“Flypaper effect: Analysis of financial transfers from the central government to provincial regions in Indonesia”

AUTHORS	Retno Fitrianti Mirzalina Zaenal Sanusi Fattah Nurul Hidayah

ARTICLE INFO	Retno Fitrianti, Mirzalina Zaenal, Sanusi Fattah and Nurul Hidayah (2025). Flypaper effect: Analysis of financial transfers from the central government to provincial regions in Indonesia. *Public and Municipal Finance*, *14*(1), 54-64. doi:10.21511/pmf.14(1).2025.05
DOI	http://dx.doi.org/10.21511/pmf.14(1).2025.05
RELEASED ON	Wednesday, 05 February 2025
RECEIVED ON	Sunday, 08 December 2024
ACCEPTED ON	Friday, 24 January 2025

JOURNAL	"Public and Municipal Finance"
ISSN PRINT	2222-1867
ISSN ONLINE	2222-1875
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
23	0	3

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

Retno Fitrianti (Indonesia), **Mirzalina Zaenal** (Indonesia), **Sanusi Fattah** (Indonesia), **Nurul Hidayah** (Indonesia)

FLYPAPER EFFECT: ANALYSIS OF FINANCIAL TRANSFERS FROM THE CENTRAL GOVERNMENT TO PROVINCIAL REGIONS IN INDONESIA

Abstract

This paper aims to analyze the influence of local revenues, unconditional grants, and total population on regional expenditure in six provinces in Sulawesi, Indonesia. Panel data covering the period from 2013 to 2023 were analyzed using the fixed effects model (FEM) using the STATA software. The results show that local revenue has a significant positive effect on regional expenditure ($\beta = 0.366$; p-value $0.000 < 0.05$), unconditional grant has a significant positive effect on regional expenditure ($\beta = 0.501$; p-value $0.000 < 0.05$), and total population has a significant positive effect on regional expenditure ($\beta = 1.207$; p-value $0.001 < 0.05$). The results show considerable regional disparities, with Southeast Sulawesi and North Sulawesi displaying the highest dependency on central funds, while South Sulawesi exhibits relatively greater fiscal independence. These findings highlight the need for policy reforms to strengthen local revenue generation, minimize reliance on central government transfers, and prioritize investments in infrastructure. Such strategies are crucial for ensuring fiscal sustainability, enhanced local autonomy, and long-term regional growth.

Received on: 8th of December, 2024
Accepted on: 24th of January, 2025
Published on: 5th of February, 2025

Retno Fitrianti, Dr., Lecturer, Department of Economics, Faculty of Economics and Business, Hasanuddin University, Indonesia. (Corresponding author)

Mirzalina Zaenal, Lecturer, Department of Economics, Faculty of Economics and Business, Hasanuddin University, Indonesia.

Sanusi Fattah, Dr., Associate Professor, Department of Economics, Faculty of Economics and Business, Hasanuddin University, Indonesia.

Nurul Hidayah, Lecturer, Department of Economics, Faculty of Economics and Business, Khairun University, Indonesia.

Keywords flypaper effect, local revenues, unconditional grants, total population, regional expenditures

JEL Classification H53, H72, J18, O23

Conflict of interest statement:
Author(s) reported no conflict of interest

INTRODUCTION

The flypaper effect can be described as a phenomenon where local governments are very dependent on financial assistance from the central government but are less able to maximize their local revenues so that they do not create an equal ratio in the components of total regional income that will be used for regional spending. It results in an imbalance in regional spending resources, the majority of which are borne by the central government and will become a long-lasting burden if not addressed immediately.

The flypaper effect, which refers to the impact of central government fiscal transfers on local governments, has become a crucial topic in regional economic policy, particularly in Indonesia. Sulawesi Island serves as a key case study for examining this phenomenon. The flypaper effect refers to the tendency of local governments to respond more strongly to funds transferred from the central government, such as the general allocation funds and revenue-sharing funds, than to locally generated revenues. Fiscal decentralization has emerged as a cornerstone of governance reforms, particularly in developing economies where intergovernmental fiscal transfers play a pivotal role in lo-

http://dx.doi.org/10.21511/pmf.14(1).2025.05

cal administration and public service delivery. These reforms aim to empower local governments with greater autonomy in managing their resources, fostering regional economic development, and improving public services tailored to local needs.

1. LITERATURE REVIEW

Intergovernmental fiscal transfers aim to bridge the fiscal disparities between central and local governments, providing regions with the necessary resources to support infrastructure development and public service enhancements. However, these transfers have inadvertently given rise to a phenomenon known as the flypaper effect. This effect describes the tendency of local governments to exhibit greater fiscal responsiveness to external transfers than to internally generated revenues (Oates, 1999). As a result, local governments often rely heavily on funds from higher government levels, neglecting efforts to mobilize and optimize their own revenue sources (Andonova & Trenovski, 2023).

Fiscal decentralization is a governance approach that shifts authority from central to local governments, empowering regions to manage financial resources autonomously (Oates, 1999). In Indonesia, decentralization policies were institutionalized through Law No. 22/1999, later revised as Law No. 32/2004, aiming to enhance regional autonomy and spur economic development (Badrudin & Kuncorojati, 2017). These policies provide local governments with the flexibility to manage revenues, including local revenues, while relying on intergovernmental transfers such as general allocation funds and revenue-sharing funds.

The flypaper effect**,** a key concept in fiscal federalism, refers to the tendency of intergovernmental transfers to disproportionately influence local government spending compared to revenues generated from local sources (Sa/Ğbafi & Saruçş, 2004). This phenomenon, described by Kuncoro (2004), suggests that funds “stick” where they are transferred, leading to increased dependency on external sources. Fiscal illusion, where local governments perceive central funds as “free money,” and bureaucratic incentives further exacerbate this effect (Nurosidah et al., 2023). This reliance often undermines efforts to increase local revenues and achieve fiscal autonomy (Oates, 1999).

Studies in developing economies highlight the widespread nature of the flypaper effect, particularly in regions with underdeveloped local revenue systems. Research in China by Duan and Zhan (2011) demonstrates that fiscal transfers significantly increase local expenditure but fail to incentivize local tax collection. Similarly, in the Western Balkans, Andonova and Trenovski (2023) found that intergovernmental transfers reduced incentives for revenue mobilization, fostering fiscal dependency. In Indonesia, several studies corroborate the presence of the flypaper effect. Siregar and Badrudin (2017) analyzed local government expenditures and found that general allocation and revenue-sharing funds significantly outweighed local revenues in determining regional budgets. Similarly, Wati et al. (2022) noted that during fiscal stress, local governments were more responsive to increased intergovernmental transfers than efforts to optimize local own-source revenues. While these studies provide valuable insights, they often generalize findings across provinces, overlooking regional nuances in fiscal behavior.

The decentralization framework in Indonesia emphasizes fiscal independence, yet challenges persist in achieving this goal. Despite decentralization, regions remain heavily dependent on central government transfers. Hidayat et al. (2024) and Desdiani et al. (2022) reveal that Intergovernmental Transfer funds account for over 70% of local budgets in many Indonesian provinces. These transfers are often used to address operational costs rather than capital investments, undermining their developmental impact. Provinces in Sulawesi epitomize these challenges. While South Sulawesi exhibits moderate fiscal autonomy due to its diverse economic base, regions like Gorontalo and West Sulawesi are characterized by severe dependency on central transfers (Directorate General of Fiscal Balance, 2023). This disparity reflects broader trends in Indonesia, where fiscal capacity varies significantly across regions (Mahdawi et al., 2021).

Local revenue is a critical determinant of fiscal independence, derived from taxes, levies, and profits from regionally owned enterprises. However, studies consistently show that local revenues constitute only a minor portion of regional budgets in Indonesia, particularly in provinces like those in Sulawesi (Directorate General of Fiscal Balance, 2023). For example, such revenues accounted for only 17.51% of West Sulawesi's expenditures between 2013 and 2023, underscoring the region's limited revenue-generating capacity (Andonova & Trenovski, 2023; Kuncoro, 2004). Unconditional grants, including general allocation funds and revenue-sharing funds, play a dominant role in funding regional expenditures. These grants aim to address fiscal disparities and promote equitable development but often result in fiscal dependency. Firdayanti (2021) and Irawan and Tacconi (2016) highlight the efficiency concerns surrounding these transfers, as local governments frequently prioritize operational expenditures over productive investments.

Demographic factors, particularly population size, also influence regional spending. Larger populations necessitate greater public services and infrastructure investments, increasing budgetary demands. Melo (2002) and Sudarsono (2017) emphasize that while population growth can stimulate economic activity, it also strains local budgets, particularly in regions with low fiscal capacity. Population disparities exacerbate fiscal challenges in Sulawesi, with densely populated provinces like South Sulawesi shouldering greater expenditure burdens than sparsely populated regions like Gorontalo (Directorate General of Fiscal Balance, 2023).

The Fiscal Capacity Index (IKF) provides a quantitative measure of a region's financial independence. Provinces in Sulawesi exhibit significant disparities in fiscal capacity, reflecting underlying economic and administrative challenges. With an IKF of 0.545, South Sulawesi demonstrates moderate fiscal independence, driven by its diversified economic base and higher local revenue contributions. In contrast, Gorontalo, with an IKF of 0.209, highlights severe dependency on central transfers due to its limited economic diversification (Directorate General of Fiscal Balance, 2023). These disparities underscore the limitations of a one-size-fits-all approach to fiscal policy. Tailored strategies are necessary to address the unique challenges of each province, fostering revenue generation and reducing dependency on central transfers. However, as Desdiani et al. (2022) suggest, current policies often fail to account for regional variations, limiting their effectiveness.

The flypaper effect has significant implications for resource allocation, often leading to inefficiencies in public spending. Litschig and Morrison (2013) and Mahdawi et al. (2021) highlight that intergovernmental transfers are frequently used for consumption-oriented expenditures rather than developmental investments. This pattern is evident in Sulawesi, where local governments prioritize operational costs over infrastructure projects that could enhance economic resilience (Directorate General of Fiscal Balance, 2023). Furthermore, excessive reliance on central transfers reduces incentives for fiscal responsibility. As Bahl (2020) and Canare and Francisco (2019) note, local governments with high dependency on unconditional grants often lack the motivation to optimize local revenues or explore alternative revenue sources. In Sulawesi, this dynamic perpetuates fiscal dependency, hindering long-term economic development.

Policy interventions to reduce the flypaper effect focus on enhancing local governments' capacity to generate local revenues and fostering fiscal responsibility in fund allocation. Studies suggest that policy changes are necessary to address the root causes of fiscal dependency. One recommendation is to incentivize local governments to enhance local revenues by promoting economic activities such as supporting micro, small, and medium enterprises (MSMEs). Such economic initiatives could improve local tax bases, leading to increased revenue generation (Siregar & Badrudin, 2017). Another proposed approach is to prioritize the allocation of Balance Fund for capital expenditures over routine operational costs. Encouraging local governments to invest in infrastructure and revenue-generating projects could gradually reduce dependency on central funds, creating a foundation for long-term fiscal independence (Digdowiseiso & Djumadin, 2020). Policies that incentivize the productive use of central funds could also mitigate the flypaper effect by aligning local spending with developmental goals, promoting efficient resource allocation, and reducing fiscal de-

http://dx.doi.org/10.21511/pmf.14(1).2025.05

pendency in the long term. Finally, regional fiscal policies should account for the diverse economic conditions across Sulawesi's provinces. Provinces with higher fiscal capacity, such as South Sulawesi, could serve as examples of effective local revenue generation strategies, while regions with lower fiscal capacities, like Gorontalo, may benefit from targeted capacity-building programs focused on strengthening local economic activities and revenue collection efforts (Andonova & Trenovski, 2023; Hidayat et al., 2024). Tailored interventions that address specific regional challenges are crucial to achieving balanced regional fiscal autonomy and ensuring equitable development across Indonesia.

The literature on the flypaper effect in developing economies, particularly in the Indonesian context, underscores local governments' challenges in achieving fiscal independence due to dependency on central transfers. In Sulawesi, the impact of this dependency is visible in budgeting patterns, where provinces prioritize central funds over efforts to expand local revenues. This dependency not only limits fiscal autonomy but also results in inefficiencies that hinder long-term economic development. Achieving fiscal independence will require comprehensive policies to strengthen local revenue generation, optimize resource allocation, and reduce reliance on central government funds. The successful implementation of these policies could help Sulawesi's provinces achieve sustainable fiscal autonomy, contributing to Indonesia's broader decentralization goals.

This paper aims to analyze the influence of local revenues, unconditional grants, and total population on regional expenditure in Sulawesi Island, Indonesia

Based on the previous explanation the hypotheses of this study include:

H1: Local revenue positively influences regional expenditure.

H2: Unconditional grants positively influence regional expenditure.

H3: Total population positively influences regional expenditure.

2. METHODOLOGY

This study focuses on analyzing the impact of local revenues, unconditional grants, and population on regional expenditure in the six provinces on Sulawesi Island from 2013 to 2023. This analysis will provide insights into how financial and demographic factors influence regional budget allocations within these provinces and whether provincial spending reacts more to external grants than to internally generated revenue.

This study uses panel data to capture variations across both time (2013–2023) and regions (six provinces on Sulawesi Island). Panel data combine time series data across years with cross-sectional data across different provinces, allowing the analysis to identify both temporal trends and regional differences in expenditure patterns. The data for this study are quantitative and secondary, covering:

1. Time series data: Collected annually from 2013 to 2023; and
2. Cross-sectional data: Collected from six provinces on Sulawesi Island (North Sulawesi, West Sulawesi, South Sulawesi, Central Sulawesi, Southeast Sulawesi, and Gorontalo).

Data sources include:

1. The Directorate General of Fiscal Balance (DJPK) of the Ministry of Finance provided detailed data on regional financial allocations, particularly general allocation funds, revenue-sharing funds, and local revenues;
2. The Central Bureau of Statistics (BPS) provided population data for each province;
3. Provincial Annual Financial Reports contained details on revenue, grants, and regional expenditures; and
4. Academic literature and prior research offered context and additional insights relevant to the study's topic.

The panel data regression analysis is employed to examine the impact of local revenue, unconditional grants, and population on regional expenditure. Panel data analysis combines cross-sectional and time series approaches, enabling a robust analysis of how the independent variables affect regional expenditure across both time and geographic boundaries. The use of panel data regression facilitates the examination of both temporal and cross-sectional variations, while the identification of a flypaper effect will provide insights into spending behaviors driven by different funding sources. This methodological framework provides a robust basis for investigating the financial influence on regional expenditure within the selected provinces on Sulawesi Island.

3. RESULTS

The hypothesis testing employed in this study was executed using pooled data statistical testing, leveraging STATA version 12 as analytical software. Among the panel data models available – namely, the Pooled Least Squares (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) – the most appropriate model was selected through a sequence of tests: the Chow test, Lagrange Multiplier (LM) test, and Hausman test. This comprehensive approach ensures that the selected model aligns closely with the data structure, thereby strengthening the robustness and reliability of the analysis.

The Chow test facilitates model selection between the Common Effect Model (CEM) and the Fixed Effect Model (FEM). Table 1 illustrates the test outcomes, where the cross-section *F* statistical value is 5.05 with a significance probability of 0.0007, well below the threshold of 0.05. This statistical significance implies that the Fixed Effect Model (FEM) is the superior model choice according to the Chow Test criteria, underscoring its fit for capturing the dataset's unique cross-sectional characteristics.

Table 1. Chow test

Effect Test	Statistic	Prob. > F
Cross-section F	5.05	0.0007

To differentiate between the Fixed Effect Model (FEM) and the Random Effect Model (REM), the Hausman test was applied. With a probability value of 0.0006, as shown in Table 2, this result affirms statistical significance at a level below 0.05, thereby substantiating the selection of the Fixed Effect Model (Ahn & Moon, 2014). This outcome further reinforces the preference for FEM by aligning with both the Chow test and Hausman test criteria, ensuring that the model is adept at accounting for individual heterogeneity within the panel dataset.

Table 2. Hausman test

Test Summary	Chi-Sq. Stat	Prob. > Chi-squared
Random cross-section	16.19	0.0010

Following the selection of the Fixed Effect Model (FEM), hypothesis validation proceeded with the

Table 3. Results estimation

Variables	Coefficient	Std. error	*t*-statistic	Prob.
Local Revenue	0.3656373	0.0793557	4.61	0.000
Unconditional Grant	0.5049665	0.085366	5.92	0.000
Total Population	1.206621	0.3665199	3.35	0.001
Constant	–13.19734	4.282513	–3.08	0.003
Province				
West Sulawesi	–12.4636209	–		
South Sulawesi	–14.541968			
Central Sulawesi	–13.412195			
Southeast Sulawesi	–13.2441146			
North Sulawesi	–13.1478393			
Gorontalo	–12.37432			

R-squared = 0.9787
Adjusted *R*-squared = 0.9757
F-Statistic = 327.16
Prob. > *F* = 0.0000
Significance at 5%, *N* = 66

http://dx.doi.org/10.21511/pmf.14(1).2025.05

F test (simultaneous test), the *t* test (partial test), and the coefficient of determination, enabling both an aggregate and isolated assessment of variable impacts within the model structure. The results demonstrate the FEM's capability to reflect relationships within the dataset accurately and provide a foundation for further statistical inference and interpretation.

This study investigates the determinants of regional expenditure in the provinces of Sulawesi, Indonesia, specifically examining the impact of local revenues, unconditional grants, and total population on public spending. The results presented in Table 3 indicate that local revenues, unconditional grants, and total population exert significant yet varied influences on local government expenditure. The analysis highlights the flypaper effect, a phenomenon where local governments depend more on external fiscal transfers from the central government than on locally generated revenues, particularly evident across the Sulawesi provinces.

The estimated regression equation for the model is:

$$LnBD_{it} = -13.197 + 0.366 \cdot LnPAD_{it} + 0.505 \cdot LnUG_{it} + 1.207 \cdot LnJP_{it}, \quad (1)$$

where: *LnBD* represents the logarithm of regional expenditure (dependent variable); *LnPAD* is the logarithm of local revenues; *LnUG* is the logarithm of unconditional grant; and *LnJP* is the logarithm of total population.

Table 3 shows that the constant term is negative (–13.19734), which means that if all independent variables were equal to zero, the regional expenditure would decrease. While this scenario is theoretically unlikely (since these variables cannot realistically be zero), the negative constant simply reflects the baseline expenditure level in the absence of the independent variables. The *p*-value for the constant is 0.03, which is smaller than the significance level of 0.05, meaning the constant is statistically significant in the regression model.

The local revenue coefficient is 0.3656373, meaning that a 1% increase in local revenues will result in a 0.366% increase in regional expenditure. The *p*-value is 0.000, which is much smaller than the significance level of 0.05, indicating that local revenues have a statistically significant impact on regional expenditure. Therefore, a higher local revenue leads to an increase in regional spending.

The unconditional grant coefficient is 0.5049665. This suggests that a 1% increase in unconditional grants will lead to a 0.505% increase in regional expenditures. The *p*-value is 0.000, which is also smaller than 0.05, indicating that unconditional grants have a significant positive impact on regional expenditures. This result is consistent with the flypaper effect, where government transfers "stick" to the local governments and directly influence their expenditures.

The total population coefficient is 1.206621. This indicates that a 1% increase in population will increase regional expenditure by 1.207%. The *p*-value is 0.001, which is smaller than 0.05, indicating that population size has a statistically significant effect on regional expenditure. Larger populations require more public services, leading to higher expenditures.

Next, the *R*-squared value of 0.97 indicates that 97% of the variation in regional expenditure can be explained by the independent variables. This shows an extraordinary explanatory power, suggesting that the model fits the data well. The remaining 3% of the variation in regional expenditure is attributed to factors not included in the model, implying that other variables could influence regional expenditure not considered in this analysis.

The probability value for the *F*-statistic is 0.0000, which is significantly smaller than the 0.05 significance level. This indicates that the overall regression model is statistically significant, meaning that at least one of the independent variables has a meaningful impact on regional expenditure. Since the Prob. > *F* is less than 0.05, all independent variables jointly affect regional expenditure for the period 2013–2023.

As a result, local revenues, unconditional grants, and total population all have a statistically significant impact on regional expenditure. The positive coefficients indicate that increases in local revenues, unconditional grants, and population lead to higher regional expenditures. The model explains 97% of the variation in regional expenditure, which suggests that these variables are key drivers of regional spending. The significance levels of all variables (with p-values less than 0.05) confirm that each of the factors plays a meaningful role in determining regional expenditure. Finally, the F-statistic and Prob > F values support the conclusion that the regression model as a whole is statistically significant, and the independent variables collectively influence regional expenditure.

The data for 2013–2023 show that regional expenditures in Sulawesi are significantly influenced by local revenues, central government transfers, and population size, with central government transfers being the most influential variable.

All three hypotheses are supported, indicating that local revenues, unconditional grants, and total population significantly and positively influence regional expenditure in Sulawesi. Among these, unconditional grants have the strongest impact, reinforcing the flypaper effect, where local governments rely more on central government transfers than on their own revenue sources.

4. DISCUSSION

The findings affirm the significant role of intergovernmental transfers, particularly unconditional grants (general allocation fund and revenue-sharing funds), in shaping regional expenditure patterns in Sulawesi. This aligns with Siregar and Badrudin (2017), who established that general allocation funds and revenue-sharing funds have a disproportionately higher influence on local government spending compared to local revenues. The observed flypaper effect, where external transfers exert greater fiscal influence than local revenues, corroborates findings from Duan and Zhan (2011) in China and Andonova and Trenovski (2023) in the Western Balkans, emphasizing the global prevalence of this phenomenon in developing economies. Despite this consistency, Sulawesi's fiscal context presents distinct regional dynamics.

The study reveals stark disparities in fiscal capacity. South Sulawesi exhibits relative fiscal independence, as evidenced by its higher local revenue contributions, while provinces like Gorontalo and West Sulawesi remain heavily reliant on central transfers (Directorate General of Fiscal Balance, 2023). Such disparities are less pronounced in regions like Java and Sumatra, where diversified economies mitigate reliance on central funds (Inayati & Setiawan, 2018). These differences underscore the need for tailored policy interventions considering regional economic structures and administrative capabilities.

The influence of demographic factors, particularly population size, further differentiates Sulawesi's fiscal landscape. This study confirms that population significantly affects regional expenditure, with larger populations necessitating higher spending on public services and infrastructure. This finding aligns with Melo (2002) and Sudarsono (2017), who highlight the dual role of population as both a developmental asset and a fiscal burden. However, while prior studies largely focus on population as a driver of revenue generation, this analysis emphasizes its role in exacerbating fiscal dependency in regions with low local revenue and high transfer reliance.

Comparing Sulawesi to other developing regions, this study highlights the unique interplay between fiscal transfers, demographic factors, and local revenue generation. For instance, analysis in the Western Balkans by Andonova and Trenovski (2023) identifies similar fiscal dependency patterns. However, these regions have achieved gradual improvements in local revenue through targeted economic diversification strategies. Sulawesi, by contrast, remains constrained by its agrarian economic base and limited industrialization, which hinders revenue growth and perpetuates reliance on central funds.

The study underscores the importance of reallocating intergovernmental transfers toward developmental expenditures. Currently, a significant portion of general allocation funds and revenue-sharing funds is used for operational costs, limiting their impact on long-term economic growth. Desdiani et al. (2022) and Mahdawi et al. (2021) emphasize that prioritizing capital investments, such as infrastructure, education, and healthcare, can enhance economic resilience and reduce fiscal dependency. To ensure effective fund utilization,

http://dx.doi.org/10.21511/pmf.14(1).2025.05

conditional grants could be introduced, tying allocations to specific developmental projects. This approach has been successfully implemented in other developing regions and could incentivize Sulawesi's provinces to align spending with strategic economic objectives. Furthermore, incorporating performance-based criteria into grant distribution could encourage local governments to optimize resource allocation and enhance accountability. Tailored policy interventions are necessary to address the fiscal disparities among Sulawesi's provinces. For example, South Sulawesi, with its relatively higher fiscal capacity, could serve as a model for implementing advanced revenue-generation strategies and efficient fund utilization. Conversely, Gorontalo and West Sulawesi require targeted support to overcome structural limitations. As Bahl (2020) and Inayati and Setiawan (2018) highlighted, such interventions could include investments in human capital, infrastructure, and institutional capacity to foster local economic growth and improve fiscal self-sufficiency. Additionally, creating regional development funds that prioritize less-developed provinces could help bridge fiscal gaps. These funds could focus on infrastructure projects, capacity-building initiatives, and economic diversification efforts tailored to the unique needs of each province.

Population growth in Sulawesi presents both challenges and opportunities for fiscal management. Larger populations increase demand for public services but also provide a potential labor force that can drive economic development if adequately harnessed. Policies that aim to improve education, skills development, and employment opportunities could enhance labor productivity and contribute to local revenue growth. As Sudarsono (2017) suggests, investing in human capital is critical for transforming population growth into an economic asset rather than a fiscal burden. Improving fiscal accountability is essential for optimizing the use of central transfers and fostering public trust. As noted by Litschig and Morrison (2013), greater transparency in fund allocation and expenditure decisions can enhance the effectiveness of fiscal policies. Implementing robust monitoring and evaluation frameworks could ensure that funds are used efficiently and aligned with developmental priorities. Additionally, engaging local communities in budget planning could enhance accountability and promote citizen participation in governance.

The findings of this study have significant practical implications for policymakers, local governments, and development practitioners, particularly in Sulawesi. A key challenge identified is the high level of fiscal dependency among local governments, necessitating immediate efforts to enhance revenue mobilization and optimize fund allocation. One of the most viable solutions is the adoption of digital tax collection systems to improve efficiency and transparency. Additionally, exploring innovative revenue streams, such as public-private partnerships (PPPs) for infrastructure development, presents an opportunity for sustainable financial management. Notably, South Sulawesi, with its high fiscal capacity, could serve as a pilot province for implementing and evaluating these approaches before broader adoption.

Another major consideration is the budgetary pressure arising from population growth. To mitigate this challenge, local governments need to focus on cost-effective service delivery models. For instance, telemedicine in healthcare and online learning in education could expand service coverage without incurring excessive costs. Moreover, strategic investments infrastructure (such as roads, ports, and industrial zones) couldd stimulate economic growth and, in turn, increase local revenue streams. Such measures could reduce expenditure burdens while fostering regional development.

The study also underscores the necessity of collaboration between central and local governments to address fiscal constraints effectively. Establishing intergovernmental committees for fiscal policy coordination and knowledge sharing could enhance revenue-generation strategies, improve fund utilization, and build local capacity. Such platforms would facilitate the exchange of best practices and the development of region-specific fiscal solutions.

Furthermore, engaging the private sector in regional development emerges as a critical strategy to complement public funding and reduce fiscal pressures. Key initiatives include creating investment-friendly policies, streamlining regulatory frameworks, and providing incentives for private investment in priority sectors. A case in point is the tourism sector in Southeast Sulawesi, where targeted private investments could generate substantial local revenue contributions while boosting economic activity.

Lastly, the study highlights the importance of access to reliable and timely data for effective fiscal management. Local governments should prioritize investments in data collection and analysis tools to support evidence-based decision-making. Practical steps include training local officials in data analytics and establishing centralized databases to track fiscal performance and demographic trends. These measures would enable more informed policy decisions and foster sustainable financial planning across Sulawesi.

The highlight necessity of reducing fiscal dependency, improving resource allocation, strengthening intergovernmental cooperation, encouraging private sector participation, and reinforcing data-driven governance to enhance the fiscal sustainability of local governments in Sulawesi. These findings offer valuable guidance for policymakers and stakeholders as they work towards addressing fiscal challenges and fostering sustainable economic development in the region.

CONCLUSION

This study investigated the impact of local revenues, unconditional grants, and total population on regional expenditure in Sulawesi's provincial governments, revealing a pronounced dependency on central government transfers – a phenomenon known as the flypaper effect. The findings indicate that unconditional grants substantially influence regional spending more than locally generated revenues, underscoring the limited fiscal autonomy of Sulawesi's provinces. This dependence on central transfers suggests that local governments may prioritize short-term operational expenses over long-term, revenue-generating investments, thereby limiting sustainable fiscal growth and development. The results highlight significant regional variations in fiscal independence, with some provinces, such as Southeast and North Sulawesi, displaying high dependency on central funds, while others, like South Sulawesi, show relatively greater fiscal autonomy. This disparity underscores the need for tailored policy interventions that consider each province's unique fiscal challenges. Policy recommendations to mitigate the flypaper effect include incentivizing local revenue generation through local economic development initiatives and restructuring Balance Fund allocations to emphasize capital expenditures over routine spending.

Reducing the reliance on central transfers and promoting fiscal self-reliance could strengthen the financial sustainability of Sulawesi's local governments. Implementing policies that encourage local revenue generation and prudent financial management would enhance regional economic resilience and autonomy, fostering long-term growth and improved governance across Indonesia's provinces.

AUTHOR CONTRIBUTIONS

Conceptualization: Retno Fitrianti, Mirzalina Zaenal, Sanusi Fattah, Nurul Hidayah.
Data curation: Retno Fitrianti, Mirzalina Zaenal.
Formal analysis: Sanusi Fattah, Nurul Hidayah.
Funding acquisition: Retno Fitrianti.
Investigation: Mirzalina Zaenal, Sanusi Fattah.
Methodology: Retno Fitrianti, Mirzalina Zaenal, Sanusi Fattah, Nurul Hidayah.
Project administration: Retno Fitrianti.
Resources: Nurul Hidayah.
Software: Sanusi Fattah.

http://dx.doi.org/10.21511/pmf.14(1).2025.05

Supervision: Retno Fitrianti, Mirzalina Zaenal.
Validation: Mirzalina Zaenal, Sanusi Fattah, Nurul Hidayah.
Visualization: Retno Fitrianti, Nurul Hidayah.
Writing – original draft: Retno Fitrianti, Mirzalina Zaenal, Sanusi Fattah, Nurul Hidayah.
Writing – review & editing: Retno Fitrianti, Mirzalina Zaenal, Sanusi Fattah, Nurul Hidayah.

REFERENCES

1. Ahn, S. C., & Moon, H.R. (2014). Large-N and Large-T properties of panel data estimators and the Hausman test. In R. Sickles & W. Horrace (Eds.), *Festschrift in Honor of Peter Schmidt*. New York, NY: Springer. https://doi.org/10.1007/978-1-4899-8008-3_7
2. Andonova, V. G., & Trenovski, B. (2023). Determinants of local revenue mobilisation: Do governmental transfers and public investment matter? A case of the Western Balkan countries. *Studia Regionalne i Lokalne, 3*(93), 7-19. https://doi.org/10.7366/1509499539301
3. Badrudin, R., & Kuncorojati, I. (2017). The effect of district own-source revenue and balance funds on public welfare by capital expenditure and economic growth as an intervening variable in special district of Yogyakarta. *Jurnal Manajemen Dan Kewirausahaan, 19*(1), 54-59. https://doi.org/10.9744/jmk.19.1.54-59
4. Bahl, R. W. (2020). The architecture of intergovernmental transfers: Principles and practice in low- and middle-income countries. In S. Yilmaz & F. Zahir (Eds.), *Intergovernmental Transfers in Federations* (pp. 7-29). Edward Elgar Publishing Ltd. https://doi.org/10.4337/9781789900859.00009
5. Canare, T., & Francisco, J. P. (2019). Decentralization, fiscal independence, and poverty in the Philippines. *Public Budgeting & Finance, 39*(4), 94-117. https://doi.org/10.1111/pbaf.12241
6. Desdiani, N. A., Sabrina, S., Husna, M., Budiman, A. C., Afifi, F. A. R., & Halimatussadiah, A. (2022). Local budget resilience in times of COVID-19 crisis: Evidence from Indonesia. *Economies, 10*(5), Article 108. https://doi.org/10.3390/economies10050108
7. Digdowiseiso, K., & Djumadin, Z. (2020). Fiscal decentralization in district of Karawang, Indonesia. *International Journal of Scientific & Technology Research, 9*(2), 1411-1413. Retrieved from https://www.ijstr.org/final-print/feb2020/Fiscal-Decentralization-In-District-Of-Karawang-Indonesia.pdf
8. Directorate General of Fiscal Balance. (2023). *APBD Data Series*. Directorate of Evaluation of Regional Financial Management and Information. Jakarta.
9. Duan, H., & Zhan, J. V. (2011). Fiscal transfer and local public expenditure in China: A case study of Shanxi Province. *China Review, 11*(1), 57-88. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1450290
10. Firdayanti, E. (2021). The Influence of Local Revenue, Unconditional Grants, Investment on Regional Expenditure and Economic Growth (Case Study of Regency / City in East Java Province 2012–2018). *Jurnal Ilmiah Mahasiswa FEB, 9*(2).
11. Hidayat, B. A., Supartoyo, Y. H., Setiawan, S., Ragimun, R., & Salim, Z. (2024). Government infrastructure investment stimulation through booming natural resources: Evidence from a lower-middle-income country. *PLoS ONE, 19*(5), Article e0301710. https://doi.org/10.1371/journal.pone.0301710
12. Inayati, N. I., & Setiawan, D. (2018). Fenomena flypaper effect pada belanja daerah kabupaten/kota di Indonesia [The flypaper effect phenomenon in district/city regional expenditure in Indonesia]. *EKUITAS (Journal of Economics and Finance), 1*(2), 220-239. (In Indonesian). https://doi.org/10.24034/j25485024.y2017.v1.i2.2062
13. Irawan, S., & Tacconi, L. (2016). *Intergovernmental Fiscal Transfers, Forest Conservation and Climate Change*. Edward Elgar Publishing. Retrieved from https://www.e-elgar.com/shop/gbp/intergovernmental-fiscal-transfers-forest-conservation-and-climate-change-9781784716592.html
14. Kuncoro, M. (2004). Ekonomi pembangunan teori, masalah, dan kebijakan [Development economics theories, problems, and policies]. *Journal of Chemical Information, 53*(9). (In Indonesian).
15. Litschig, S., & Morrison, K. M. (2013). The impact of intergovernmental transfers on education outcomes and poverty reduction. *American Economic Journal: Applied Economics, 5*(4), 206-240. https://doi.org/10.1257/app.5.4.206
16. Mahdawi, Notonegoro, K., Rustam, R., Saputra, J., Ilham, R. N., Hutauruk, R. P. S., Damanik, S. W. H., & Siregar, A. (2021). The effect of local own-source revenue and capital expenditure on economic growth: An empirical evidence from Aceh province, Indonesia. *Proceedings of the International Conference on Industrial Engineering and Operations Management* (pp. 4887-4895). Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-85114219842&partnerID=40&md5=825bf370580a42a61f8ca2384db5ebb4
17. Melo, L. (2002). The flypaper effect under different institutional contexts: The Colombian case. *Public Choice, 111*, 317-345. https://doi.org/10.1023/A:1014964318685
18. Nurosidah, S., Khusaini, M., & Prasetyia, F. (2023). Intergovernmental transfers reduction policy and flypaper effect:

Case of Covid-19 pandemic in Indonesia. *Jurnal Ekonomi Dan Studi Pembangunan, 15*(1). https://doi.org/10.17977/um002v15i12023p001

19. Oates, W. E. (1999). An essay on fiscal federalism. *Journal of Economic Literature, 37*(3), 1120-1149. Retrieved from https://www.aeaweb.org/articles?id=10.1257/jel.37.3.1120
20. Sa/Ğbafi, S., & Saruçş, N. T. (2004). Intergovernmental transfers and the flypaper effect in Turkey. *Turkish Studies, 5*(2), 79-92. https://doi.org/10.1080/1468384042000228602
21. Siregar, B., & Badrudin, R. (2017). Degree of fiscal decentralization and flypaper effect: Evidence from Indonesia. *Advanced Science Letters, 23*(9), 9013-9019. https://doi.org/10.1166/asl.2017.10014
22. Sudarsono, H. (2017). Analisis pengaruh kinerja keuangan terhadap profitabilitas Bank Syariah di Indonesia [Analysis of the effect of financial performance on the profitability of Islamic Banks in Indonesia]. *Economica: Jurnal Ekonomi Islam, 8*(2). (In Indonesian). https://doi.org/10.21580/economica.2017.8.2.1702
23. Wati, L. N., Ispriyahadi, H., & Zakaria, D. H. (2022). The flypaper effect phenomenon of intergovernmental transfers during the Covid-19: Evidence from Indonesia. *Zbornik Radova Ekonomskog Fakulteta u Rijeci, 40*(2), 353-373. https://doi.org/10.18045/zbefri.2022.2.353

http://dx.doi.org/10.21511/pmf.14(1).2025.05