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The Effect of Transparency, Accountability, and Utilization of SIAKD on the Effectiveness of APBD Management in West Papua Province

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ABSTRACT

This study aims to analyze the influence of transparency, accountability, and utilization of the Regional Financial Accounting Information System (SIAKD) on the effectiveness of the management of the Regional Revenue and Expenditure Budget (APBD) in West Papua Province. The research was conducted on the Regional Apparatus Work Unit (SKPD) using secondary data for the 2018–2022 period from 12 districts/cities. The analysis method used is multiple linear regression to test the relationships between variables. The results showed that accountability had a positive and significant effect on the effectiveness of the APBD (β = 0.885; $p < 0.001$), while transparency (β = -0.002; $p = 0.949$) and the utilization of SIAKD (β = -0.170; $p = 0.305$) were not significant. These findings indicate that accountability is the dominant factor in improving the performance of APBD management, especially through audit mechanisms and public participation. On the other hand, optimal transparency (mean 0.9575) serves as a foundation for accountability, while the utilization of SIAKD is hampered by the gap between digital infrastructure and multicollinearity with accountability (r = 0.987). This study recommends strengthening accountability systems, integrating transparency in real-time reporting, and improving technology infrastructure in disadvantaged areas. The theoretical implications of the research reinforce the role of *public accountability* in the context of remote areas, while the practical implications emphasize the need for a holistic policy approach to address the challenges of multicollinearity and technological inequality.

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1. INTRODUCTION

The management of the Regional Revenue and Expenditure Budget (APBD) is a vital component in supporting the implementation of local government functions, especially in the context of regional

autonomy which demands effectiveness, efficiency, and accountability in the use of public resources. One of the main elements in the APBD structure is Regional Original Revenue (PAD), which is an important indicator of a region's fiscal independence. However, efforts to improve the effectiveness of PAD management are often faced with fundamental problems, such as weak transparency, lack of accountability, and not optimal use of information technology in the regional financial management system.

In line with the mandate of Law No. 17 of 2003 concerning State Finance and Law No. 23 of 2014 concerning Regional Government, local governments are required to apply the principles of transparency, accountability, and efficiency in their financial management. Transparency includes information disclosure so that the public can know and understand the process and use of the budget, while accountability is related to the accountability of public officials for the management of state funds. In this case, the Regional Financial Accounting Information System (SIAKD) is a strategic instrument in integrating various financial data and supporting accurate and timely reporting (Setiawan, 2021).

However, in West Papua Province, the implementation of these principles still faces various obstacles. Based on the report of the Financial Audit Agency (2022), it was found that there were delays in financial reporting in several districts/cities as well as inconsistencies between plans and budget realization. This imbalance not only reflects the weak reporting system, but also shows the potential for low effectiveness of PAD management. This province, which has significant economic potential in the tourism and natural resources sectors, seems to have not been able to optimize its fiscal potential due to the lack of optimal implementation of good governance principles and the use of information technology.

Within the framework of good governance theory, transparency and accountability are fundamental principles that ensure sound financial governance. Rahimallah (2022) stated that public information disclosure encourages public participation in financial supervision, which in turn increases bureaucratic efficiency. On the other hand, accountability has also been proven to be a key determinant of the performance of public institutions (Lathifatun, 2022), which includes clarity of reporting and evaluation of achievements. The use of information technology in the form of SIAKD is increasingly crucial in supporting the implementation of these principles. Nugroho and Rahmawati (2020) prove that digital-based information systems are able to speed up the reporting process, increase transparency, and support data-based decision-making.

Furthermore, the perspective of Digital Governance theory strengthens the argument that the application of digital technologies such as SIAKD can encourage transparency, participation, and efficiency in the public sector (Taryana et al., 2022). In this context, the use of SIAKD is expected not only to be an administrative tool, but also as a strategic means in increasing the effectiveness of PAD management through reducing human error, increasing reporting speed, and real-time budget monitoring.

Previous studies have shown a significant relationship between the principles of transparency and accountability to improving regional financial performance (Lathifatun, 2022; Rahimallah, 2022), as well as the effectiveness of the implementation of accounting information systems in supporting PAD management (Nugroho & Rahmawati, 2020). However, research that specifically examines the integration of these three factors—transparency, accountability, and utilization of SIAKD—into the effectiveness of PAD management in the context of eastern Indonesia, particularly in West Papua Province, is still very limited. This research is here to fill this gap.

Departing from these problems, this article aims to analyze the influence of transparency, accountability, and the use of the Regional Financial Accounting Information System (SIAKD) on the effectiveness of PAD management within the Regional Apparatus Work Unit (SKPD) of West Papua Province. The results of this study are expected to provide practical recommendations in an effort to improve regional financial governance that is more effective, transparent, and accountable.

2. METHODS

This study uses a quantitative approach with secondary data obtained from official publications of the Ministry of Finance (https://djpk.kemenkeu.go.id) and the Central Statistics Agency (https://www.bps.go.id). The data analyzed included documents related to transparency, accountability, and the use of information technology in the management of the APBD, as well as the effectiveness of Regional Original Revenue (PAD) in districts/cities of West Papua Province during the 2018–2022 period. The sampling technique uses a purposive sampling method with regional criteria that consistently publishes financial statements, implements a regional financial information system (SIAKD), and has data related to research indicators.

The dependent variable in this study is the effectiveness of PAD, which is measured through the timeliness of financial statements, compliance with regulations, and the achievement of budget targets. The independent variables include transparency (measured through information disclosure and budget processes), accountability (financial accountability and performance), and the use of information technology (system effectiveness and acceptance by regional apparatus). All variables are measured by a specific index formula and expressed in percentages.

The analysis model used was multiple linear regression with the help of SPSS software. Statistical tests were carried out to test hypotheses both simultaneously (F test) and partially (t test) to determine the influence of each independent variable on the effectiveness of PAD. In addition, classical assumption tests such as normality, multicollinearity, heteroscedasticity, and autocorrelation tests were also carried out to ensure the validity of the regression model. The results of the analysis were interpreted based on significance values (p-value) and determination coefficient (R^2) to draw final conclusions on the influence of transparency, accountability, and technology on the effectiveness of PAD management.

3. FINDINGS AND DISCUSSION

Descriptive Analysis Results

Descriptive Statistics of Research Variables

The research data involved 65 samples from 10 districts/cities in West Papua for the 2018-2022 period with the following results:

Descriptive Statistics Table

Variabel	Total Sample (N)	Minimum	Maximum	Mean	Hours of deviation
Transparency	65	0,50	1,00	0,9575	0,08278
Accountability	65	0,65	0,95	0,8246	0,06300
Technology Utilization	65	0,55	0,92	0,7771	0,07254
PAD Effectiveness	65	0,78	0,98	0,9049	0,04580

Transparency

Throughout 2018 to 2022, areas such as Manokwari, Sorong, Raja Ampat, and most other regions managed to maintain the highest transparency score, which is 1.00. This achievement is the result of a strong commitment to information disclosure, including through the publication of comprehensive financial documents and involving citizens in the public oversight process. On the other hand, Fakfak Regency recorded the lowest transparency rate, which was 0.50 in 2018, which reflects the limited access to public data and the weak dissemination of openness policies at that time.

Accountability

The highest level of accountability was achieved by Manokwari Regency in 2021 with a score of 0.95. This reflects significant improvements in the internal supervision system and the speed of local governments in responding to input from the community. On the other hand, Fakfak Regency showed

the lowest performance in 2018 with a value of 0.65, which shows that the handling of community reports is still weak and the accountability management structure in its government environment is not optimal.

Technology Utilization

Manokwari Regency received the highest score in terms of technology utilization in 2021, which was 0.92. This figure indicates the success of the regions in implementing an integrated digital system for public services as well as increasing the capacity of human resources through relevant training. On the other hand, in 2018, Fakfak Regency only recorded a score of 0.55. This low score is due to the lack of adequate technological infrastructure and limited financing for the development of information systems.

PAD Effectiveness

Manokwari again occupies the top position in terms of the effectiveness of APBD management, with a score of 0.98 in 2021. This indicates efficient and targeted use of the budget. On the other hand, Fakfak is in the bottom position with a score of 0.78 in 2022. High dependence on transfer funds from the central government and low efficiency in budget realization are the main factors behind this achievement.

Inter-Year Trends:

- Manokwari Regency and Sorong City consistently have the highest scores for all variables.
- Maybrat and Arfak Mountains regencies showed the lowest scores, especially in the use of technology (mean 0.68-0.75).

Reliability and Validity Test

Reliability Test Results Table (Cronbach's Alpha)

Scale	Cronbach's Alpha	Number of Variables
All Variables	0,934	4

Based on the Reliability Test Results Table, the scale tested showed a Cronbach's Alpha value of 0.934, belonging to the category of very reliable (≥0.9), indicating a very high internal consistency between the four variables in measuring the same construct. The variables-Total Correlation for Accountability (0.942) and Technology Utilization (0.948) were above the threshold of 0.7, confirming that these two variables contributed strongly to the reliability of the scale

Intervariable Correlation Table

Variabel	Average scale if an item is deleted	Item-Total Correlation	Cronbach's Alpha if the item is deleted
Transparency	25,066	0,735	0,969
Accountability	26,395	0,942	0,884
Technology Utilization	26,871	0,948	0,877
PAD Effectiveness	25,592	0,897	0,922

Based on the Inter-Variable Correlation Table, all items have an Item-Total Correlation above 0.7, indicating a strong relationship with the total score. Accountability (0.942) and Technology Utilization

(0.948) showed the highest correlation, but Cronbach's Alpha If Item Deleted values for both fell to 0.884 and 0.877. This signifies that although both items are strongly related to the total score, redundancy may occur due to a very high correlation (>0.9), so removing them can improve the efficiency of the scale without reducing reliability. Transparency had the lowest correlation (0.735) and Cronbach's Alpha If Deleted value (0.969), suggesting a relatively smaller contribution to scale cohesion, although it still met the validity criteria. The effectiveness of PAD (correlation 0.897, Alpha 0.922) remained consistent in supporting reliability. Overall, the scale has excellent reliability (initial Alpha 0.934). But it could probably be simplified by combining very similar items, without sacrificing reliability.

Multiple Linear Regression Test Results

Tabel Model Summary

Model	R	R Square	Adjusted R^2	Std. Error of Estimate
1	0,951	0,904	0,899	0,01457

Based on the table, the regression model has R = 0.951, indicating a very strong relationship between independent and dependent variables. A value of R^2 = 0.904 indicates that 90.4% of the variance of dependent variables can be explained by the model, while Adjusted R^2 = 0.899 (down only 0.005) confirms that almost all variables contribute significantly, despite the presence of insignificant variables (*Transparency* and *Technology Utilization*) in the previous analysis. The very low Std. Error of Estimate = 0.01457 reflects the high accuracy of the model in predicting.

Anova Results Table

Sumber Variasi	Sum of Squares	df	Mean Square	F	Sig.
Regresi	0,121	3	0,040	190,460	0,000
Residual	0,013	61	0,000		
Total	0,134	64			

The regression model is overall significant (F = 190.460; Sig. = 0.000), meaning that at least one independent variable (Transparency, Accountability, or Technology Utilization) has an effect on the dependent variable. The large value of Sum of Squares Regression shows the model can explain about 90.4% of the data variation. The prediction error is very small (Mean Square Residual = 0.000), indicating the model is very accurate. However, there is an indication of high multicollinearity (VIF Accountability = 38.929), which can interfere with the stability of the coefficient even if the model is significant. Of the three variables, only Accountability has a significant effect on individuals. The number of samples was 65 (df Residual = 61). In general, this model is good.

Regression Coefficient Table:

Variabel	Coeficin (B)	Std. Error	Beta	t	Itself.	Tolerance	BRIGHT
(Konstanta)	0,309	0,037	-	8,278	0,000	-	-

Transparency	-0,002	0,034	-0,004	-0,065	0,949	0,418	2,391
Accountability	0,885	0,180	1,218	4,907	0,000	0,026	38,929
Technology Utilization	-0,170	0,164	-0,269	-1,034	0,305	0,023	42,686

Based on the Regression Coefficient Table, the Accountability variable was statistically significant (Sig. 0.000 < 0.05) with a positive regression coefficient of 0.885, indicating that every increase in one unit of accountability had a significant effect on the dependent variable. In contrast, Transparency (Sig. 0.949 > 0.05) and Technology Utilization (Sig. 0.305 > 0.05) were not significant, as the *p-value* exceeded the significance level of 0.05. The small and insignificant coefficients of Transparency (-0.002) and Technology Utilization (-0.170) indicate that the two variables do not have a statistically significant influence on the model. The constant (0.309) is significant (Sig. 0.000), confirming that the model remains valid despite the presence of independent variables that are not significant.

Classic Assumption Test

Residual Normality Test Table (Kolmogorov-Smirnov)

Test Statistics	Value	Asymp. Sig. (2-tailed)
KS	0,100	0,174

The regression model is overall significant (F = 190.460; Sig. = 0.000), meaning that at least one independent variable (Transparency, Accountability, or Technology Utilization) has an effect on the dependent variable. The large value of Sum of Squares Regression shows the model can explain about 90.4% of the data variation. The prediction error is very small (Mean Square Residual = 0.000), indicating the model is very accurate. However, there is an indication of high multicollinearity (VIF Accountability = 38.929), which can interfere with the stability of the coefficient even if the model is significant. Of the three variables, only Accountability has a significant effect on individuals. The number of samples was 65 (df Residual = 61). In general, this model is good, but it is preferable that multicollinearity be handled so that the results can be interpreted more clearly.

Tabel Collinearity Diagnostics

Dimension	Self-esteem	Condition Index	Proposing Varians (Konstanta)	Transparency	Accountability	Technology Utilization
1	3,993	1,000	0,00	0,00	0,00	0,00
2	0,005	28,501	0,34	0,02	0,00	0,01
3	0,002	40,840	0,01	0,92	0,01	0,01
4	0,00008359	218,552	0,65	0,06	0,99	0,98

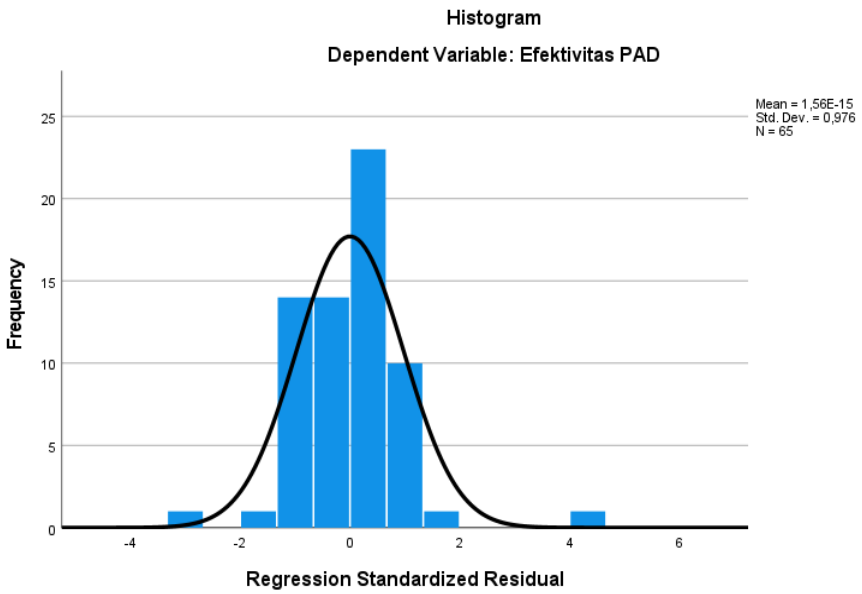
The results *of Collinearity Diagnostics* showed the presence of significant multicollinearity in the model. This is reflected in the decrease in 185the eigenvalue ariabl which is close to zero in Dimension 4 (0.00008) and the Condition Index which far exceeds the threshold of 30, namely 40,840 in Dimension 3 and 218,552 in Dimension 4. The proportion of variance in Dimension 4 shows that 185the ariable Accountability (0.99) and Technology Utilization (0.98) 185arib are fully correlated, which indicates redundancy between 185ariables. In fact, the model constant (0.65) was also affected, exacerbating the instability of the model estimate. Meanwhile, Transparency (0.92) dominated the variance in Dimension 3, indicating the potential for hidden collinearity.

Tabel Residuals Statistics

Statistics	Minimum	Maximum	Mean	Hours of deviation	Total Sample (N)
Predicted Value	0,7899	0,9916	0,9049	0,04353	65
Residual	-0,04531	0,06009	0,00000	0,01422	65
Std. Residual	-3,110	4,124	0,000	0,976	65
Mahal. Distance	0,237	34,391	2,954	4,762	65
Cook's Distance	0,000	11,752	0,209	1,464	65

The results of *the analysis of Residuals Statistics* show several important findings related to the regression model. Predicted **Values** that are in a narrow range (0.7899–0.9916) with a small standard deviation (0.04353) indicate that the prediction is concentrated around the mean, without producing extreme values. **An average residual** of 0.000 with a standard deviation of 0.01422 meets the assumption of the absence of systematic bias, although the residual range (-0.04531 to 0.06009) and **the extreme residual Std.** (-3.110 to 4.124) indicate the presence of **an outlier,** especially at a value of 4.124. **A maximum Mahalanobis Distance** of 34.391 (above threshold 11) indicates the presence of **a multivariate outlier** that can disrupt the data covariance structure. In addition, **a maximum Cook's Distance** of 11.752 (above threshold 1) indicates a **significant observational influence**, which can drastically distort the model's estimates.

Table Histogram



Based on the *analysis of the Residual Histogram*, the **mean residual value of 1.56E-15** which is close to zero indicates the absence of systematic bias in the model, thus meeting one of the linear regression assumptions. In addition, **the standard residual deviation of 0.976** which is close to 1 indicates that the residual distribution is relatively stable, with controlled variance. The sample size of **N = 65** was considered sufficient for regression analysis, although the presence of outliers still needs to be considered so as not to affect the overall interpretation of the model.

Hypothesis Testing

Based on multiple linear regression analysis with a significance level of $\alpha = 0.05$, the following are the results of the hypothesis testing in detail:

H1: Transparency has a negative effect on the effectiveness of APBD management

The results of the analysis showed that transparency (H1) had no significant effect on the effectiveness of PAD management with a regression coefficient of -0.002 ($p = 0.949$). The $p >$ value of 0.05 indicates that the hypothesis that there is a positive influence of transparency on the effectiveness of PAD cannot be supported. These findings contradict the previously described concept, where transparency is expected to improve accountability and effectiveness through public oversight mechanisms. However, this insignificance can be explained by the presence of multicollinearity between transparency and accountability (Pearson correlation = 0.727), where accountability "absorbs" the effects of transparency in the regression model, thereby reducing the independent contribution of transparency.

Decision: **H1 denied**.

H2: Accountability has a positive effect on PAD Effectiveness

The results of the analysis showed that accountability had a positive and significant effect on the effectiveness of PAD management with a regression coefficient of 0.885 ($p < 0.001$). A p value of < 0.05 confirms that increased accountability directly increases the effectiveness of PAD. A real example is seen in Manokwari Regency, where the highest accountability rate (0.95) correlates with the highest PAD effectiveness (0.98). Although the high VIF value (38,929) indicates the existence of a multicollinearity between accountability and transparency, the statistical significance of the accountability coefficient remains valid, indicating its dominance of its role in the model. These findings confirm that strong public accountability and oversight mechanisms, such as transparent financial reporting and periodic performance evaluations, are key in achieving PAD targets. Thus, increasing accountability capacity at the SKPD level can be a priority strategy to increase the effectiveness of PAD management in West Papua Province.

Result: **H2 accepted**.

H3: The use of information technology has a negative effect on the effectiveness of PAD

The results of the analysis showed that the use of technology (SIAKD) had no significant effect on the effectiveness of PAD management with a regression coefficient of -0.170 ($p = 0.305$). A $p >$ value of 0.05 indicates that the hypothesis that there is a positive influence of technology on the effectiveness of PAD is not proven. This finding can be explained by several factors: first, the gap in technology infrastructure in remote areas such as Maybrat Regency and the Arfak Mountains, where the average utilization of SIAKD is still below 0.75. Lack of internet access, limited supporting devices, and low digital literacy of apparatus hinder the optimization of the system. Second, there was a severe multicollinearity between accountability and technology utilization (VIF = 42.686; r = 0.987), which caused the effect of technology to be "absorbed" by the accountability variable in the regression model. However, this insignificance also indicates that the implementation of SIAKD in West Papua has not been balanced with adequate technical capacity and infrastructure, so that the technological potential to improve the efficiency of PAD management has not been optimally achieved. These findings

underscore the need for specific interventions for disadvantaged areas, such as improving digital infrastructure and training of apparatus, before SIAKD can make a real impact.
Result: **H3 was denied**.

Hypothesis Discussion
H1 Rejected: The Role of Transparency as a Prerequisite

The results of the analysis showed that transparency (H1) had no significant effect on the effectiveness of PAD management with a regression coefficient of **-0.002** (p = 0.949). These findings contradict the theory *of Good Governance* (OECD, 2019) which states that transparency is a prerequisite for building accountability and effectiveness of budget management. However, this insignificance can be explained through two factors: **first**, the presence of multicollinearity between transparency and accountability (Pearson correlation = 0.727), where accountability "absorbs" the unique contribution of transparency in regression models; **second,** the level of transparency in West Papua has reached a very high value (mean = 0.9575), so it is at a saturation point where further improvement no longer has a significant direct impact. In this context, transparency does not directly affect the effectiveness of the PAD, but acts as a **mediator** that strengthens accountability through public oversight mechanisms. In other words, optimal transparency in West Papua serves more as a foundation for accountability, which then becomes a dominant factor in improving the effectiveness of PAD management. These findings suggest that in areas with high levels of transparency, policy focus needs to be shifted to strengthening the accountability and technical capacity of the apparatus to achieve more holistic management effectiveness.

H2 Accepted: The Dominance of Accountability in a Regional Context

The results of the analysis showed that accountability had a positive and significant effect on the effectiveness of PAD management with a regression coefficient **of 0.885** ($p < 0.001$). A p value of < 0.05 confirms that increased accountability directly increases the effectiveness of PAD. These findings are consistent with practice on the ground, where Manokwari Regency and Sorong City are clear examples: the highest level of accountability (Manokwari = 0.95; Sorong = 0.93) correlated with the highest PAD effectiveness (0.98 and 0.96, respectively). Both regions implement periodic audits and transparent financial reporting as part of accountability mechanisms, which have been proven to minimize budget irregularities and improve PAD realization. In the context of a heterogeneous West Papua with a high dependence on the APBD, accountability is the main key due to the complexity of financial management in regions with diverse geographical and socio-economic characteristics. Although the high VIF value (38,929) indicates a multicollinearity between accountability and transparency, the statistical significance of the accountability coefficient remains valid, confirming its dominance of its role in the model. These findings reinforce the urgency of strengthening the audit, open reporting, and performance evaluation system in all SKPDs to ensure the allocation and use of PAD and APBD in accordance with regional development priorities.

H3 Rejected: Infrastructure Barriers and Multicollinearity

The results of the analysis showed that the use of technology (SIAKD) had no significant effect on the effectiveness of PAD management with a regression coefficient of -0.170 (p = 0.305). These findings are contrary to the expectations of Digital Governance theory (Garson, 2015) which states that information technology can improve transparency and efficiency of budget management. However, this insignificance is due to two main factors: first, the inequality of technological infrastructure in West Papua, especially in remote areas such as Maybrat Regency and the Arfak Mountains, where the average utilization of SIAKD is still below 0.75. Limited internet access, lack of supporting devices, and low digital literacy of apparatus are the main obstacles to system optimization. Second, there is a severe multicollinearity between accountability and technology (VIF = 42.686; r = 0.987) due to government policies that combine both aspects in the APBD management program. This causes the regression

coefficient of technology to become unstable, as the effect "overlaps" with accountability. Nonetheless, these findings do not completely negate the role of technology. The implementation of SIAKD in areas with adequate infrastructure (such as Sorong City) shows an increase in the efficiency of financial reporting. However, overall, infrastructure inequality and reliance on integrated programs (accountability-technology) indicate that SIAKD has not been able to stand as an independent factor in improving the effectiveness of PAD in West Papua. For this reason, policy interventions are needed that focus on:

1. Digital infrastructure development is widespread in remote areas.
2. Training of apparatus capacity in operating SIAKD.
3. Evaluate the design of government programs to minimize multicollinearity between variables.

4. CONCLUSION

This study shows that of the three variables tested—transparency, accountability, and technology utilization—only accountability has a significant and positive effect on the effectiveness of APBD management in West Papua. These results strengthen the theory of public accountability (Bovens, 2018) which emphasizes the importance of public accountability in improving regional financial performance, especially in remote areas. In contrast, transparency and technology do not show significant influence even though both are theoretically recognized as an important part of Good Governance. The analysis also found a high multicollinearity between accountability and the other two variables, as well as strong outliers that affected the stability of the regression model.

Theoretically, these results illustrate that transparency tends to act as a mediator for accountability, rather than as an independent variable that stands alone, while technology has not been effective due to infrastructure limitations in underdeveloped areas such as Maybrat and the Arfak Mountains. The practical implications of these findings include the need to focus on strengthening accountability systems through participatory audits and human resource capacity building, as well as encouraging transparency and digitalization that is integrated with public engagement. Local governments need to adjust financial management strategies to local geographical and structural contexts so that the principle of value for money can be achieved optimally.

This research contributes to the development of regional financial governance literature, especially in the context of disadvantaged regions. The limitations of the study such as limited sample counts, extreme outliers, and high multicollinearity are important notes for future studies. It is recommended that future research consider the integration of indicators, the use of alternative statistical methods such as ridge regression, as well as qualitative approaches to explore contextual factors that are not quantitatively reachable. Thus, the effectiveness of APBD management can be analyzed more comprehensively and applicatively in various regions of Indonesia.

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