiveness of the use of DAK not being optimal (Fadilah & Helmayunita, 2020). DBH is insignificant for regional spending because the Z-stat (0.72) is less than the Z table (1.65). DBH participates in increasing regional expenditure budgets. The results explain that provinces with large



DBH will also tend to increase regional spending. DBH is funds allocated to regions based on a specific percentage figure as funding for regional needs to implement decentralization. These funds come from the APBN based on a region's income, where the revenue-sharing pattern is based on producing regions. In the districts/cities of Lampung province, partial DBH is not significant for regional expenditure. The test results are in line with previous research by [Masdjojo & Sukartono \(2009\)](#) states that DBH is not significant for regional spending because increasing taxes will increase regional spending, resulting in a large deficit. This is also related to taxes, where taxes are generated from revenue.

[Rahmawati & Suryono \(2015\)](#) states flypaper effect is where local governments respond more (wastefully) to regional spending with transfer funds than they do to their regional capabilities. Based on the test results in [Table 1](#), DAU dominates funds for regional spending. Prove that coefficient value of  $0.797 > PAD$  0.059. The results of this research are in line with research by [Salawali et al \(2012\)](#) where the amount of regional spending is influenced by general allocation funds (central transfers), meaning that the results show that the flypaper effect phenomenon occurs in the Lampung province area. [Kusumadewi \(2007\)](#) argued the implementation of autonomy is hampered due to the flypaper effect in Lampung province, which shows that the region still depends on the central government. This means that the main dream of regional autonomy has yet to be implemented in this region, which can realize independence without dependence on the central government. If it continues continuously and is left to chance, regional autonomy is likely to experience failure. Overcoming this failure is by improving various infrastructures in the regions and supporting every local economic activity and tourism, improving the quality of human resources, and maximizing various potentials in the regions so that PAD can increase and reduce dependence on the central government. However, an empirical phenomenon called the "flypaper effect" is commonly observed in intergovernmental subsidies and occurs when the intended purpose of the transfer is not the "optimal allocation" of funds to local governments—analyzing the existence and characteristics of the flypaper effect in a context where intergovernmental grants and local resources are required to be spent on education ([Cruz & Silva, 2020](#)).

The dependence of regional spending on DAU indicates that there is a flypaper effect in Lampung province in 2016-2020; in other words, the district/city regional government of Lampung province has not implemented regional autonomy policies properly, meaning it shows the independence of financial management in regional governments, which is most important in terms of regional spending ([Vegh & Vuletin, 2015](#)). According to [Rahmawati & Suryono \(2015\)](#) if the government responds more to regional spending from grants/transfers with an unconditional nature (unconditional grants) than from PAD, this will result in a waste of regional spending. The term Flypaper Effect was developed by [Dolleryb and Worthington in 1995](#). The Flypaper Effect is a concept from the field of public finance that shows that government grants to recipient provinces increase the level of public expenditure in the province over the increase in original income of equivalent size. The principal contribution of this case study is that more than fifteen years of audited fiscal data are available at the municipal level by program expenditure. We can address the asymmetry in the flypaper effect on total expenditures and expenditures by program ([Yacoub & Lestari, 2019](#)). [Rios et al \(2022\)](#) argued that municipalities with higher tax collection efficiency and where local governments have more political strength exhibit a lower flypaper effect.

#### 4. Conclusion

The results of the analysis of the flypaper effect phenomenon of the influence of PAD, DAU, DAK, and DBH on regional spending in districts/cities of Lampung province 2016-2020. The Flypaper Effect implies that an increase in regional spending greater than transfer revenues will lead to a tendency to wait for help from the central government for calls to improve regional resources and regional income inequality due to low PAD. Based on the SUR panel test, the PAD and DAU variables have a positive effect on the regional spending variable, but the value of the DAU coefficient is higher than PAD. This means DAU influences district/city regional spending, so Lampung province has a flypaper effect on regional spending. The implication of the study, the public should provide awareness and information to carry out tax payments in an orderly manner so that regional income increases, be aware of tax payments, and other potentials to increase regional income. It is hoped that the Lampung Provincial Government can create policies and strategies to increase regional income by increasing taxes/levies and transferring funds that can be diverted to increase development, which will

encourage an increase in local original income so that Lampung Province has a high level of independence and avoids the flypaper effect.

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### Declarations

- Author contribution** : Suropto, tasked with leading the research team, played an important role in problem identification, theoretical analysis, creating empirical models, and analysis of the results of compiling research articles. Istanti focuses on searching for research data to strengthen the introduction and analysis of research results, Rai Rake Setyawan is tasked with assisting with literature reviews, collecting sampling data, processing data using STATA version 17.0, and interpreting data, Fina Hajar Aulia contributed to discussions on collecting data, helped analyze research results and helped prepare research articles.
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